CLIMATE COLLECTIVE



Measuring what Matters: The Handprint Approach for Impact Measurement of Early-Stage Climate Tech Startups

By Climate Collective Foundation

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DISCLAIMER

THE FULL PAPER SHOULD BE REFERENCED AS FOLLOWS:

CCF (2026) “Measuring What Matters: The Hand print Approach for Impact Measurement of Early Climate Tech Startups” .

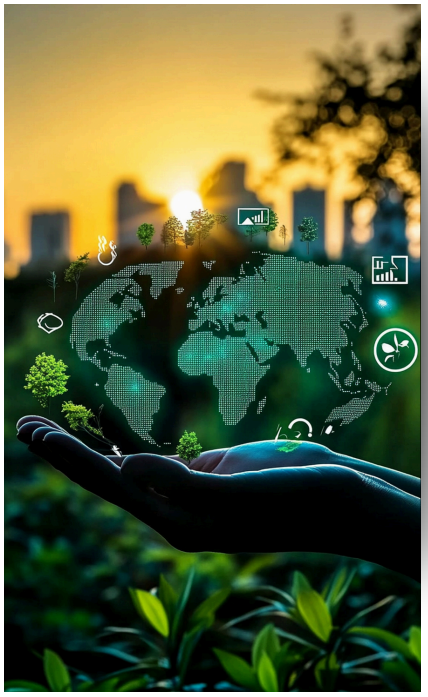
Executive Summary

This paper, 'Measuring what Matters: The Handprint Approach for Sustainable Growth in Early-Stage Businesses' introduces the **Handprint Methodology for Climate Tech Startups**, developed by Climate Collective for impact measurement and reporting of climate tech startups.

The paper presents the mechanisms to tailor the methodology for the unique challenges of early-stage climate tech startups. Furthermore, this paper seeks to strengthen the credibility of the Handprint Methodology by addressing potential gaps and offering strategies to navigate the associated challenges. Efforts have also been made to provide actionable insights into the benefits and challenges of using this methodology from our experience with 50+ startups, demonstrating at the same time how we have addressed these challenges.

The **objective of this paper** is to help ecosystem players, particularly investors and entrepreneur support organizations (ESOs), **to relook into impact assessment processes from the lens of Handprint Methodology** and identify ways to integrate the same into impact assessment work for their portfolios. As an ecosystem orchestrator, Climate Collective aims to support this Handprint Methodology to reach a broader set of stakeholders to adopt more accessible, effective and standardised impact assessment across the climate tech startup ecosystem.

Problem Statement



Climate technology, commonly referred to as climate tech, encompasses products, services, and innovations that address climate change through mitigation, adaptation, and enabling climate action. While there is no single universally accepted definition, leading organizations converge on these broad objectives.

The United Nations Framework Convention on Climate Change (UNFCCC) defines climate technologies as technologies that reduce greenhouse gas (GHG) emissions or help societies adapt to the impacts of climate change, while also recognizing the role of "soft technologies" such as knowledge, management practices, and capacity building. Similarly, the OECD describes climate technologies as innovations that support climate change mitigation and adaptation, distinguishing them from the broader categories of clean or green technologies by their explicit focus on climate outcomes. Industry perspectives, including PwC's State of Climate Tech, further recognize technologies that reduce or remove emissions, strengthen adaptation, and improve our understanding of climate systems through data, monitoring, and analytics.

Building on these perspectives, the Climate Collective Foundation (CCF) adopts a systems-oriented view of climate technology that reflects the interconnected nature of climate challenges and solutions. At CCF, we organize climate technologies into three complementary domains: Decarbonisation, Adaptation & Resilience (A&R), and the Circular Economy.

Decarbonisation encompasses solutions that reduce, avoid, or remove greenhouse gas emissions across sectors, supporting the transition toward a low-carbon economy. Adaptation & Resilience (A&R) focuses on strengthening the capacity of natural and human systems to anticipate, withstand, adapt to, and recover from the impacts of climate change. This domain includes innovations that advance climate-resilient agriculture and food systems, water security and management, and resilient built environments and urban systems, helping communities, ecosystems, and infrastructure become more resilient to increasing climate risks. Circular Economy encompasses solutions that improve resource efficiency, extend the useful life of products and materials, minimize waste, and reduce lifecycle environmental impacts by keeping resources in productive use for as long as possible.

