Impact of a Phone's Price Range on Its Lifespan and Carbon Footprint

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This project will mostly focus on the impact of a phone's proce range on its lifespan and carbon footprint. The project will try to provide useful information on how to become a more environmentally conscious consumer when buying a new phone. A big part of all the environmental movement towards a better future are EU and the UN that are pushing for more sustainable practices in product development and production.

1 Related Work

Some good data on carbon footprint of phones can be found in books such as *The carbon footprint of everything* [2] and *Sustainable Energy - without the hot air* [7]. These books include calculated carbon footprints of various devices, including phones, and provide a good starting point for understanding the environmental impact of these devices. We believe some useful data and information can be found on company websites such as Apple [1] and Samsung Electronics [8] as these global companys are trying to follow the sustainability trend. None of these efforts would be made without the EU and European Commission pushing for more Sustainable practices in product development and production. Some important research by the European Commission includes research on the impacts of the *Right to Repair* policy [4] and enforcing the new *Energy Label* [3].

2 Methodology

The methodology of this project will include determining phone price ranges and selecting the most representative phone model for each price range. Data will then be gathered on the lifespan of each device (including years of software support, battery health and repairability). Additionally, data on carbon footprint of each device will be collected and compared between price ranges.
The project will also include lifecycle mapping of the selected phone models and some estimations of carbon footprint at each stage. Additionally, the explanation of the *Energy Labels* [3] will be provided and some comparisons of company promises versus real world data will be made.

3 Milestones

The proposed timeline for the project is as follows:

- **17.10.2025** – Submission of project proposal
- **05.11.2025** – Completion of literature review and lifecycle framework
- **26.11.2025** – Data collection, preliminary comparisons and carbon footprint estimations
- **19.12.2025** – Draft of price range comparison and carbon footprint analysis
- **12.01.2026** – Submission of final project report

Some main tasks in developing this project are shown in the table bellow:

Task	**Content**
Brand selection	Select a smartphone brand to analyze.
Price range definition	Define price ranges for analysis (e.g., budget, mid-range, flagship).
Model selection	Choose representative models from each price range.
Data collection	Gather data on lifespan, software support and repairability, .
Lifecycle mappinig	Map out the lifecycle stages of each selected model (extraction, manufacturing, shipping, use, disposal).
Carbon footprint estimation	Estimate the carbon footprint for each lifecycle stage of the selected models.
Data analysis	Analyze the collected data to identify trends and correlations between price range, lifespan, and carbon footprint.
Recomendations	Provide recommendations for consumers based on the findings.
Report writing	Compile the findings into a comprehensive report.

Table 1: Table of the main tasks of the project with their content.

4 Evaluation Plan

The evaluation will consider how the procejt aligns with the UN Sustainable Development Goals (SDGs) [9], particulary goals 8 (Decent work and economic growth), 12 (Responsible consumption and production) and 13 (Climate action). The project'ssuccess will be evaluated based on the reliability and availability of data sources and the quality of the carbon footprint analysis. A sadisfactory project should include explicid recomendations fot the end user on how to choose a phone based on its price range, lifespan and environmental impact based on carbon footprint of the device.

5 Resoureces

Key resources for the project include:

- company websites (Apple [1], Samsung [8])
- books (The carbon footprint of everything [2], Sustainable Energy - without the hot air [7])
- European Commission's "Right to Repair" policy reports [4]

- EU's data on the Energy label [3]
- UN Sustainable Development Goals (SDGs) documentation [9]
- IPCC reports and data on carbon footprint [6]
- ILCD International Life Cycle Data system [5]
- Academic databases
- Tools for data analysis

References

[1] Apple Inc. Apple environmental progress and sustainability efforts, 2025. Accessed: 2025-10-15.

[2] Mike Berners-Lee. *The Carbon Footprint of Everything*. Profile Books, London, 2010.

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[6] Intergovernmental Panel on Climate Change (IPCC). Ipcc — intergovernmental panel on climate change, 2024. Accessed: 2025-10-15.

[7] David J.C. MacKay. *Sustainable Energy – Without the Hot Air*. UIT Cambridge, Cambridge, UK, 2009.

[8] Samsung Electronics Co., Ltd. Samsung climate action – sustainability and planet initiatives, 2025. Accessed: 2025-10-15.

[9] United Nations. The 17 goals — sustainable development, n.d. Accessed: 2025-10-16.