Carbon CO_2unter

Science Hack 2019, Tracking CO2-Emissions, Hubert Burda Media Challenge, Team 1

Aim

Automated Emissions Tracking

Recommend Sustainable Changes

Compensation

Motivate by Gamification

Data Sources – User Input

Scan the receipt

OCR text

Calculate emissions

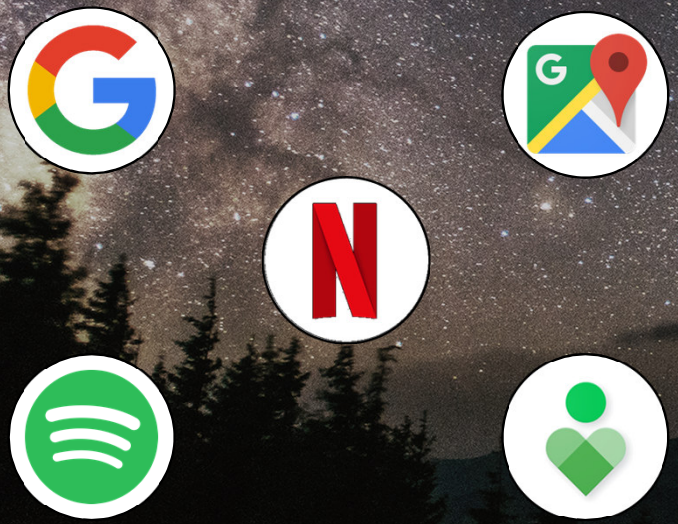
1. Group items into categories
2. Get amount of each categories
3. Calculate emissions based on the ESU-Services database

User interaction

Automated process

Data Sources – Automated Tracking

Data collected by device



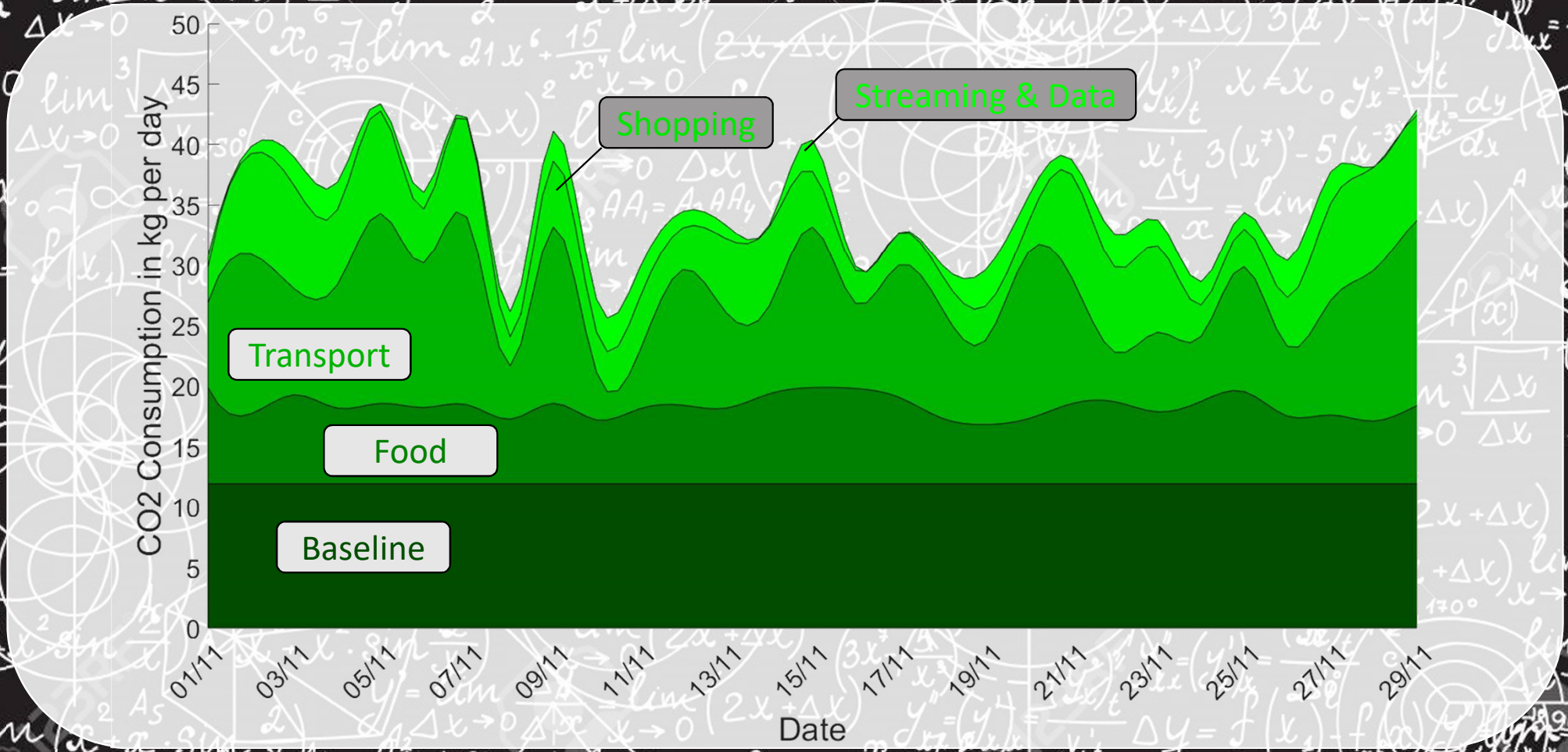
Collected data:

- Transportation
- Streaming time
- Screen on time

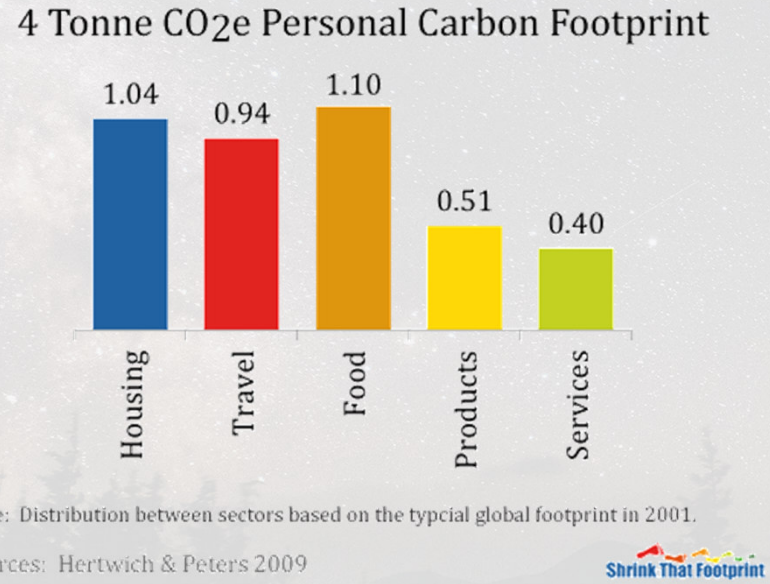
Model

No user input required

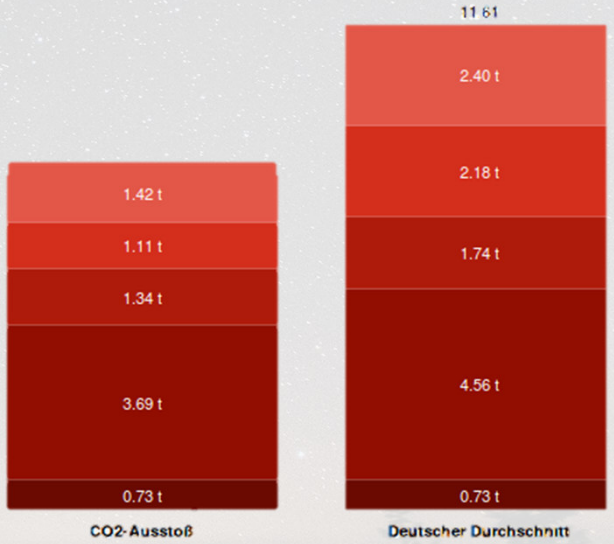
Calculations



Statistics



Biggest Improvement Potential



Comparison to averages:

Global and individual

Gamification

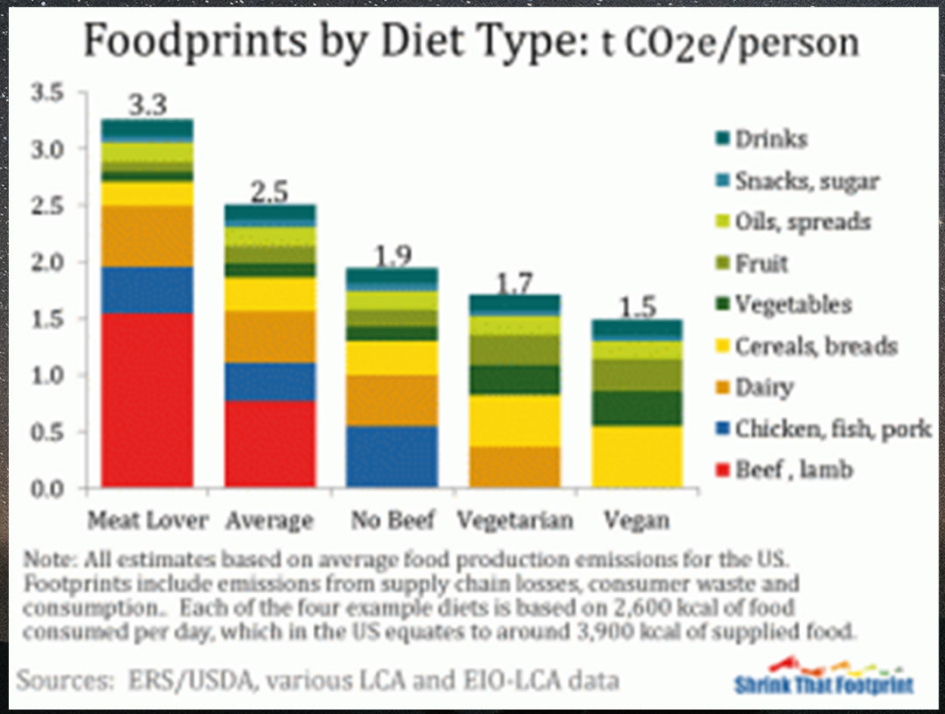
- Individual goal setting

Gamification

- Individual goal setting
- Individual Challenges

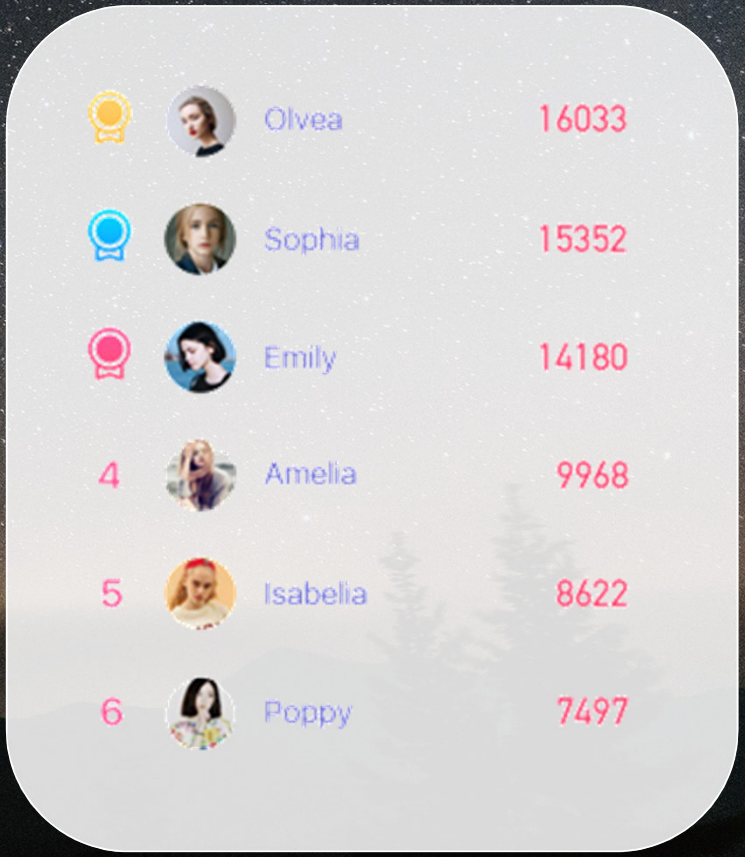
Gamification

