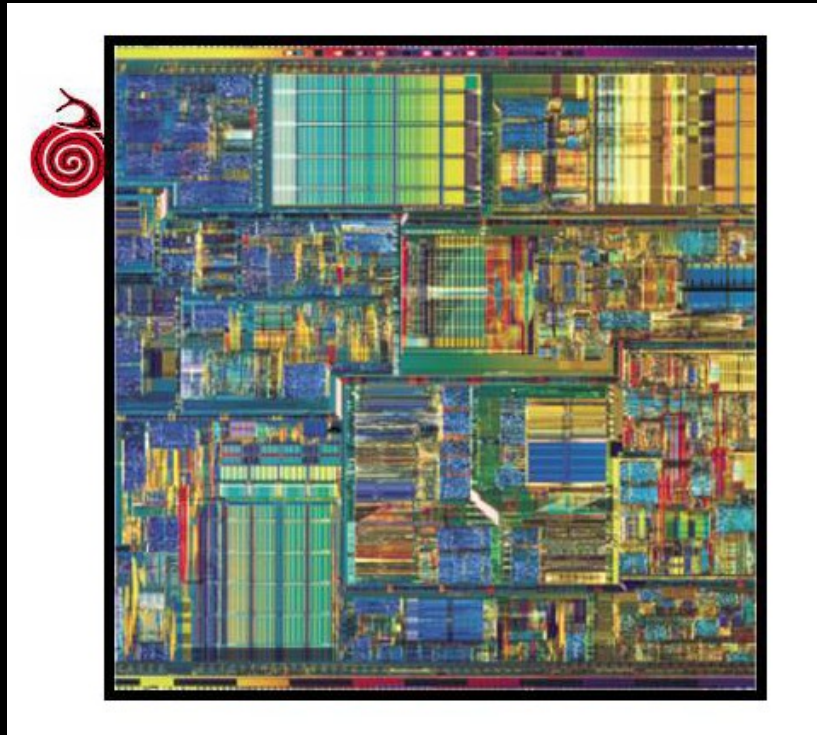
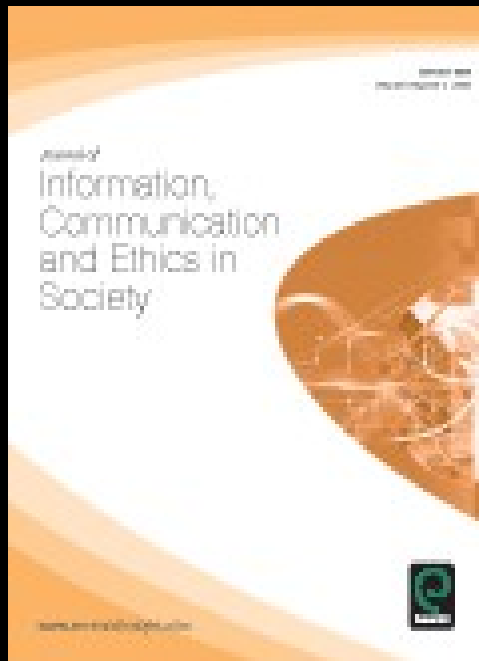


Slow Tech




Norberto Patrignani

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Centro Studi Sereno Regis
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Slow Tech: a quest for good, clean and fair ICT

