



# DEW

Big Environmental Change Through Small Digital Cleanup Habits

## FOURBESWU :

Team Leader • An Yeji

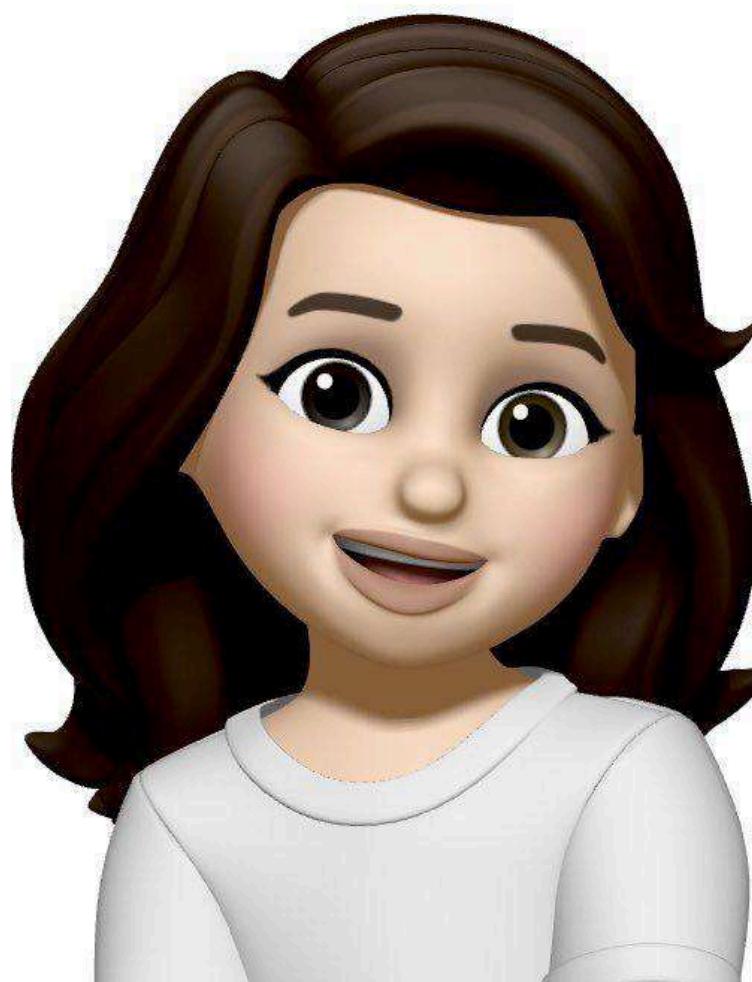
Team Member • Seong Minju

Lee Yeongjin

Lee Yena

Meet Our Team

## TEAM • Fourbeswu



An Yeji

Team Leader • Frontend Developer  
Dept. of Software Convergence



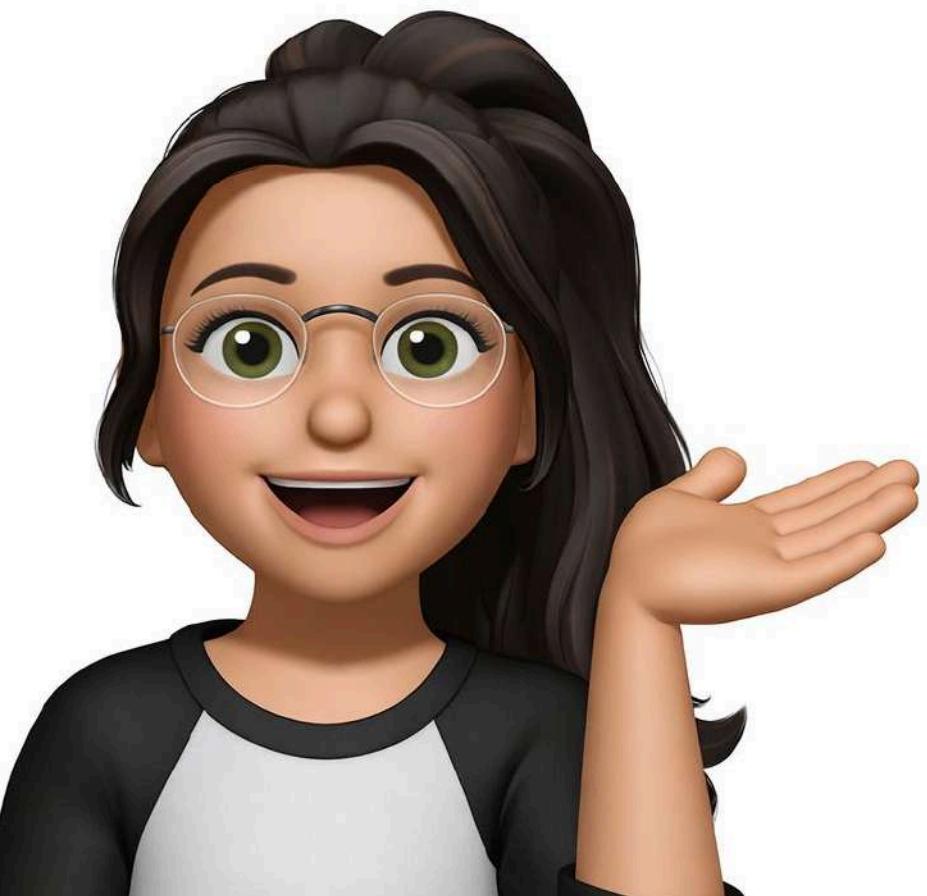
Seong Minju

Backend Developer  
Dept. of Software Convergence



Lee Yeongjin

AI/ML Developer  
Dept. of Software Convergence

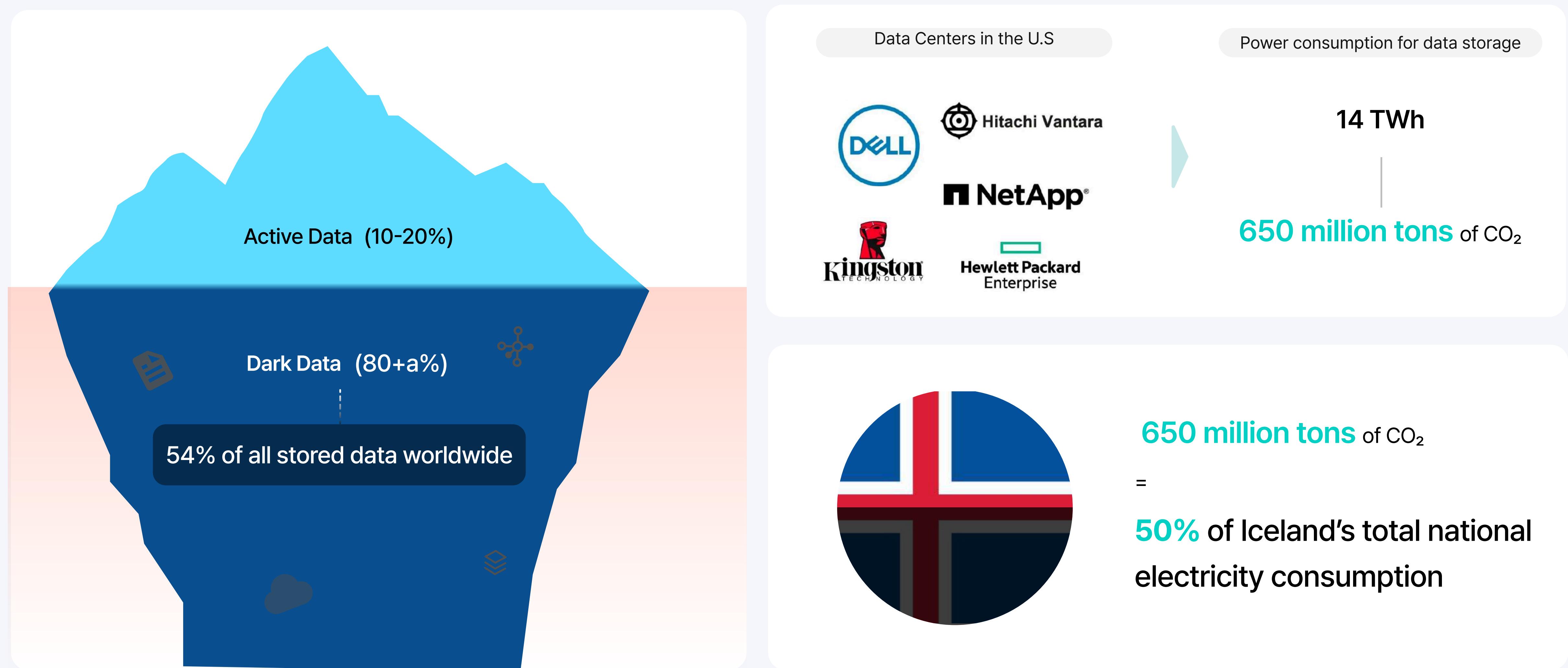


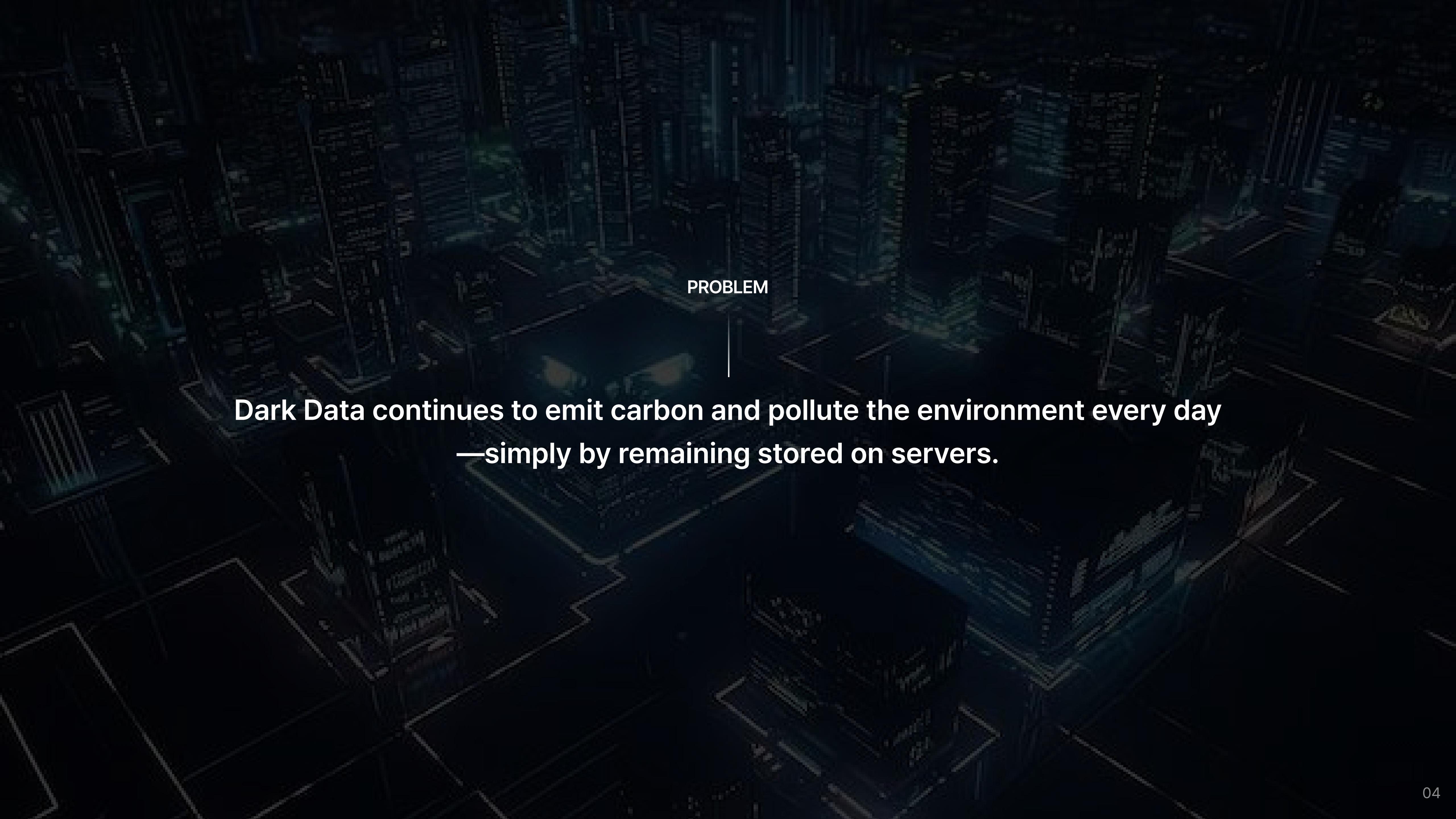
Lee Yena

Lead Planner & UX/UI Designer  
Dept. of Industrial Design

# The new environmental threat of the digital age: Dark Data

We save thousands of photos, files, and emails daily, but most