While each of these domains addresses a distinct dimension of climate action, they are inherently interconnected. For example, circular economy solutions often contribute to decarbonisation by reducing demand for virgin materials and energy-intensive production, while resilient water and agricultural systems can enhance both adaptation outcomes and long-term emissions reductions. Recognizing these interdependencies enables a more comprehensive understanding of how climate innovations generate environmental value.

Gaps in Accessible and Contextualised Impact Measurement: While impact measurement tools and frameworks are increasingly accessible, their largely self-guided nature often makes adoption challenging for startups. Limited flexibility to accommodate diverse business models, along with data sets that are not adequately customized for developing country contexts, remain key barriers. As a result, majority of startups are unable to effectively use existing tools to calculate and report their climate impact, particularly due to limited technical expertise within their teams.

Need for Forward-Looking Projections: For early-stage startups with limited current impact, it is crucial to present impact projections alongside documented on-ground achievements. This helps illustrate their potential for meaningful impact in the years ahead and provides a more comprehensive picture of their future contributions.

Data Accessibility Barriers: Startups often struggle with limited access to quality data, which hinders their ability to arrive at accurate impact calculations.

Budget Constraints: A majority of the startups lack sufficient financial resources to engage external consultants for measurement and validation.

Challenges with Metrics: While developing the Climate Metrics Guide with the Aspen Network, our surveys with ESOs and impact investors revealed that startups in their portfolios frequently rely on vanity metrics - superficial indicators that look impressive but fail to reflect substantive impact. Moreover, in-house impact measurement often does not align with international standards or sector-specific norms.

Beyond Mitigation: The Measurement Challenge of Adaptation and Resilience

As climate impact measurement expands beyond mitigation, startups increasingly face challenges in capturing adaptation and resilience (A&R) outcomes, which are inherently more complex to define and quantify. Unlike emissions reduction, these impacts are often highly localized, intersectional and realized over longer timeframes, making them harder to standardize and measure.
A&R indicators are broad and less standardized, with multiple potential Key Performance Indicators (KPIs) spanning climate risk reduction, livelihood security, adaptive capacity, and community resilience. Startups often struggle to identify which indicators are most material to their solution and to construct a coherent impact narrative around them. This increases the resource burden and complexity of measurement, particularly for early-stage ventures with limited capacity.

These findings underscore the pressing need for practical solutions to address these challenges and enable startups to effectively measure, communicate, and enhance their climate impact.

How has **climate impact** generally been **measured** in the ecosystem?



Climate impact in the broader ecosystem has traditionally been measured through carbon footprint calculations, which quantify the negative greenhouse gas (GHG) emissions associated with an organisation's operations, products, and services. This approach is widely adopted by corporates and large enterprises to understand and manage their environmental impact.

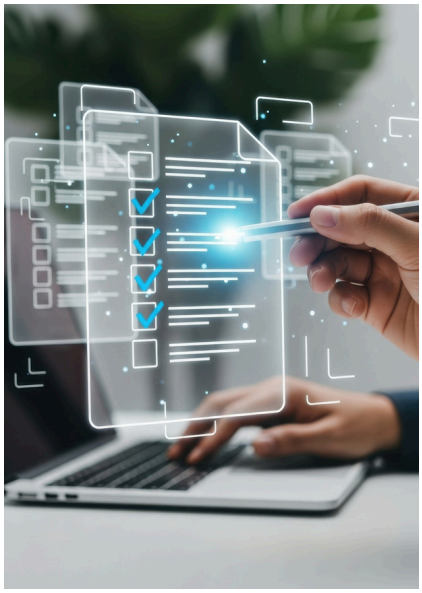
How did the concept of **'Handprint Approach'** originate?