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Abstract
Purpose – The purpose of this paper is to introduce the term Slow Tech as a way of describing information and communication technology (ICT) that is good, clean and fair. These are technologies that are human centred, environmentally sustainable and socially desirable.
Design/methodology/approach – The paper's approach is based on a qualitative discourse that justifies the introduction of Slow Tech as a new design paradigm.
Findings – The limits of the human body, and the need to take into account human wellbeing, the limits of the planet and stakeholders' interests in decision making, all suggest the need for a new paradigm, Slow Tech, in the design of ICT and ICT systems. Three scenarios are described as case studies.
Practical implications – In order to prepare the next generation of researchers and computer professionals, many different actions need to be taken. Universities and colleges need to redesign education programmes for computer scientists and engineers by introducing subjects related to the social and ethical implications of computing (currently, only few countries, like the UK, have already done this), and computer professionals' associations need to introduce a code of ethics or ethical analysis into their members' career development. As a result, future computer professionals who are familiar with the Slow Tech approach will be able to collaborate much more easily across the kind of cross disciplinary teams suited to design human centred, sustainable and desirable technologies.
Social implications – Rather than simply focusing on the role of computer professionals, all members of society are called to play a new role in the design of future ICT scenarios. Starting a societal dialogue that involves computer professionals, users, researchers, designers, ICT industrialists, and policy makers is very much needed.
Originality/value – The value of this paper is in its call for reflection followed by action. Based on an holistic approach to the design of new ICT systems, the paper advocates a new starting point for systems design: it should be based on a long-term view of the desirability and social importance of technologies, their environmental impact and sustainability, and the fairness and equity of the conditions of workers involved in the computing manufacturing processes.
Keywords Clean ICT, Environmentally sustainable, Ethically acceptable, Fair ICT, Good ICT, Slow Tech
Paper type Conceptual paper



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1. Introduction

We are returning to a set of observations, made in some cases a 150 years ago, but which started to reach mainstream awareness some 50 years ago.

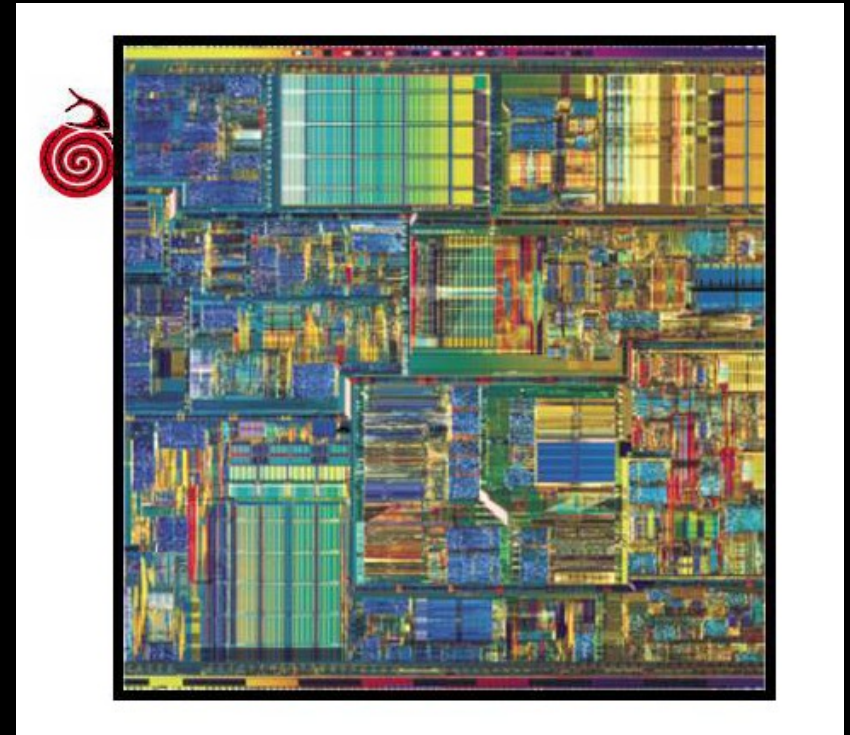
The concept of the limits to growth were first applied to the planetary environment, whereas today questions are being posed about continuing information and communication technologies (ICT) development. ICT, and the encouragement of the rapid expansion of technologies, have always been the most dramatic, technical representation of the Olympic motto, "citius, altius, fortius" (faster, higher, stronger).

Slow Tech: Designing and Developing Technologies that are Good, Clean, and Fair

Towards
Good, Clean and Fair ICT.

A new kind of
Information and
Communication
Technologies.

ICT that is Human-Centred.
ICT that takes into account
both
the Limits of the Planet and
those of Human Beings.



A bridge with the Italian (and now worldwide)
Slow Food movement.