remain as Dark Data that is never opened again. Dark Data is not just a storage issue, it is a hidden carbon pollutant destroying the environment in the digital era.



The background of the slide is a dark, grainy photograph of a server room. The perspective is from above, looking down the rows of server racks. The racks are illuminated by a faint blue light, creating a pattern of vertical lines and highlights against the dark background.

**PROBLEM**

**Dark Data continues to emit carbon and pollute the environment every day  
—simply by remaining stored on servers.**

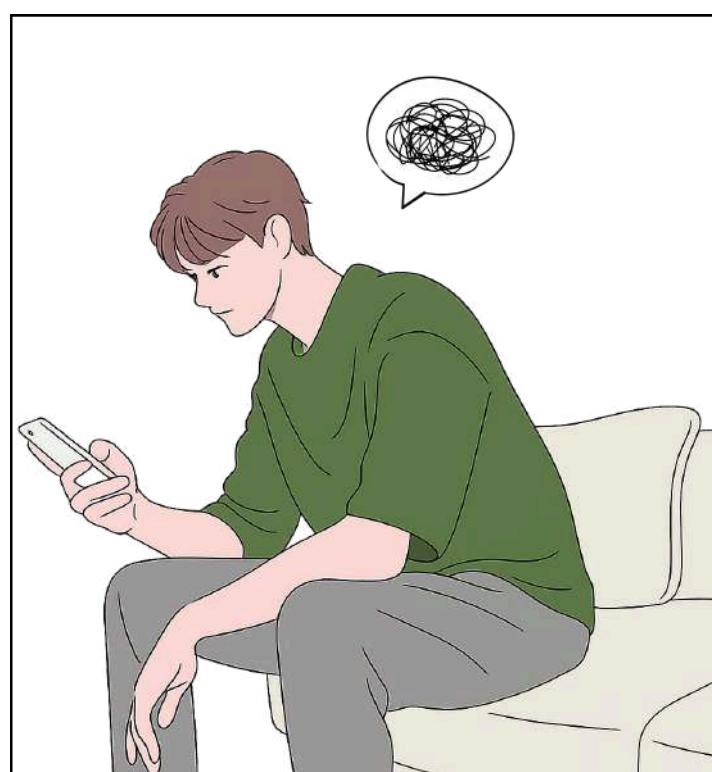
# The Limits of Analog Behavior in a Digital World

We use smartphones and clouds, but cleanup is still stuck in an analog manual deletion process.