The Handprint Approach concept was introduced by UNESCO in 2007 as part of its sustainable development education efforts, with the objective of encouraging positive environmental actions that reduce ecological footprints. The concept was later expanded by researchers and further systematised by LUT University and VTT Technical Research Centre of Finland, who developed guidelines for measuring handprints as the positive environmental and climate impacts created by products and services.[1] Unlike footprint approaches that focus on reducing negative impacts, the handprint framework emphasises the benefits generated through improved or alternative solutions. The methodology is aligned with the principles of Life Cycle Assessment (LCA).



However, rather than conducting a full lifecycle assessment, the handprint approach focuses on the most material and decision-relevant stages of the lifecycle, allowing for a practical comparison between a baseline (existing) and an improved solution while maintaining methodological rigour without comprehensive LCA.

Adaptations to the Handprint Approach



Globally, handprint-oriented approaches are applied across sectors such as industrial manufacturing, energy efficiency, and the built environment, where products and services create measurable environmental benefits over conventional alternatives. Companies such as SKF[2] and Humanscale[3] illustrate this by designing solutions that improve energy and resource efficiency, demonstrating how product innovation can generate positive climate outcomes beyond footprint reduction.

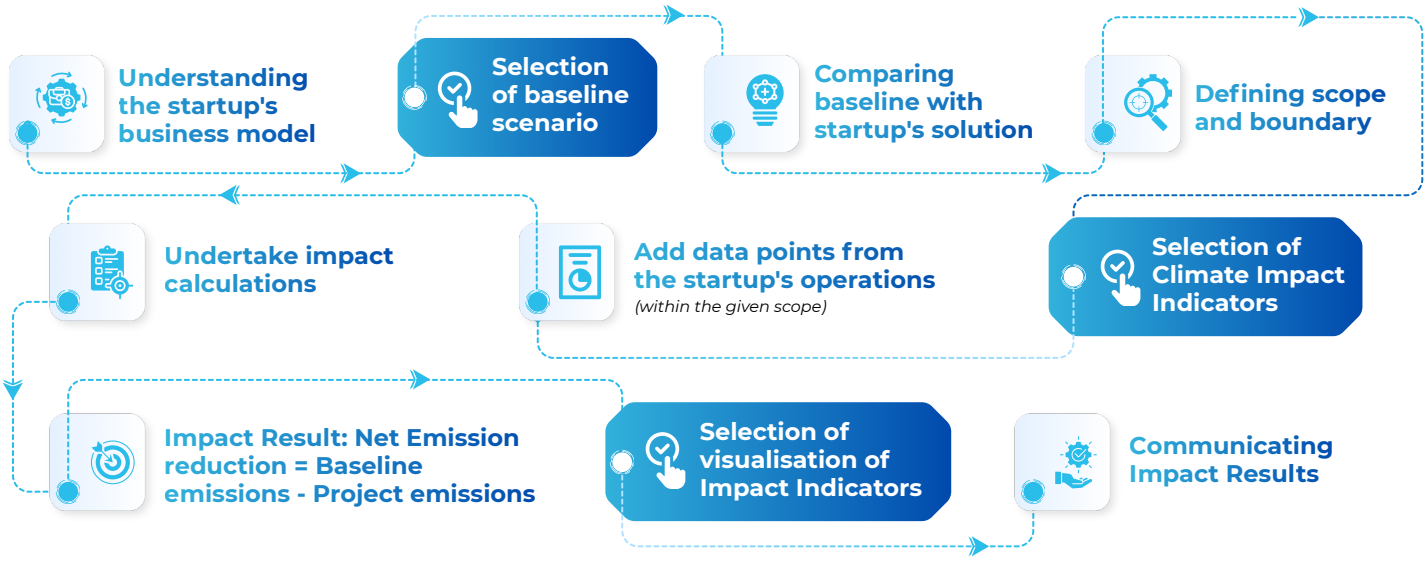
[1] *https://publications.vtt.fi/julkaisut/muut/2021/Carbon_handprint_guide_2021.pdf*

[2] *SKF (Svenska Kullagerfabriken AB) is a global leader in bearings, seals, and related services, committed to reducing the environmental impact through innovative solutions. The SKF BeyondZero portfolio, as highlighted by CEO Tom Johnstone, represents a significant step in helping customers achieve measurable environmental benefits, such as energy savings and reduced emissions.*

