# 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.

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.

It has been recommended that to achieve the SDGs effectively, they must be localized within countries [2] meaning that individuals must actively participate in actions meant to accomplish these goals. Moreover, several 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 daily. An example is the 170 Series that was introduced by the Perception Change Project of the UN that offered 10 recommendations per goal of the 17 SDGs of what an individual can do to achieve these goals on an everyday basis [5] . However, the weakness of these recommendations is that they did not provide incentives to act and do so collectively, coherently, sustainably to provide a positive large-scale contribution to the SDGs.

Aside from the issues mentioned many individuals [6] have great difficulty engaging meaningfully with sustainability because of cost, inconvenience and the fact that sustainability activities are disconnected from day-to-day activities [7].

## 1.2 Problem Statement

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 act in their daily lives to meet sustainable development goals. Given the complexity of the sustainable development goals, the solution should be simple for the average person to understand, simple to implement, adaptable enough to consider the circumstances of various individuals, and lead to widespread, coordinated action. The solution should also enable the transparent collection of data to support top-down and bottom-up sustainable initiatives and support data-driven policy. The problem can therefore be stated as follows:

“Can a platform be created to empower individuals 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.”

## 1.3 Objectives and Scope

The primary objective of this research therefore 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 an 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.

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 efficient design, ensuring its own sustainability in terms of technical architecture.