While we procrastinate due to the hassle, data piles up, and carbon increase daily.

2025. 12. 16 ~ 2025. 12. 21 (N=104)

Vicious cycle



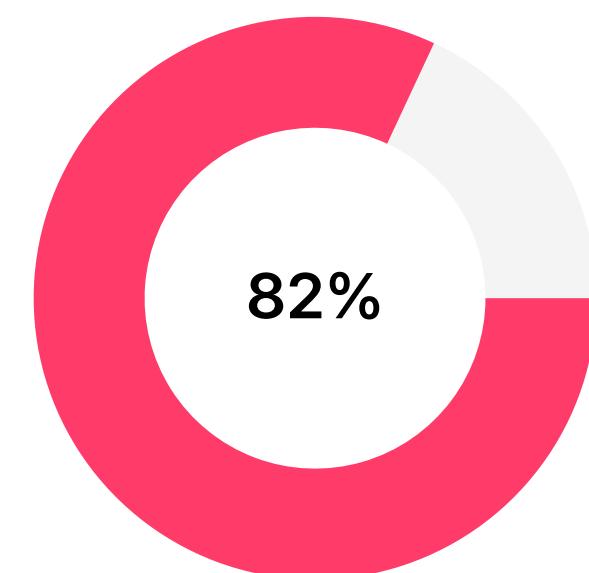
The Hassle of Organizing



Delaying Deletion

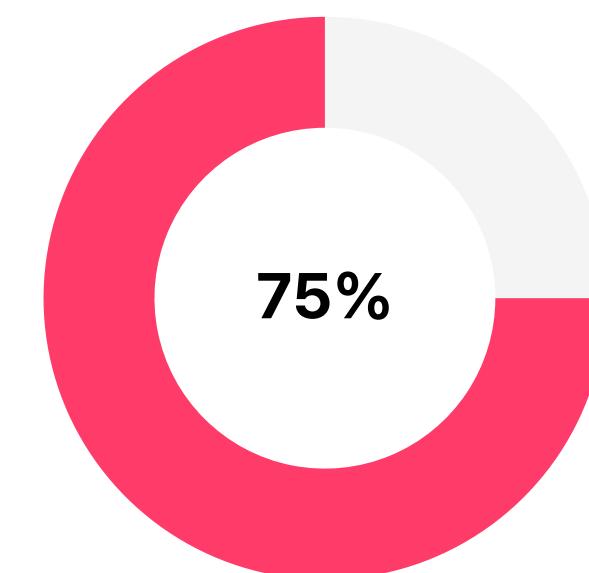
People's awareness of digital carbon emissions

Awareness



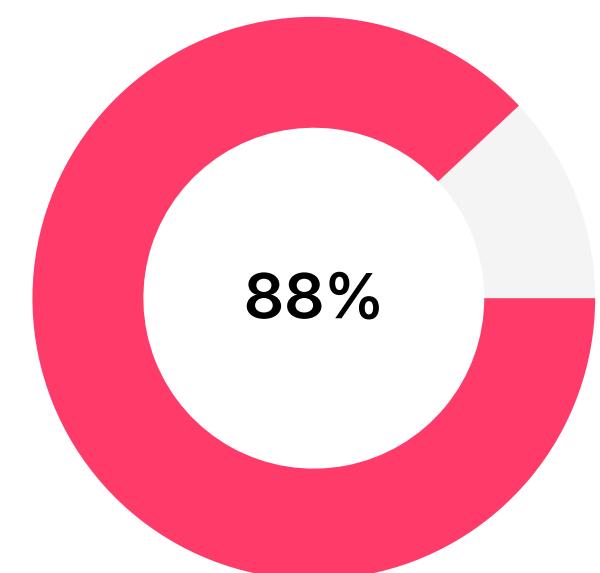
"I didn't know digital data emits carbon."

Habit



"I pay for more cloud storage instead of deleting files."

Barrier



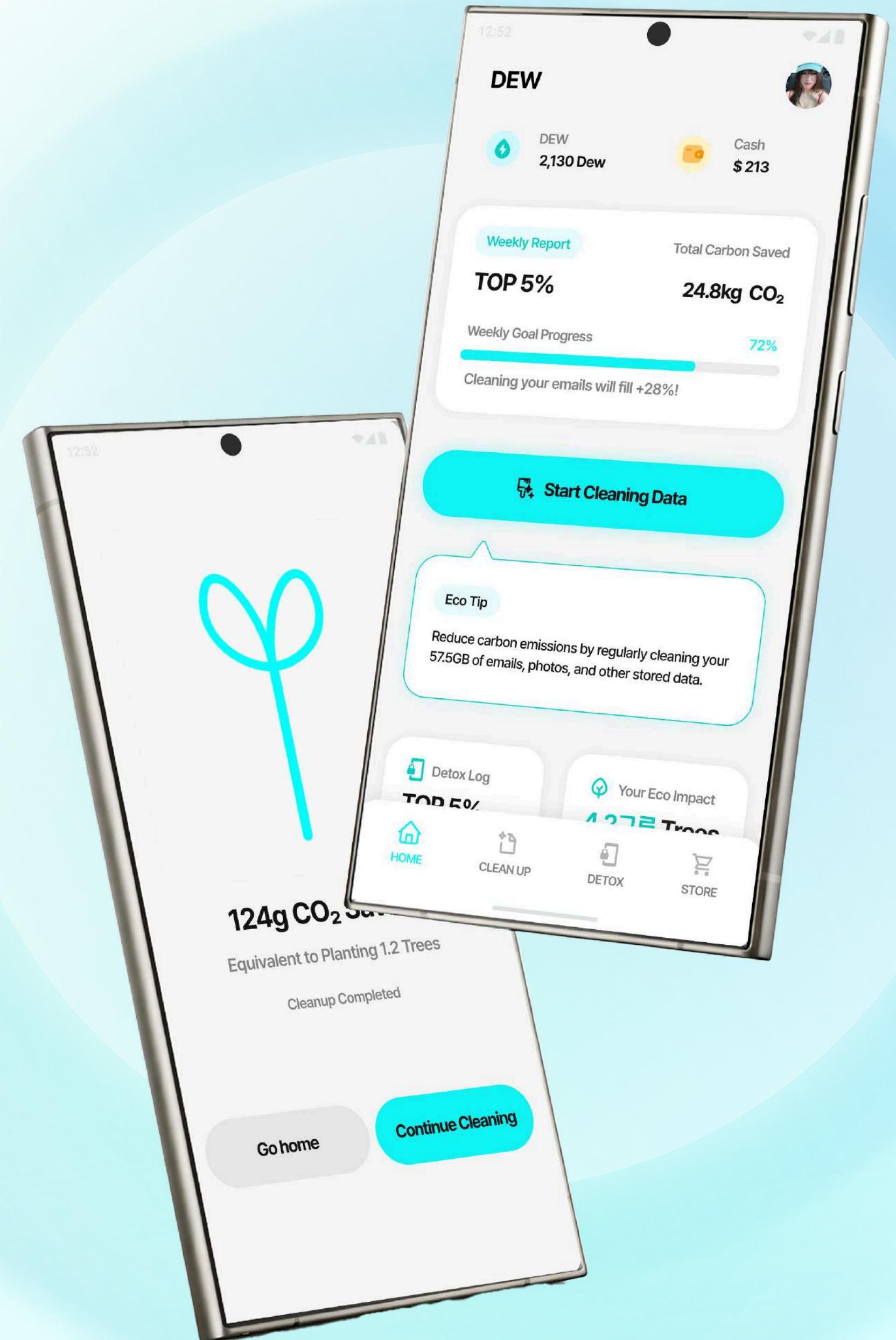
"I want to clean up but don't know where to start."