[3] *Humanscale, a leading US-based designer of ergonomic products, integrates a Net Positive philosophy into its operations, focusing on creating positive environmental impacts alongside reducing negative ones. Its innovative campaigns address resource conservation and waste management at scale.*

Our Handprint Methodology for **Climate Tech Startups**

How we have modifed the Handprint Approach to the Climate Tech startup ecosystem



The modification above reflects Climate Collective Foundation's adapted Handprint Methodology for Climate Tech Startups approach, **developed specifically for climate tech startups**, and differs from the original Handprint Approaches in its scope and application. System boundaries are defined based on the most material sources of impact across the value chain, depending on the startup's solution and where it has operational control or influence in reducing emissions compared to the baseline. Rather than conducting a full lifecycle assessment, this approach **focuses on the stages that most significantly drive climate outcomes**, ensuring practical applicability for early stage startups while maintaining consistency between the baseline and the innovative solution.



It is important to note that this modified adaptation is designed for the specific needs of climate tech startups only. Within this adapted scope, assessments are limited to climate tech products and services, where climate impact is driven by the core innovation rather than organizational operations. Each product or service is assessed independently, with impacts combined only where comparable metrics exist. Assessments typically begin with the primary solution at the prototype or MVP stage and expand as additional offerings mature.

Handprint contributors are identified across material inputs, energy use, water use, transportation, and waste management within the defined scope where relevant to the solution. Climate impact indicators are defined in forms that are directly relevant to climate outcomes and easily interpretable by investors and clients, such as net greenhouse gas (GHG) emissions reduced or avoided, water saved, waste diverted or managed, and energy savings.



This approach differs from traditional Handprint methodologies, which adopt a broader scope across the entire value chain and incorporate a wide range of indicators, often resulting in significant data collection requirements. In contrast, this framework prioritizes a focused set of climate-relevant, decision-useful metrics that are most material for startups and investors, enabling practical application with reduced data burden.

To ensure practical adoption by early-stage climate tech startups, the methodology is designed to balance methodological rigor with usability by taking the following important points in consideration.

- Data inputs are aligned with typical startup data availability, avoiding reliance on complex lifecycle datasets or specialized expertise.
- The framework prioritizes accessible and practical parameters, enabling consistent and scalable impact assessment. This approach allows startups to generate credible impact estimates while minimizing reporting burden.

At the same time, credibility and transparency remain central to the methodology.

- Startups are required to provide supporting documentation, such as:
  - Operational records
  - Product specifications
  - Deployment data
  - Invoices
  - Third-party certifications
- This documentation is used to validate assumptions and calculations.
- Based on the validation process, impact outputs may include:
  - Impact certificates
  - Impact reports
- This strengthens startups' ability to communicate their impact with confidence, credibility, and traceability to investors and stakeholders.

How has the new Handprint Methodology benefited startups, and what are the challenges?



Application of the Handprint Methodology in our Impact Offerings

Leveraging the Handprint methodology, CCF has developed a **simplified and structured approach** to impact measurement tailored for early-stage climate tech startups. This approach translates the core principles of the Handprint Methodology into practical, user friendly assessment templates **that align with individual startup business models, rely on minimal yet material data inputs, and embed standardised calculation logic.**

The methodology is **particularly suited for quantifying the climate impact of a startup's core product or service during early stages** — including product development, pilot deployments, and initial commercialisation — enabling startups to generate credible, decision-relevant estimates of their positive climate contribution without undertaking a full lifecycle assessment.

In addition to this, to ensure the credibility of the self-reported impact as well as their acceptability by the ecosystem, **Climate Impact Certificates** have been launched. To avail an impact certificate, startup needs to calculate its climate impact using any of our tools. This is followed by meticulous data and document verification in order to check the correctness and accuracy of the self-reported impact by the startups. Post this verification process, certificate is issued to the startups that can be showcased to investors to attract more impact-driven capital.

Benefits and limitations of our approach

Our adoption of the Handprint Methodology provides startups with an accessible and effective tool to measure and report their positive environmental impact.

