# Chapter 1 Introduction

## 1.1 Background and Motivation

In 2015, the United Nations launched the Sustainable Development Goals (SDGs) [1] a set of 17 global goals intended to end poverty, reverse biodiversity loss and environmental degradation, and ensure prosperity by 2030. However, the success of these goals depends heavily on the active participation of individuals, communities, and organizations.

In order to achieve these effectively, they must be localized within countries [2] meaning, sub national entities like local governments must contribute in implementing efforts to achieve the SDGs. A number of scholars have looked into this phenomenon. As an example, Krantz and Gustafsson [3] conducted a study of localizing SDGs in municipalities within Sweden through an integrated approach. They recognised that localization of the SDGs is still a novel realm and that localization may need a significantly large systems view on sustainability. Lmassah and Mohieldin [4] focused on localizing frameworks of SDGs in the African cities, whereas Buyana et al [4]. talked about localizing SDGs in the African cities. They discovered that numerous frameworks do not regard the interconnections and intersections between SDGs and that the nature and historical specificity of forces influencing urbanisation are highly variable. It is due to this realization that a number of groups have organized ad-hoc initiatives and grassroots projects specifically aimed at mobilizing the individual citizen to actively participate in the success of the SDGs on a daily basis. An example is the 170 Series that was introduced by the Perception Change Project of the UN whereby it also offers 10 recommendations per goal of the 17 SDGs of what an individual can do to achieve these goals on an everyday basis [5] . The initiative offered an easy way of empowering all the people to participate in realization of the SDGs. However, individuals did not have an incentive to act and do so collectively, coherently, sustainably to provide a positive large-scale contribution to the SDGs.

Despite these examples, many individuals [6] have great difficulty engaging meaningfully with sustainability efforts. Frequently individuals cite cost, inconvenience and the fact that sustainability activities are disconnected from day-to-day activities as being some of the primary reasons for disengagement and inability to see individual impact. [7]

## 1.2 Problem Statement

A global initiative to address resource depletion, climate change, and the unsustainable nature of contemporary life is known as the Sustainable Development Goals (SDGs). Under the "no one left behind" theme, the Sustainable Development Goals (SDGs) comprise 169 targets and 17 global goals. Early efforts following the 2015 adoption of the SDGs produced positive trends. However, over the last three years, the COVID-19 pandemic, the conflict in Ukraine, and climate-related catastrophes have slowed or even reversed the SDG's progress. According to an analysis of 140 targets for which data is available, more than 30% have either experienced slow movement or regressed below the 2015 baseline1, and half of these targets are moderately or severely off track. No nation is expected to meet its targets by 2030, demonstrating the universal lack of progress with the SDGs. The past three years have demonstrated that efforts to accomplish the SDGs need to be resilient to unforeseen negative global phenomena and sustainable in the face of them.

The urgency to meet the 2030 SDGs is at its peak, yet widespread public engagement in sustainability practices remains low. Traditional communication strategies and policies often fail to resonate with end-users who feel disconnected from global agendas. This results in low participation, minimal behavioral reinforcement, and missed opportunities to scale community-based sustainability initiatives.

The main issue is that there isn't a smooth, all-encompassing solution that considers people's financial and behavioral characteristics and is data-driven to enable people to take action in their daily lives to meet the SDGs. Given the complexity of the SDGs, the solution should be multidisciplinary, adaptable, and simple for the average person to understand. The solution should be simple to implement, adaptable enough to consider the circumstances of various nations, and lead to widespread, coordinated action. In order to support top-down and bottom-up sustainable initiatives and support data-driven policy, it should enable the transparent collection of data. Lastly, the solution should be resilient to unforeseen negative global phenomena and sustainable in the face of them.

## 1.3 Objectives and Scope

The primary objective of this research is to develop a web-based sustainability platform the Personal Accounting Climate Economic Service (P.A.C.E.). This is a novel financial system empowering individual to take customized action to achieve the sustainable development goals on a personal level whilst gaining economic benefits and ensuring cohesive large scale positive impacts on social, environmental, and economic sustainability. Individuals (Clients) would sign into the system and be given a list of daily activities to complete. Each activity will have associated with it a significant economic benefit that the individual would gain if they completed the specific activity. All activities are meant to be simple yet contribute to the overall achievement of the SDGs. The system itself will consist of:

1. A master database for storing client data and used for client analytics,
2. An artificial intelligence system used to design and optimize activities for clients in such a manner as to maximize economic benefits for all clients involved and use data from all clients to determine the next best activity to issue to achieve the SDGs,
3. A reward system for tracking the loyalty scores of clients and a blacklist database for tracking clients who are performing poorly and other clients of interest who have yet to be contracted.

System that bridges the gap between awareness and action. The system aims to:

* Encourage participation in sustainability through interactive tools for individuals and organizations.
* Track and display contributions toward SDG-aligned activities such as donations, volunteering and recycling.
* Provide feedback and rewards using gamification, analytics, and a leaderboard system.
* Support organizations (e.g., universities) with dashboards for ESG goal setting, KPI tracking, and performance comparison.

The scope includes both individual users (with features like personal dashboards and Leaderboards) and corporate users (offering analytics dashboards). The platform also focuses on energy-efficient design, ensuring its own sustainability in terms of technical architecture.