Extending the Life-Cycle of Mobile Computers

By Nora Tomas

Collaborators

A Sustainability and User-centered Approach towards Extending the Life-cycle of Mobile Computers

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Abstract. The aim of this article is to provide an understanding of cognitive and physical barriers concerning extending the lifecycle of mobile computers. Reference to Triandis´ theory of interpersonal behaviour, 1) attitudes; 2) contextual factors; 3) personal capabilities, and 4) habits will be discussed to overcome these barriers. A survey among 449 subjects, complemented by an expert interview, was conducted to find out motivators and resistors for retaining computers though renewal processes. Results

Motivation Behind Research

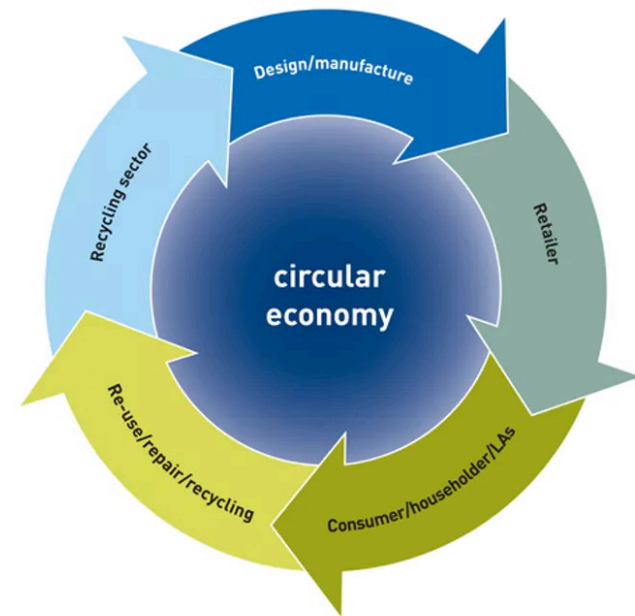830 milion tonnes CO_2
2% of emissions

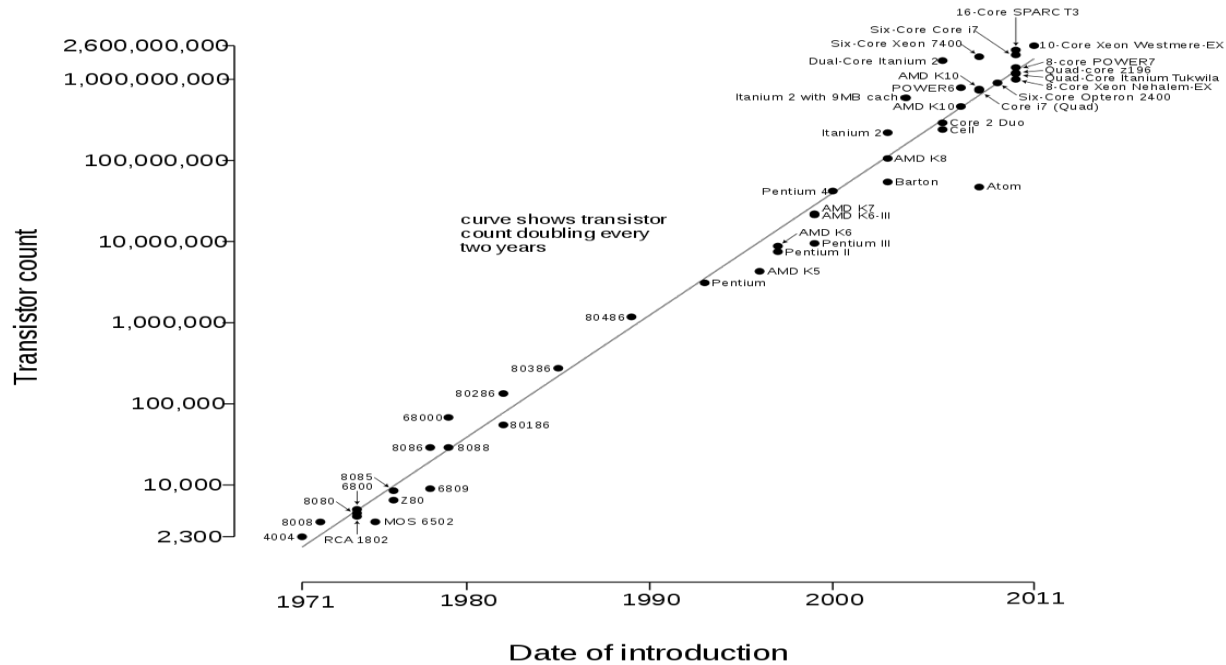781 milion tonnes CO_2
2% of emissions