- Individual goal setting
- Individual Challenges
- Recommendations



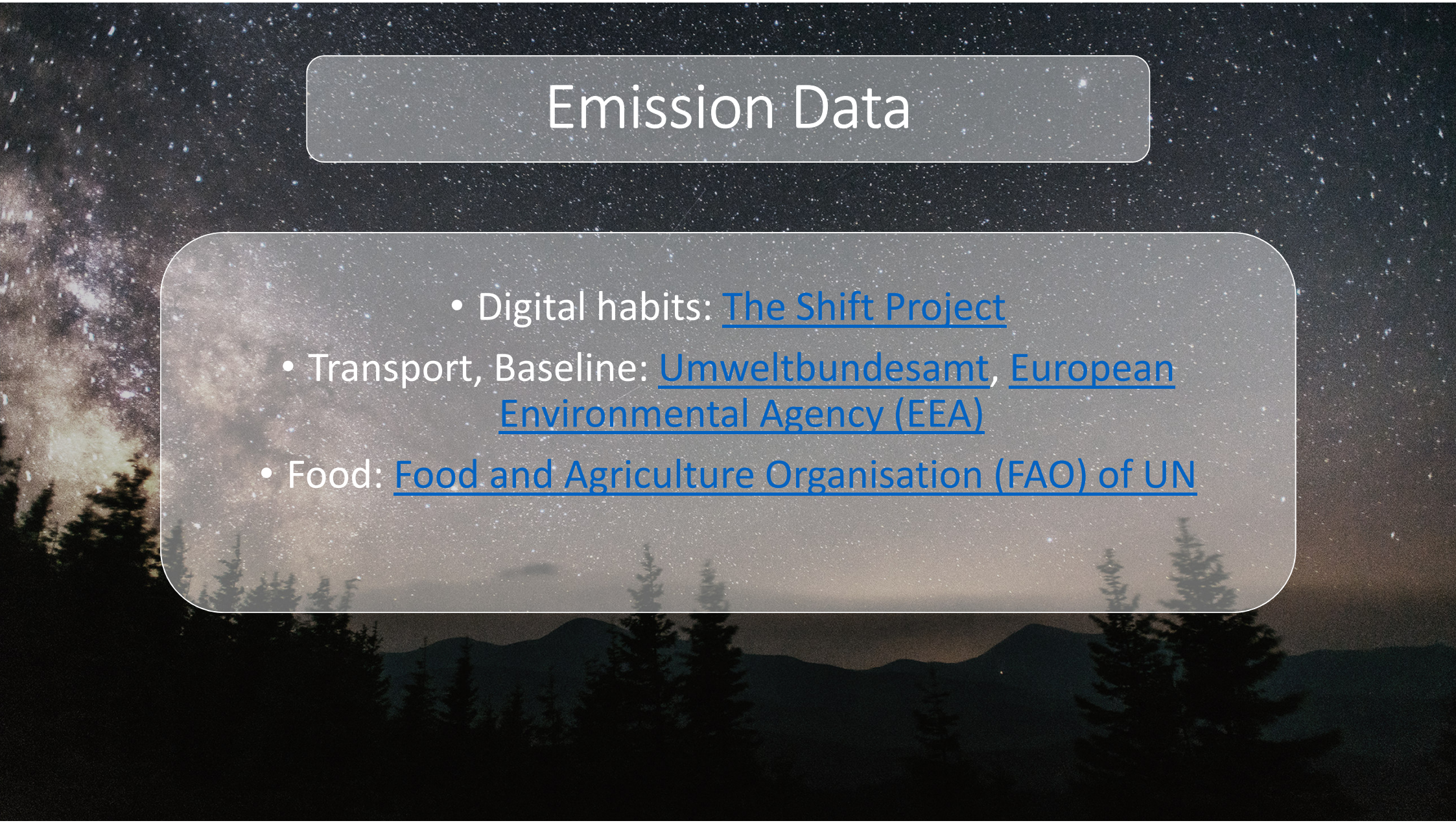
Gamification

- Individual goal setting
- Individual Challenges
- Recommendations
- Leader board