We procrastinate due to the hassle, data continues to pile up endlessly, and this dark data continues to generate hidden carbon emissions and maintenance costs.

Lack of awareness leads to storage purchases over deletion, causing data to grow endlessly.



**Connecting small digital clean-ups  
to carbon-reducing actions—  
creating a sustainable butterfly effect.**

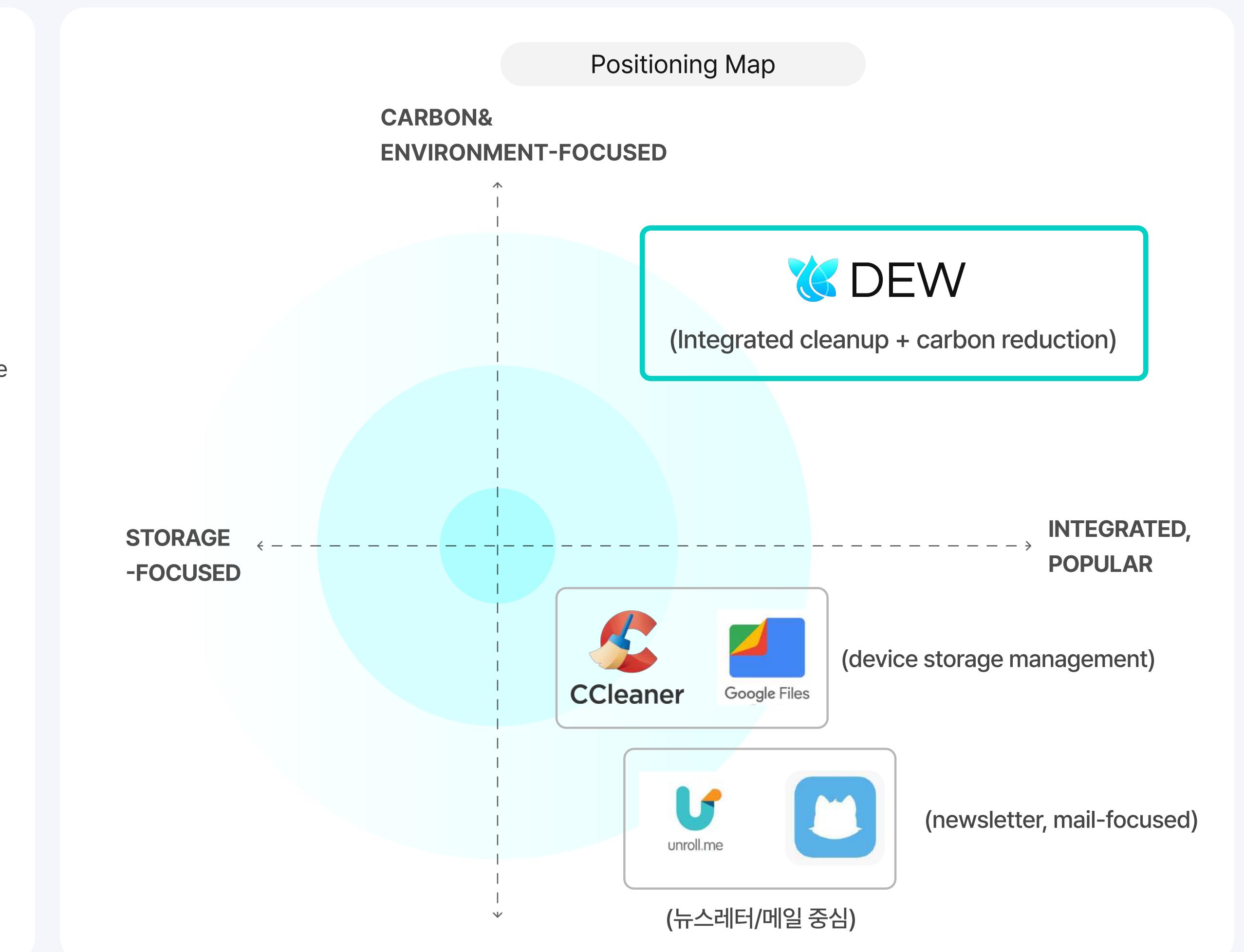


# Competitor Research: Defining Insight Out's Direction and Opportunities

Existing services focus only on storage space or specific features, failing to solve the overall data growth problem.

DEW offers a new solution through integrated data analysis, AI-powered automation, and carbon reduction visualization.

Competitor Research			
	 	 CCleaner	 Google Files
Key Features	Auto-sorting, Spam tabs	Duplicate deletion, Secure storage space	Newsletter unsubscribe
Limitations	Limited to email, Manual deletion	Lacks integrated analysis of cloud/photos/files	Only handles email newsletters
Differentiating Factors	Does not provide carbon reduction metrics	Integrated cleanup of all data types, point rewards	Organize all types of data, form habits through organizing and synchronizing



# SWOT Analysis

## 1. Intuitive Rewards

Convert **deletion actions into points** to provide motivation, allowing **users with low environmental awareness** to continuously engage from an app-tech perspective.

## 2. Digital Wellness

Beyond simple environmental protection, it simultaneously offers a sense of **personal liberation and efficacy** by freeing up smartphone storage and reducing notification stress.



## 1. Spread Of ESG Management

The trend of companies needing to manage environmental impacts, including digital carbon, is strengthening, leading to increased demand for digital reduction solutions.

## 2. Strong Government Support Policies

With the government **reinforcing carbon reduction and digital transformation policies**, institutional and financial support for carbon-saving technologies and services is expanding.

## 1. The Paradox Of AI-Driven Energy

Running AI to delete data consumes additional power.

AI uses power in bursts during execution, but storing data continuously emits approximately 14.2 kg of CO<sub>2</sub> per 1 GB in the cloud. For unnecessary data left untouched for 3-5 years or more, using AI once to clear it is more efficient in terms of long-term energy and carbon.

## 1. Skepticism About Effectiveness

There are skeptical views, such as research suggesting that email deletion has little impact on carbon reduction, making it necessary to prove actual carbon reduction effects.

While deleting a single item has minimal impact, actions that reduce unnecessary storage in 100GB or 200GB units have been shown to have long-term carbon reduction effects according to many sources.  
ex) IDC report, Capgemini analysis, etc.

## TARGET

### Primary Target

**Office workers experiencing digital fatigue and data overload.**

People who feel stressed because data like emails, photos, and files keep piling up.

People who know they need to organize their data but put it off because it's bothersome.

People who have experienced a decrease in work efficiency or device performance due to neglected data.

### Secondary Target

**Gen Z wanting easy environmental participation.**

A person who prefers 'small actions' over big gestures.

Someone positive about eco-friendly consumption, challenges, and point rewards.

A person with environmental sensitivity who looks for everyday actions they can change right away.