Good ICT

ICT can be Good for Human Beings

When the Systems are Designed using a Human-Centred approach



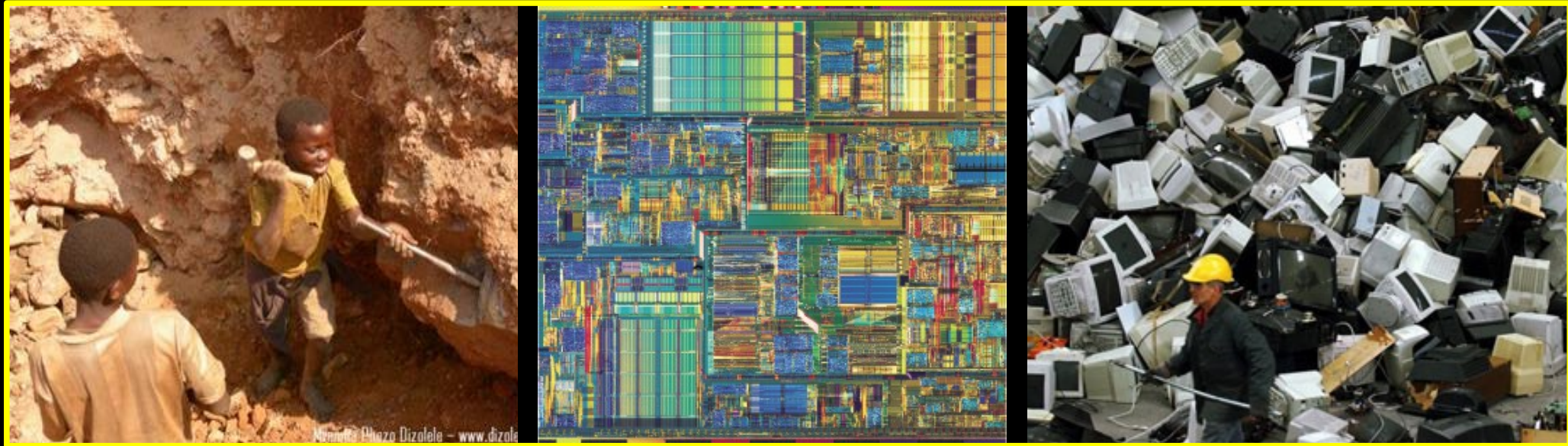
Complex Interactions of the Human Being and ICT.

Experiences can be enjoyable only if
the System and the Human-Computer Interfaces are
designed taking into account Human Limits.

Competences Needed: Human-Computer Interaction, Design-for-All,
e-Inclusion and Methods such as Participatory Design

Clean ICT

High Tech generates Toxic Hazards throughout its entire lifecycle
(including Design, Production, Consumption and Disposal)



Consider the Environmental impact (the Materials involved,
Chip Manufacturing, Power Consumption of Data Centres and Devices,
ICT Applications, e-Waste Management and Recycling)

Is ICT Exponential Growth Sustainable?
Maybe we need Paradigms based on Cycles? "Circular Economy"?


Fair ICT

[HOME PAGE](#) [TODAY'S PAPER](#) [VIDEO](#) [MOST POPULAR](#) [U.S. Edition ▼](#)

The New York Times **Business Day**
Technology

[WORLD](#) [U.S.](#) [N.Y. / REGION](#) [BUSINESS](#) [TECHNOLOGY](#) [SCIENCE](#) [HEALTH](#) [SPORTS](#) [OPINION](#)

Foxconn Plant Closed After Riot, Company Says



Reuters

Workers cleaned up glass from the broken windows of a security room at an entrance of the Foxconn Technology plant in Taiyuan on Monday.

By **DAVID BARBOZA** and **KEITH BRADSHER**
Published: September 24, 2012 | [241 Comments](#)

The Low-Cost features of ICT are possible at the price of the increasing costs paid by Workers.
The entire ICT Value-Chain is indeed quite long and complex ... transparent?