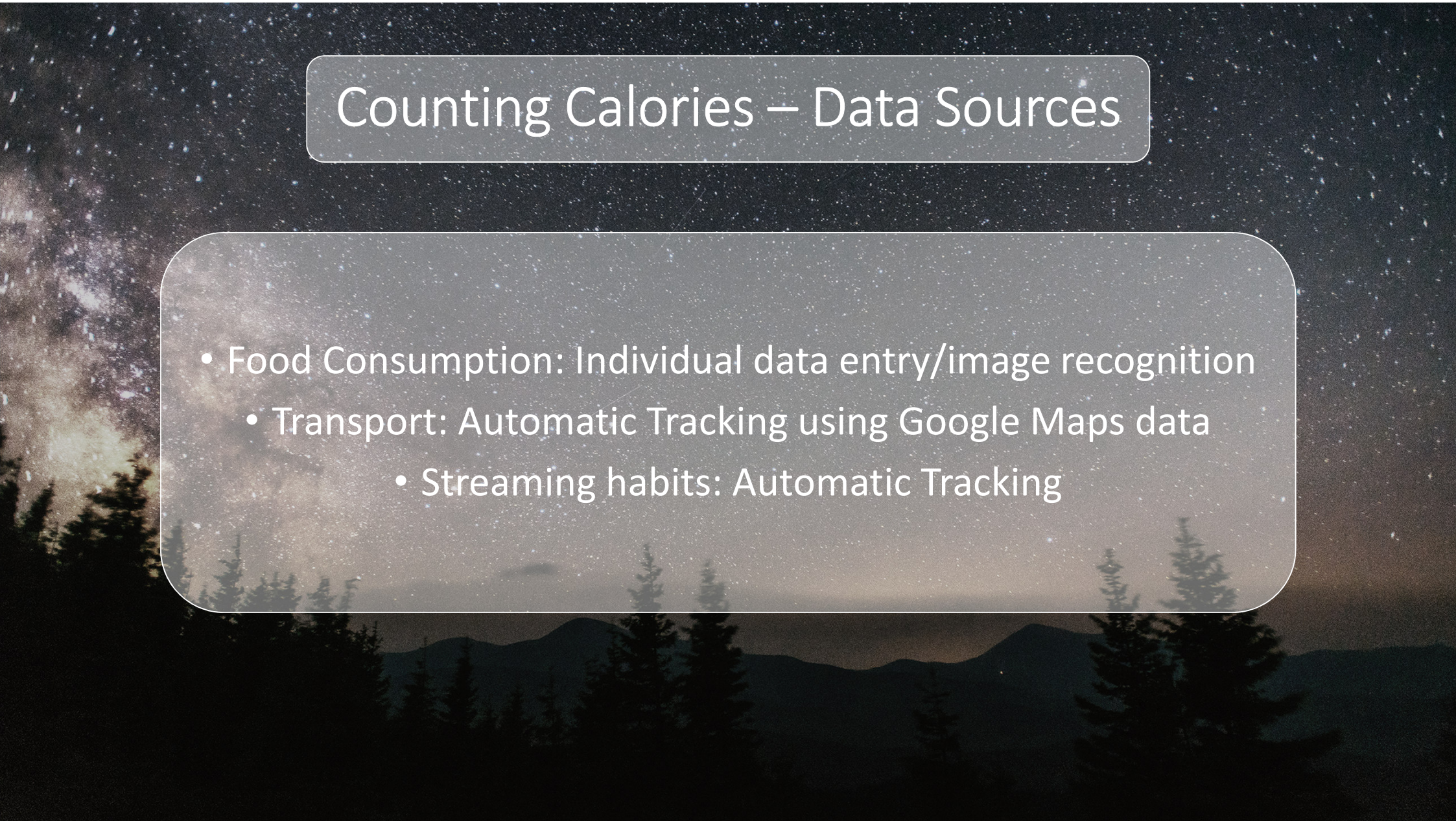
Demo

Backup Slides


Emission Data
• Digital habits: The Shift Project
• Transport, Baseline: Umweltbundesamt, European Environmental Agency (EEA)
• Food: Food and Agriculture Organisation (FAO) of UN