# Primary



Amy (31 / Female)

**Accumulates Digital Debt  
by paying for storage.**

## Background

- Amy, a 31-year-old woman and a 7-year veteran IT service marketer
- As a marketer with 7 years of experience, she exchanges hundreds of emails and draft files every day for work. The boundary between work and life is blurry, so her smartphone is on 24/7.
- She has a habit of taking screenshots of references she thinks she might need later.
- She gets stressed every time she sees a warning that her iPhone is full.
- She used to delete a few files, but seeing it fill up again quickly, she gave up and now keeps increasing her paid cloud storage.
- She uses a tumbler and diligently sorts her recycling, but is shocked to learn that the data she has accumulated is actually a major contributor to global carbon emissions

## Goal

- When I turn on my phone, I want to feel light and pleasant, not like a 'messy trash can.'
- I want a smart management tool that minimizes the energy needed for organizing and sorts things automatically.
- I want to see with my own eyes how my small organizing actions actually contribute to the environment and be rewarded for it.

## Pain Points

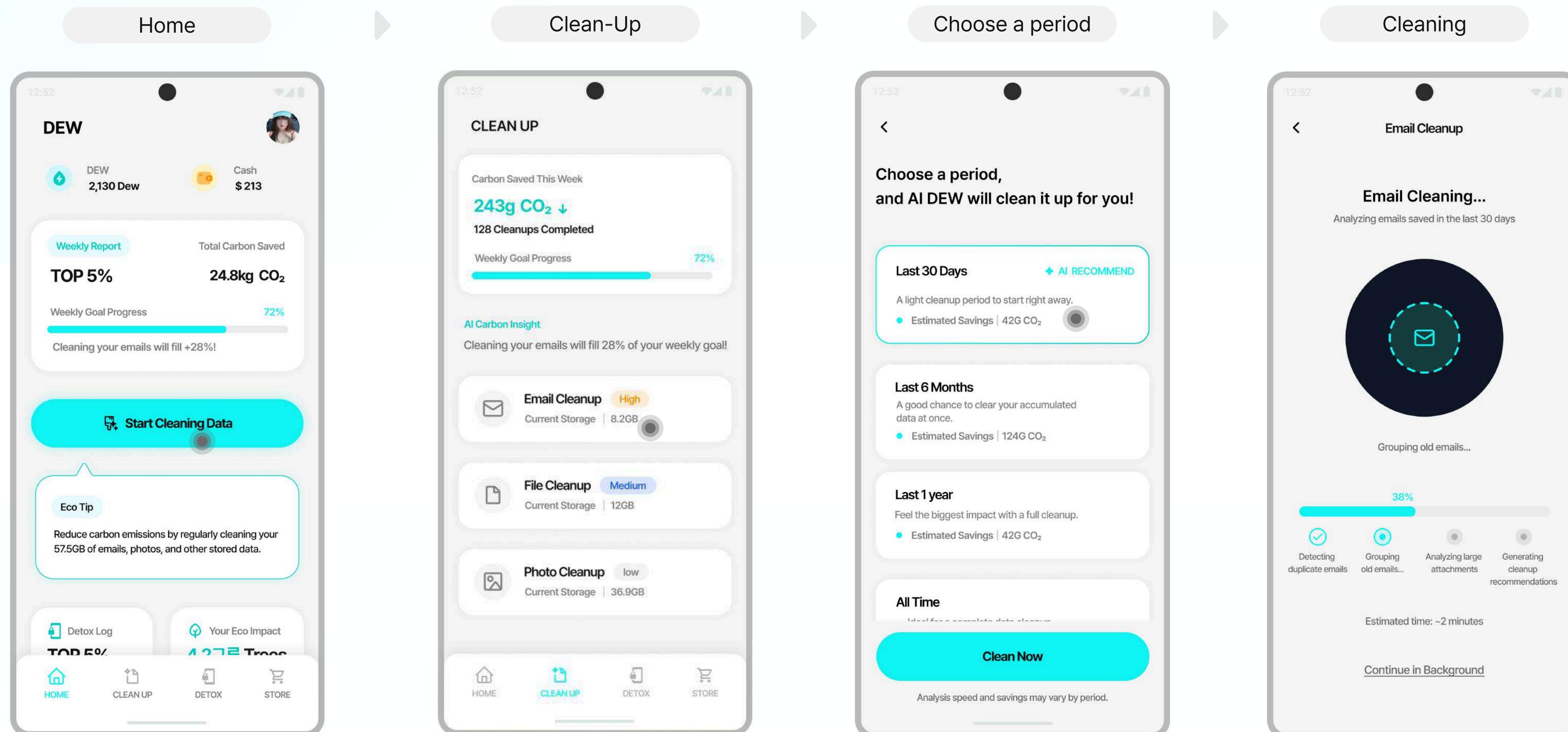
- The data is so vast (30,000 photos, 5,000 emails, etc.) that I don't even know where to start deleting.
- The act of going through the screen after work, when I just want to relax, and selecting photos is seriously stressful.
- Because of storage shortage notifications, I'm accumulating unwanted cloud subscription costs every month.
- The act of organizing itself feels like another kind of labor, so I keep putting it off.

## Needs

- I wish clean up could be fun like a game, or even happen automatically without me having to care at all.
- I hope unnecessary things could be sorted out on their own without me having to expend energy rummaging through data.
- Beyond just freeing up space, I want to see how my actions contribute to environmental issues like carbon emissions and feel a sense of accomplishment.