Attracting Investment:

Quantifying impact enables early stage startups to attract the right investors, often serving as the first step toward aligning with capital that values both financial and climate outcomes.





Positive Branding and Differentiation:

Startups can leverage the impact quantified to gain competitive advantage in the market and differentiate themselves from their competitors.

Early Adoption and Leadership:

Startups can position themselves as leaders in sustainability, potentially setting industry standards and gaining a competitive edge.



Limitations and our ways of addressing them:

While the approach offers significant advantages, there are certain limitations that must be addressed to ensure its full potential.

01 Data and Baseline Challenges

Startups face the difficulty in accessing the necessary data and establishing baseline values, which can hinder the creation of a credible handprint.

To address this, we engage directly with in-house impact professionals or relevant team members during the development and application of the assessment framework. This enables us to understand context-specific constraints and tailor the methodology accordingly. For instance, where a startup does not have access to a particular data point, we identify appropriate proxies or alternative methods for data capture.

Additionally, data entry fields are customized based on the information realistically available to the startup, while calculation logic, formulae, and unit conversions are embedded within the framework. As a result, startups are typically required to input only a limited number of core data points (generally 8 - 10), without needing to manage technical conversions or complex calculations, thereby ensuring both methodological rigor and ease of use.

02 Limited Awareness:

The novelty of the handprint approach introduces a potential challenge for startups, as it often requires additional efforts to educate potential investors, partners and customers—an undertaking that can be difficult given limited marketing resources.

In addition to tool demonstrations, we also provide the startups with 1-2 pager crisp impact reports in the form of a document/a slide that showcases how the self-calculated impact can be properly communicated to stakeholders. Through all these efforts, we ensure the easier adoption of the tool built on the handprint methodology.

03 Risk of Misinterpretation:

Another key consideration is the potential misperception of the handprint if not communicated effectively, posing a risk to a startup's reputation.

We address this by prioritizing transparency through clearly defined scope and boundary sections, ensuring full disclosure of what is included and excluded. Furthermore, the methodology is highly adaptable, with our tools designed to scale according to a startup's stage of development. For later-stage startups, the methodology allows for an expanded scope and incorporation of additional data points, while still being flexible enough to support early-stage startups, from prototype to commercialization. This versatility makes the Handprint Methodology a robust solution for startups at any stage, ensuring credibility and reducing the risk of misinterpretation.

Way Forward



To advance the adoption of the Handprint Methodology, there is a need to solidify its position as a transformative approach in the climate tech ecosystem. Going forward, the methodology could also include structured guidance for integrating intersectional social KPIs alongside climate metrics - especially in sectors such as adaptation, resilience, and decentralized climate solutions. By demonstrating its seamless integration with established approaches like the Carbon Footprint Method and Life Cycle Assessment (LCA) as well as addressing their limitations, we can showcase its unique value proposition to stakeholders.



The journey would begin with targeted engagement. Investors, as key decision-makers, need to see how this methodology aligns with their impact assessment goals and enhances the credibility of their portfolios. Simultaneously, collaborating with startups will provide real-world validation, allowing us to refine the methodology and tailor it to the diverse needs of the ecosystem.

To enable broader adoption, we must focus on building accessible resources—tools, templates, and case studies that simplify its application. Training programs and hands-on workshops can further bridge the gap, empowering stakeholders to seamlessly integrate the methodology into their processes.

Community building will be critical. By fostering a network of practitioners, we can create a space for sharing experiences, addressing challenges, and driving innovation. Partnerships with policymakers and thought leaders will amplify the methodology's reach, embedding it into sustainable development standards and advancing its credibility.

Feedback from pilots and early adopters will guide iterative refinements, ensuring the methodology evolves to meet emerging challenges. Clear metrics will help us measure progress, from adoption rates to the tangible impact it creates within portfolios and projects.

By focusing on these strategic priorities, we **aim to establish the Handprint Methodology as a cornerstone of impact assessment in the climate tech landscape** - driving meaningful change, fostering collaboration, and paving the way for a more sustainable future.

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To know more about CCF:

https://www.linkedin.com/company/climatecollectivenetwork/

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