Foxconn Technology Group

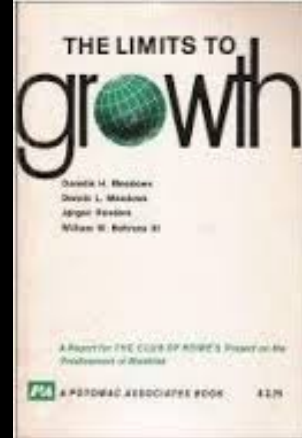
Headquarters: Tucheng District, New Taipei City, Taiwan

Number of employees: 1.3 million (2015)



Slow Tech

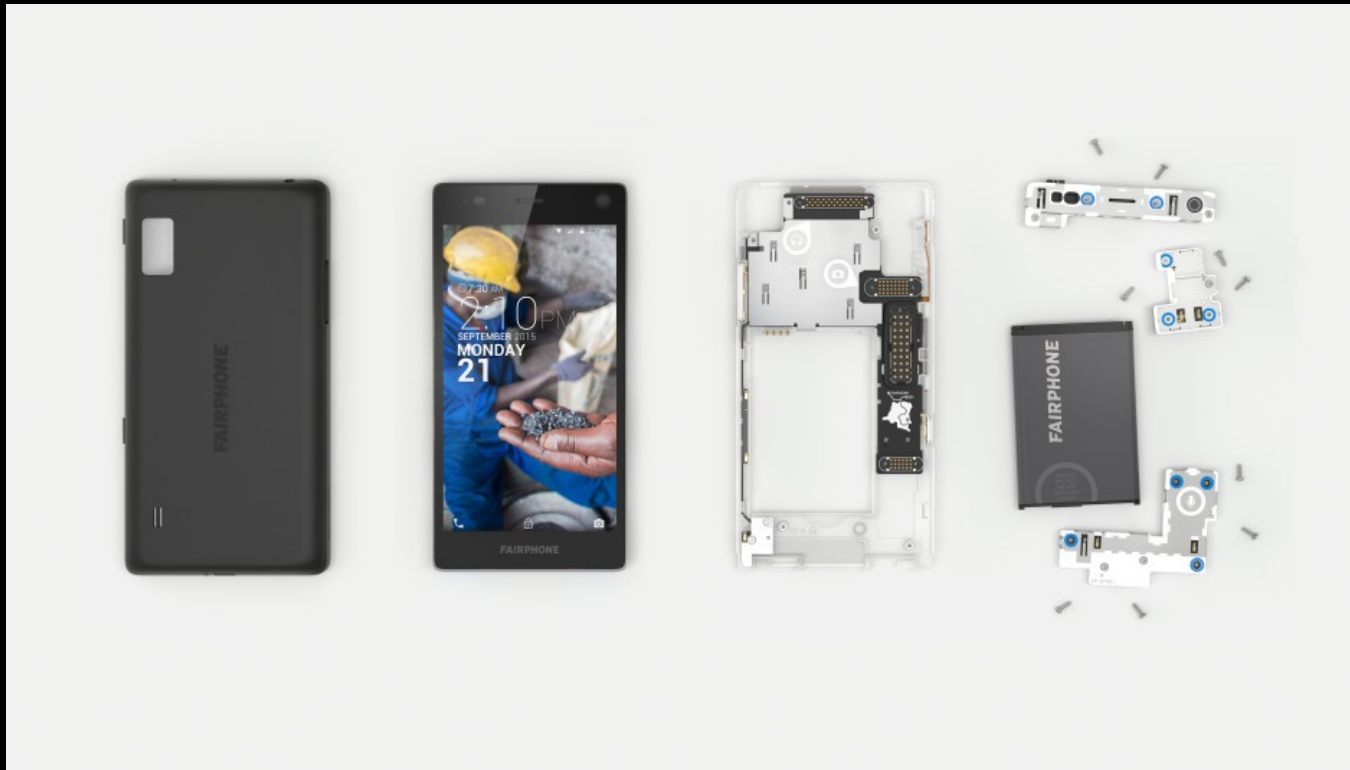
- A '*compass*' for implementing CSR in ICT Companies
- A 'Proactive Computer Ethics' for Computer Professionals for the Design of Systems with the three elements of Slow Tech: Good, Clean, and Fair ICT
- It is based on the concept of Limits (and a critique of the previously unquestioned assumption that ICT will continue to operate exponentially faster, be financially cheaper, no limits)
- It is Based on the Transparency of Stakeholders' Analysis (and does NOT ignore Conflicts, try to build bridges among different world views)