**STEP 01.****Select items and periods.****AI handles the classification automatically.**

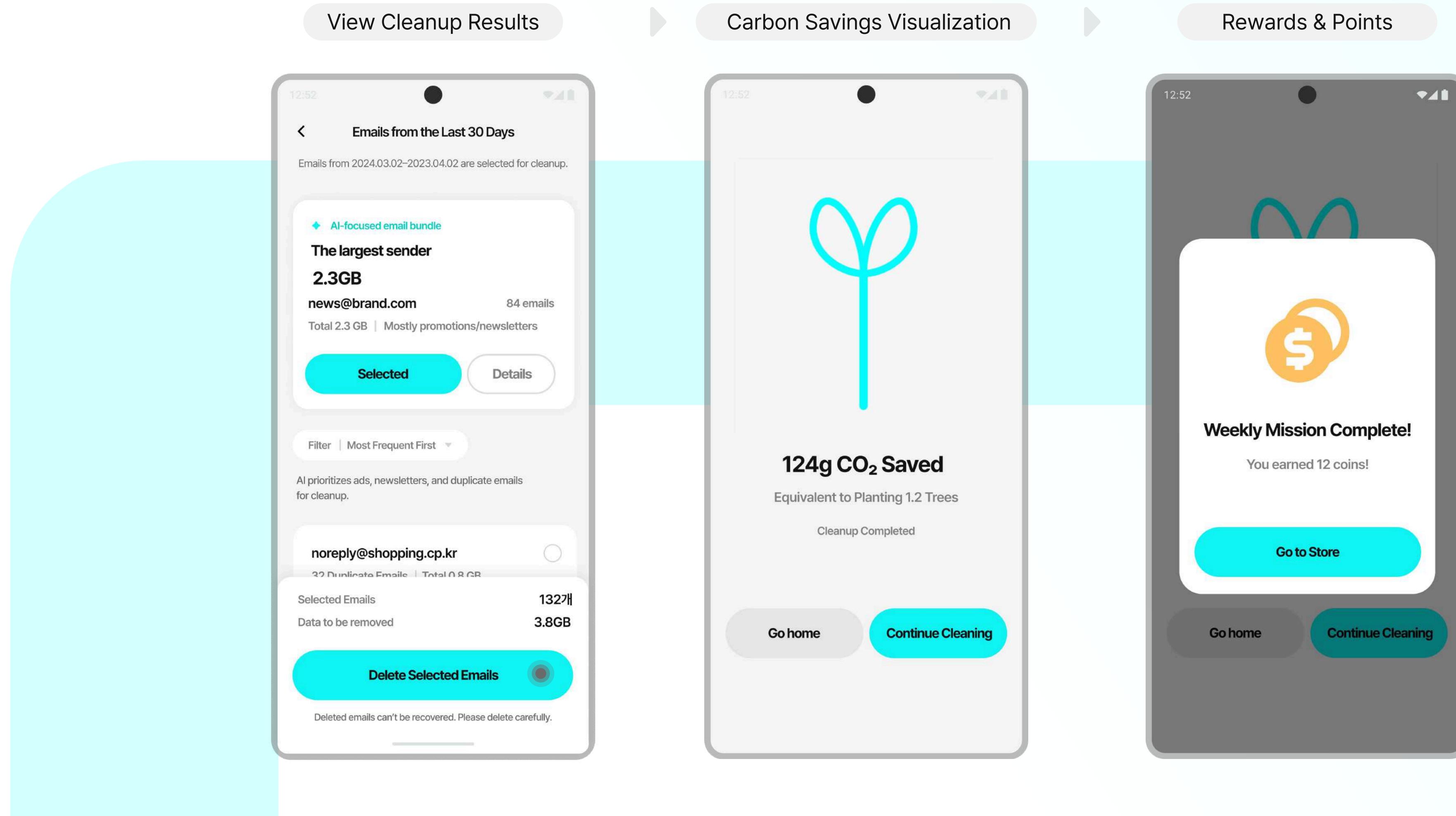
When you select the photos or files you want to organize in your email, AI will automatically categorize them and clean up old data, showing only the data that can be safely deleted.



## STEP 02.

## Clean up based on AI sorting. Earn points based on carbon reduced

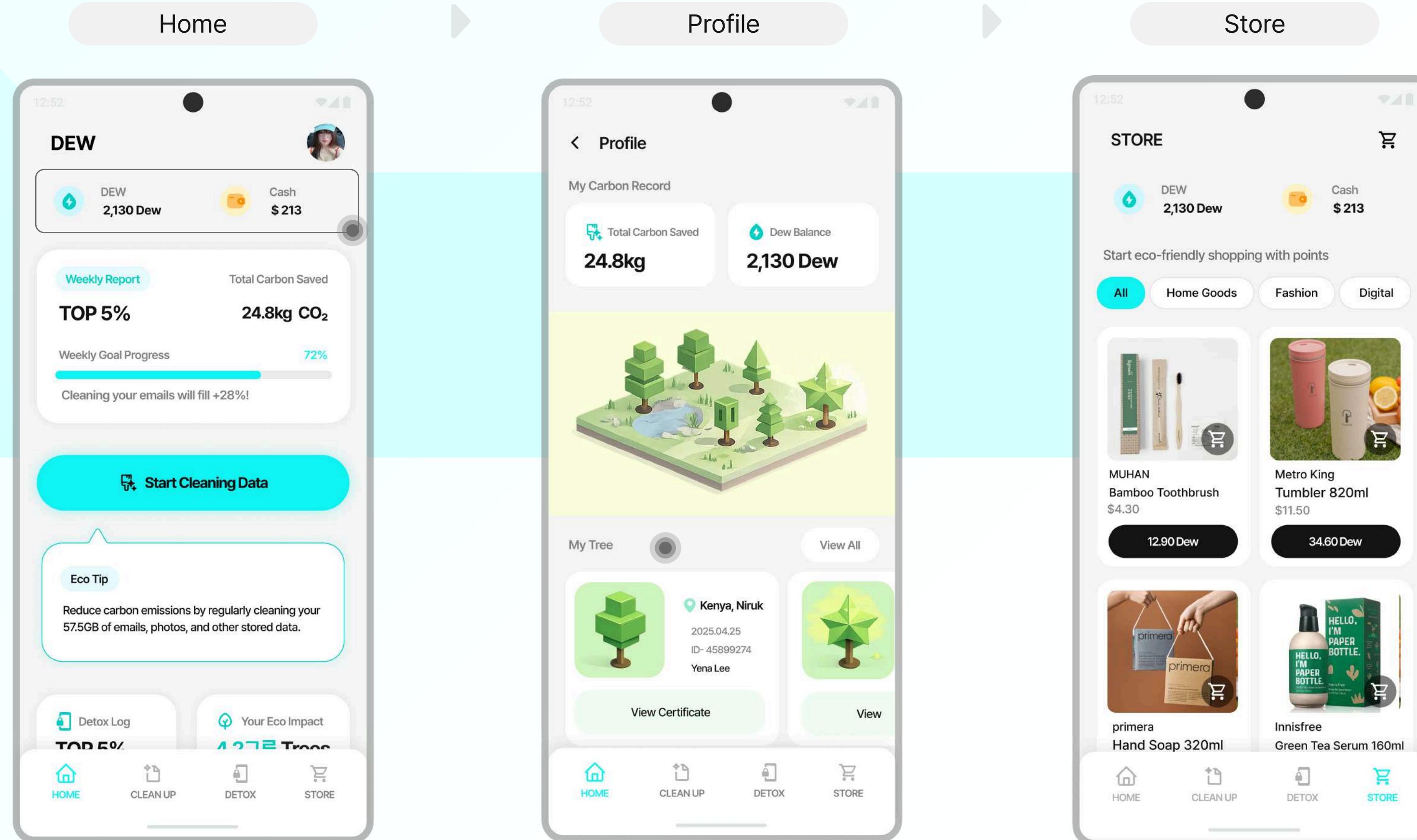
It provides motivation for data reduction by visually showing users the points they earn corresponding to the carbon saved from reduced data usage.



## STEP 03.

## Use points for eco-friendly products or tree planting

Dew points earned through organizing are used for tree planting and purchasing eco-friendly brand products, allowing the user's digital organizing activities to translate into environmental protection actions.



# Usability Evaluation

Based on the common pain points of the three user groups, the need for functional improvements focusing on filtering accuracy and a personalized classification experience has been identified.

## Data-Overloaded Office Worker

Park \*Yoon / 34 years old, Marketing Manager

### Pain Point

- Work emails and duplicated files pile up every day, causing notification stress and the burden of paid cloud services.

### Feedback

- With existing cleaner apps, I had to manually select files to delete, so I kept postponing it. But with DEW, AI automatically identifies files that need to be deleted, greatly reducing the burden.

## Civil Servant Exhausted by Frequent Task Sharing

Kim \*Mi / 47 years old, Civil Servant

### Pain Point

- After work, endlessly watching short-form content Cloud storage is always full due to work files on KakaoTalk

### Feedback

- Since specific carbon reduction figures are provided in real-time reports, I could participate in a fun, game-like way as if completing quests.

## Freelancer Pursuing Digital Wellness

Kim \*Ju / 28 years old, Freelance Designer

### Pain Point

- I want to engage in charitable and environmental activities, but a busy schedule prevents me from doing so.

### Feedback

- The virtuous cycle of converting accumulated points into DUW-cash to get discounts on products from partnered eco-friendly brands is very attractive.