Circular Economy

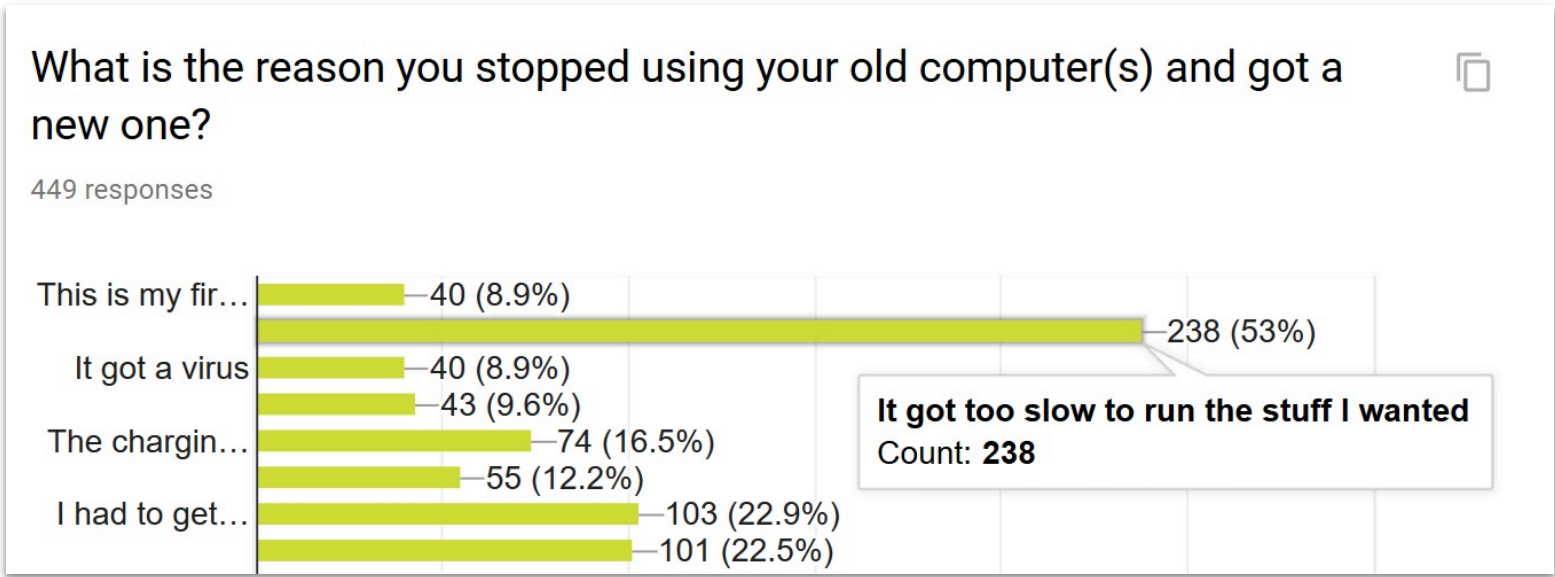- Recycling 10% of the computer
  only saves 0,43% of life-cycle energy

Retainment in the Computer Industry

Microprocessor Transistor Counts 1971-2011 & Moore's Law

Survey of 449 Computer-Users

What is the reason you stopped using your old computer(s) and got a new one?

449 responses

This is my fir… ─40 (8.9%)
─238 (53%)
It got a virus ─40 (8.9%)
─43 (9.6%)
The chargin… ─74 (16.5%)
─55 (12.2%)
I had to get… ─103 (22.9%)
─101 (22.5%)

It got too slow to run the stuff I wanted
Count: **238**

Interview with Computer Repair Experts

- Conclusion: There are steps users can take to make their laptops last longer
- Practical steps are not enough

Practice
Replace HDD with SSD
Repair broken screen
Upgrade memory
Upgrade hard-drive
Replace keyboard
Clean
Choose right computer when purchasing
Care with tripping over charger

Computer Life-Cycle Extension Model