Slow-Tech Case Study

Fairphone.com

FAIRPHONE



Long-Lasting Design



Fair Materials



Good Working Conditions

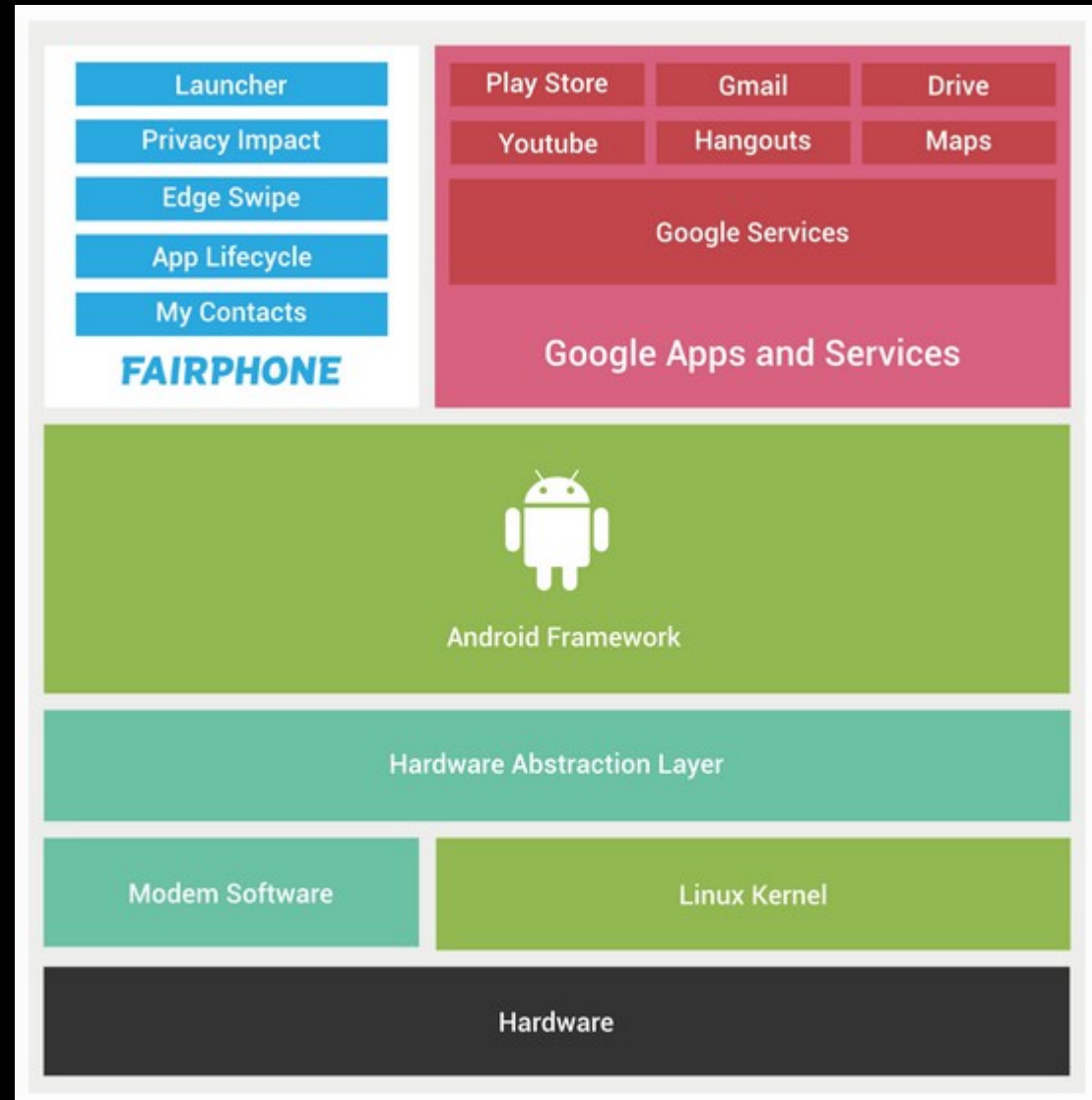
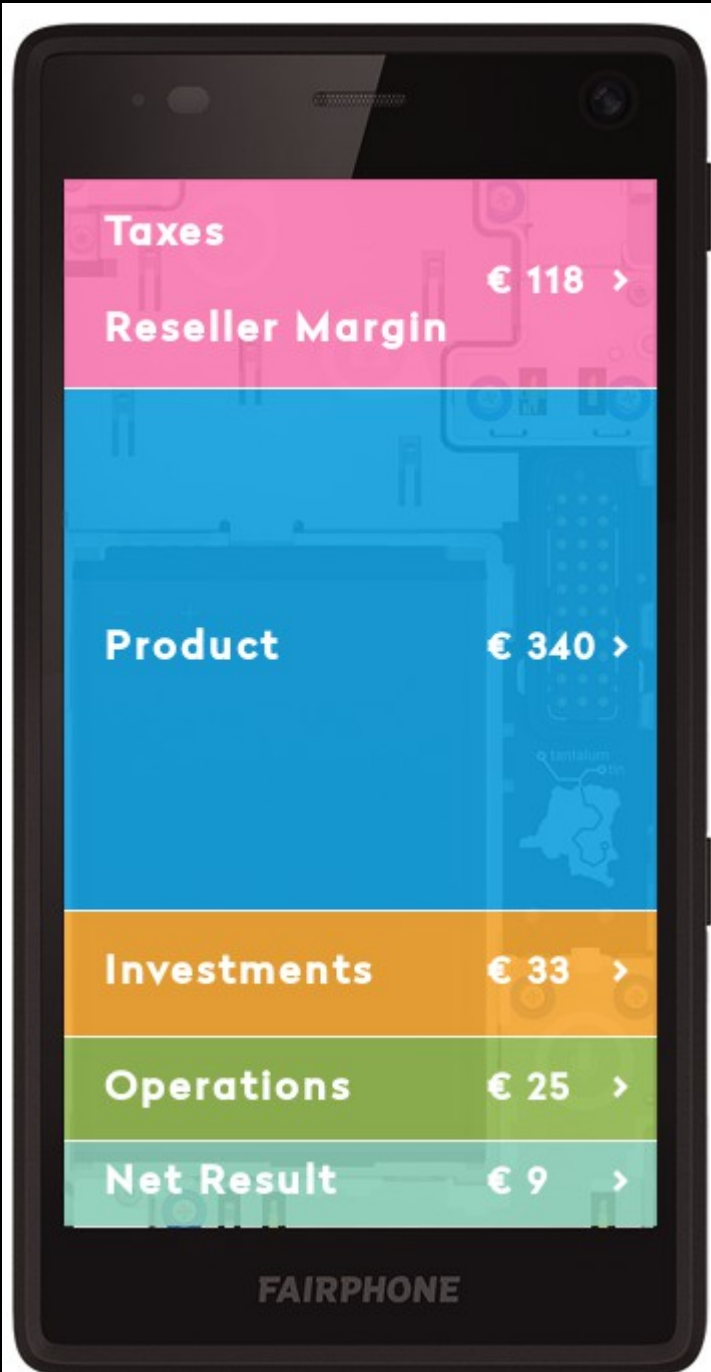