### Points to improve

1. Strengthen 'Personalized Filtering' for specific domains/keywords.
2. Enhance AI accuracy (currently at 87%) for attachment-based email filtering

## Expected Service Benefits

DEW converts users' daily organizing activities into carbon reduction, creating an actual reduction in CO<sub>2</sub> emissions equivalent to the amount of data deleted.

### 1. Real-time Carbon Reduction Feedback

By showing real-time carbon savings from reduced data, users can clearly feel their actions creating real environmental impact.

### 2. The Butterfly Effect of Small Reductions

Accumulated small cleanup actions turn into tree planting and eco-friendly rewards, allowing everyday micro-actions to generate a sustainable environmental impact.

### 3. A sustainable cycle that expands eco-friendly actions.

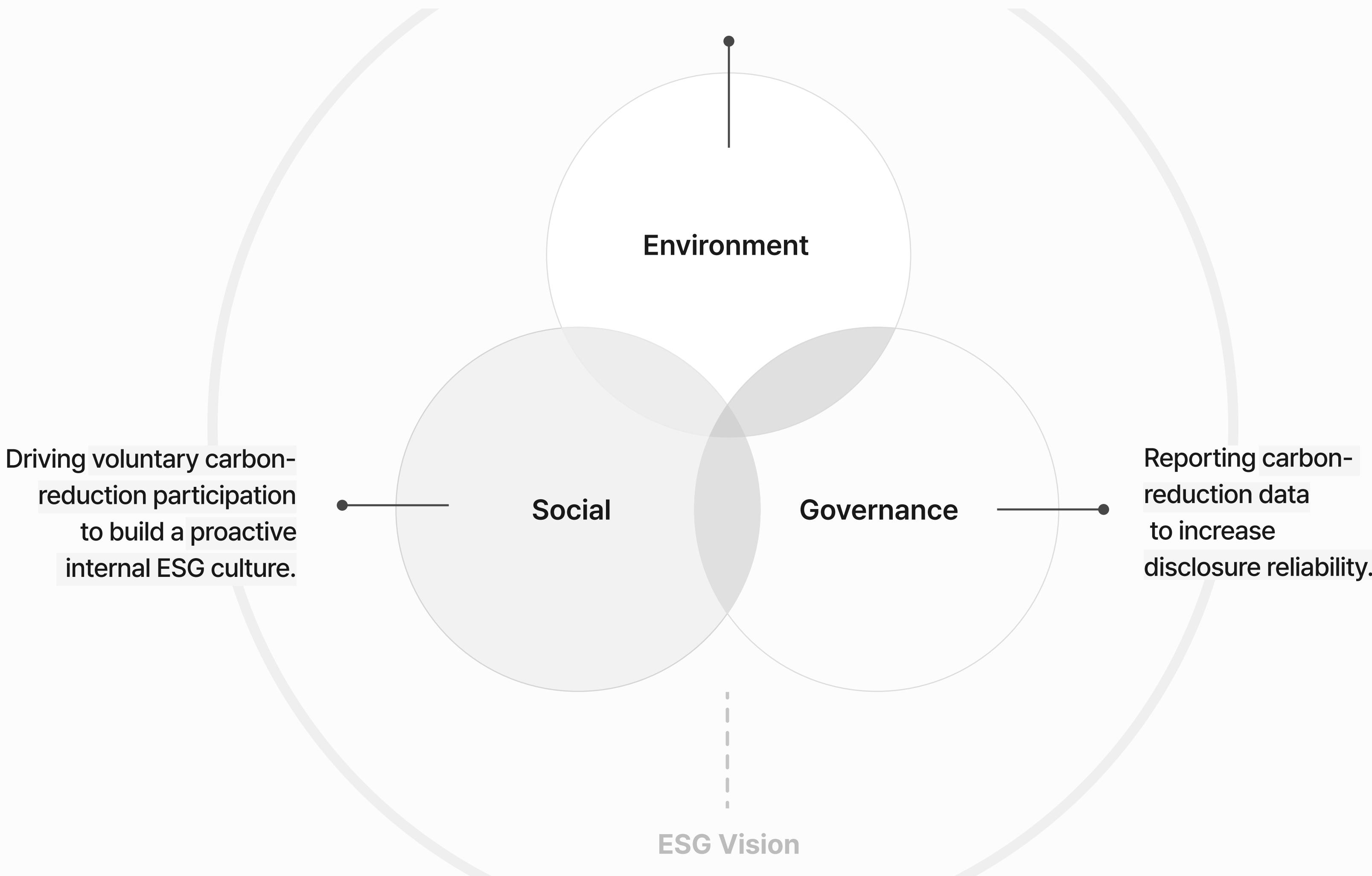
Points earned from carbon reduction lead to eco-store purchases, creating a cyclical flow where small user actions continually drive environmental improvement.

## B2B Infrastructure for Digital Carbon Management.

A key corporate priority today is managing Scope 3, which measures indirect emissions across the entire supply chain.

Companies must now disclose not only direct emissions, but also digital carbon from activities like cloud usage and employee emails.

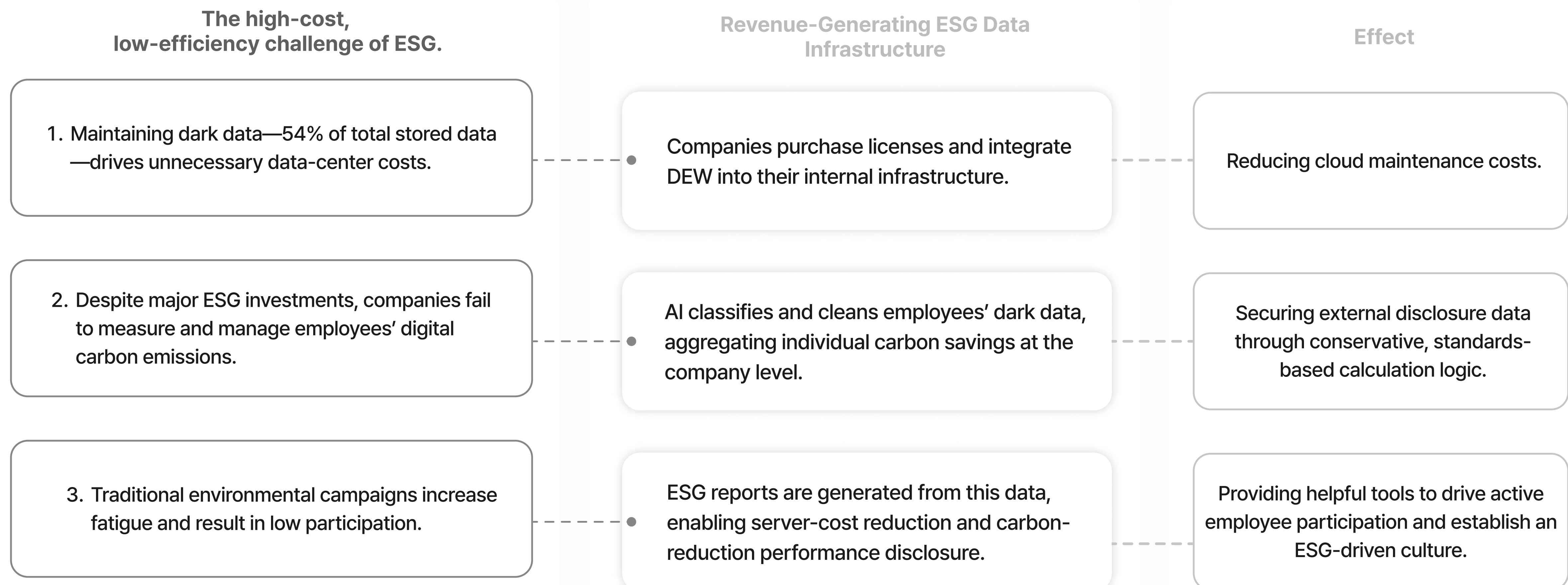
Lower energy use for data-center cooling and storage, directly improving corporate GHG reduction performance.