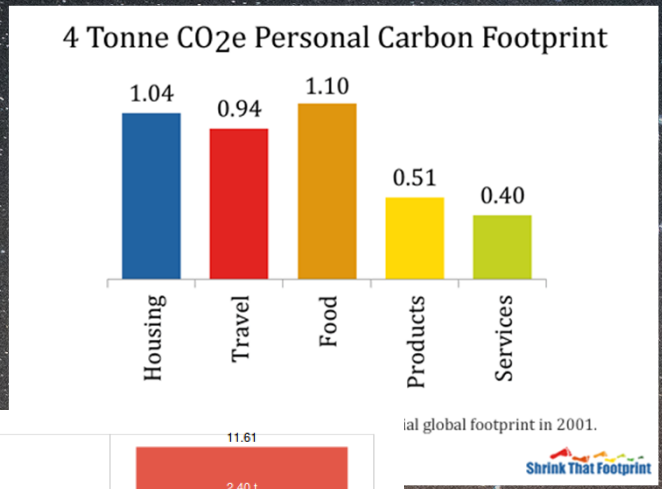
App Structure

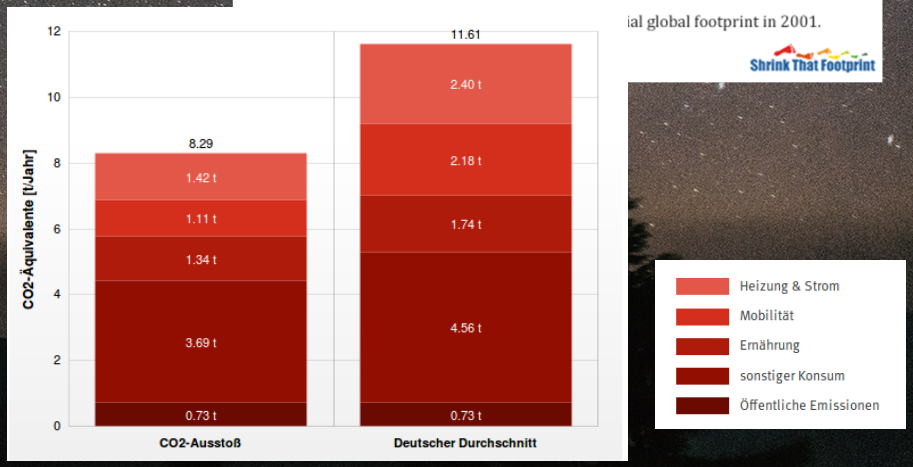
- Home screen: earth visual, CO_2 counter, points, donation
- Profile page for baseline emission estimate
- Past activities
- Statistics overview
- Challenges, goals, individual suggestions


Counting Calories – Data Sources
• Food Consumption: Individual data entry/image recognition
• Transport: Automatic Tracking using Google Maps data
• Streaming habits: Automatic Tracking

Statistics

- Plot of emissions over different time horizons
- Comparison to individual/national average
- Contribution of categories
- Categories with biggest potential for improvement
- Progress towards goal