Creating sustainable corporate value through digital data optimization infrastructure.

# B2B ESG Infrastructure for Enterprises

DEW's B2B model operates as a **license subscription** that companies purchase in bulk and distribute to employees, creating **financial and strategic value** for the organization.

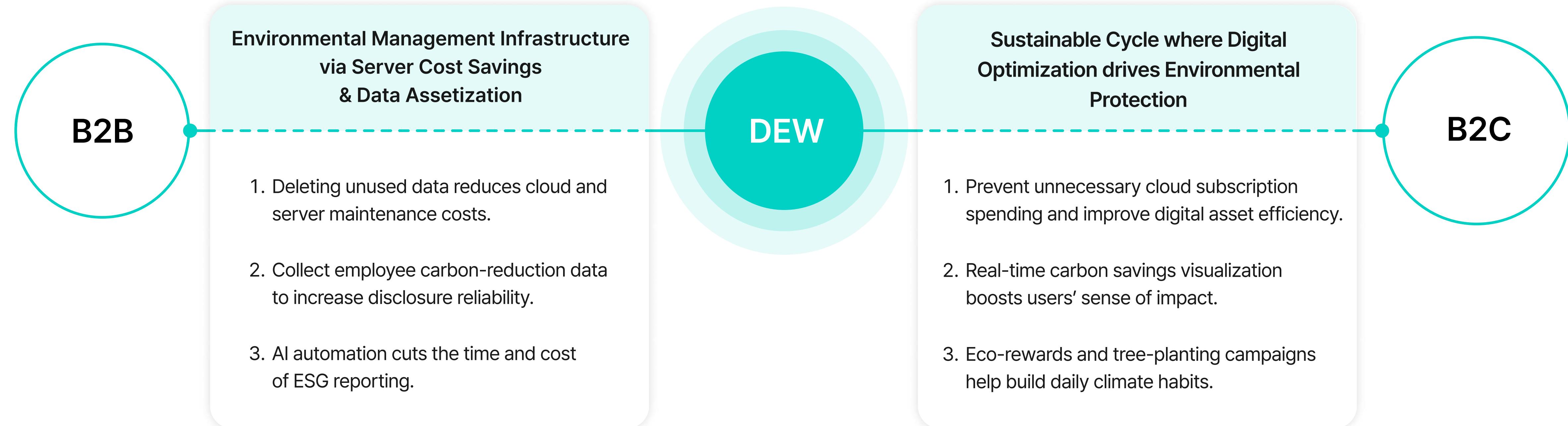


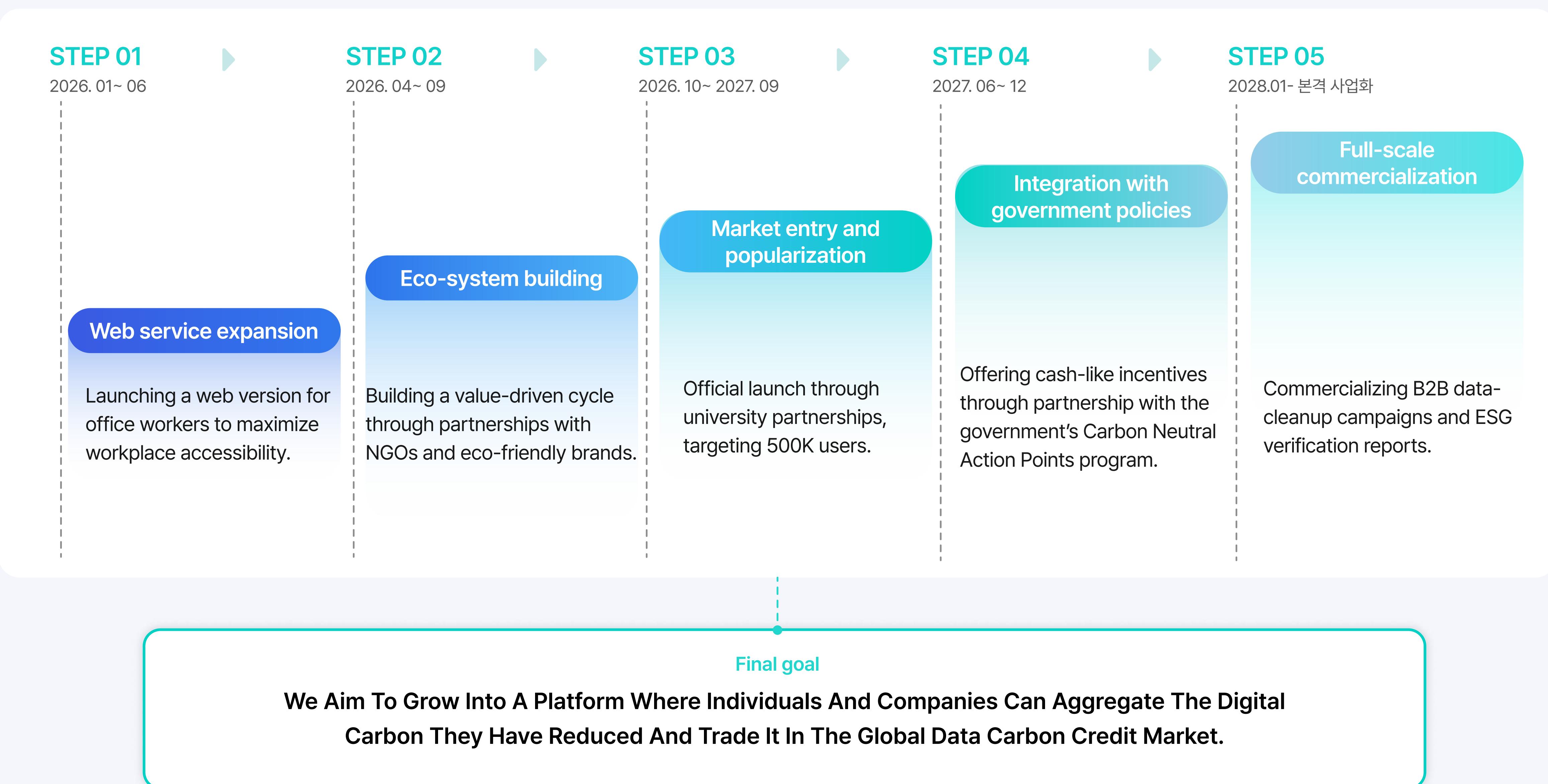
\* We rely on the most conservative international standards for carbon calculations to ensure ESG reporting remains credible and free from greenwashing concerns.

## Business Value for Companies and Individuals Provided by DEW

For enterprises, it provides **cost reduction through data optimization** and an automated ESG disclosure infrastructure.

For individuals, it delivers a **positive cycle** where everyday cleanup actions lead to **carbon reduction and eco-friendly consumption**.





**Dew creates a sustainable virtuous cycle where individuals, companies, and the environment grow together through small digital habits**



**DEW**

**Thank you**