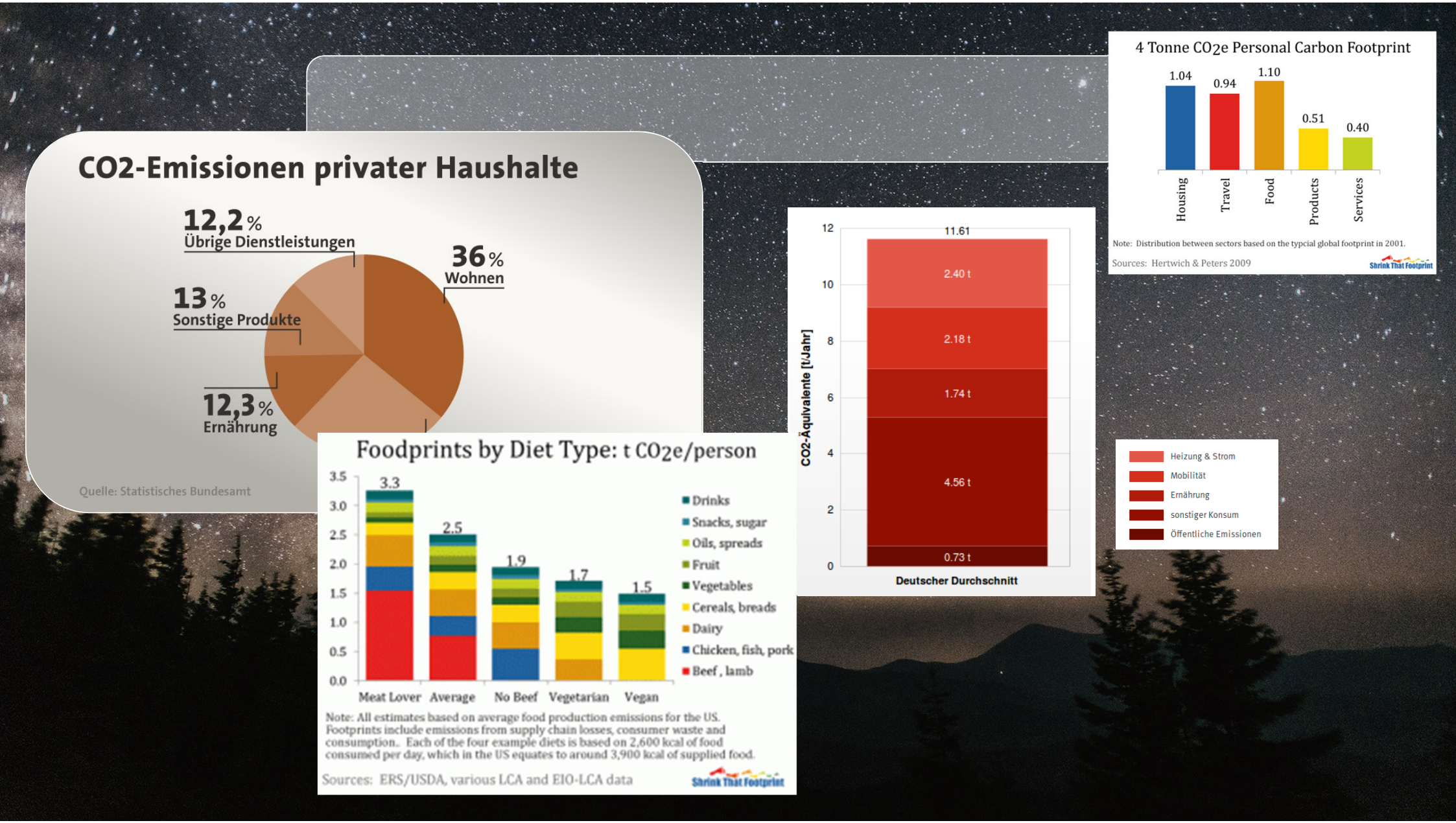


Aim

- Track CO2 emissions based on lifestyle in app
- Recommend sustainable changes to behaviour
- Gamification through challenges and goals
- Donations as compensation for emissions

Calculations

- Baseline estimate of CO_2 emissions from one-off questions
- Refine estimate using data automatically collected on transport and streaming
- Prompt user to enter data on meals consumed and goods purchased


CO2-Emissionen privater Haushalte
12,2 % Übrige Dienstleistungen
36 % Wohnen
13 % Sonstige Produkte
12,3 % Ernährung
Quelle: Statistisches Bundesamt
Foodprints by Diet Type: t CO2e/person
3.3
2.5
1.9
1.7
1.5
Meat Lover
Average
No Beef
Vegetarian
Vegan
Drinks
Snacks, sugar
Oils, spreads
Fruit
Vegetables
Cereals, breads
Dairy
Chicken, fish, pork
Beef , lamb
Note: All estimates based on average food production emissions for the US. Footprints include emissions from supply chain losses, consumer waste and consumption. Each of the four example diets is based on 2,600 kcal of food consumed per day, which in the US equates to around 3,900 kcal of supplied food.
Sources: ERS/USDA, various LCA and EIO-LCA data
Shrink That Footprint
CO2-Äquivalente [t/Jahr]
11.61
2.40 t
2.18 t
1.74 t
4.56 t
0.73 t
Deutscher Durchschnitt
4 Tonne CO2e Personal Carbon Footprint
1.04
0.94
1.10
0.51
0.40
Housing
Travel
Food
Products
Services
Note: Distribution between sectors based on the typcial global footprint in 2001.
Sources: Hertwich & Peters 2009
Shrink That Footprint
Heizung & Strom
Mobilität
Ernährung
sonstiger Konsum
Öffentliche Emissionen