Reuse and Recycling

A Smartphone with Social Values:
that pays attention to Mining, Design, Manufacturing, Lifecycle

Transparency

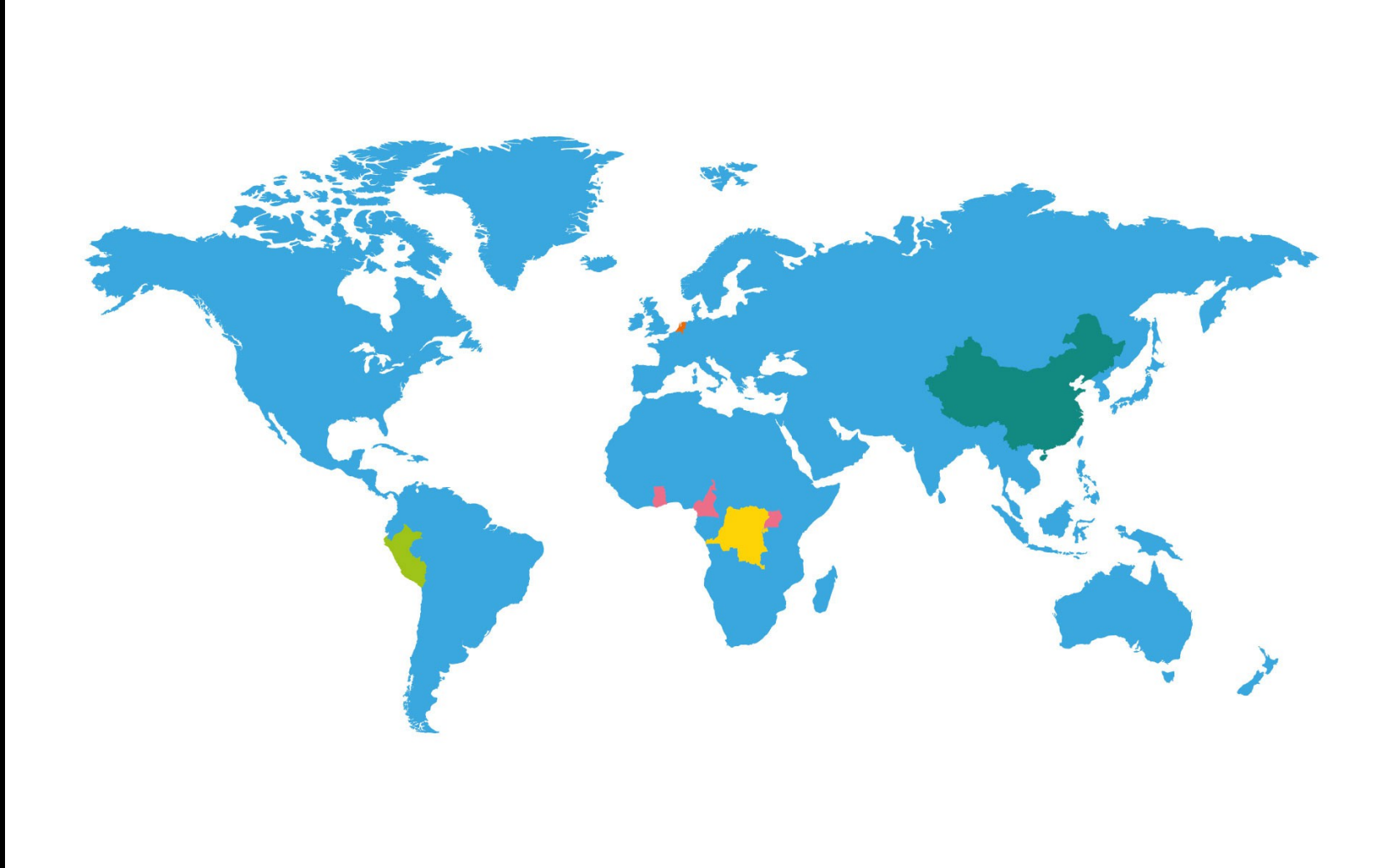
Good ICT?



Fairphone OS Software Stack

Transparency

Clean ICT?





Life Cycle Assessment of the Fairphone 2

Final Report

Marina Proske
Christian Clemm
Nikolai Richter

Berlin, November 2016

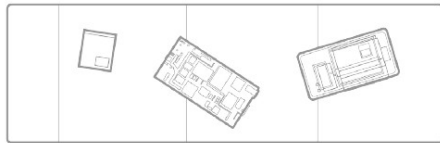
1 Executive Summary

The Fairphone 2 is a modular smartphone by Fairphone B.V. To assess the environmental impact caused by the production, use, and recycling of the smartphone a life cycle assessment (LCA) is conducted, covering the following impact categories:

- Climate change (GWP)
- Abiotic resource depletion (ADP)
- Human toxicity (Humantox)
- Ecotoxicity (Ecotox)

FAIRPHONE

Social Assessment Program: Hi-P

**FAIRPHONE**

Partnership beyond the first tier: social impact with sub-supplier GSN



Rallentare



Hartmut Rosa

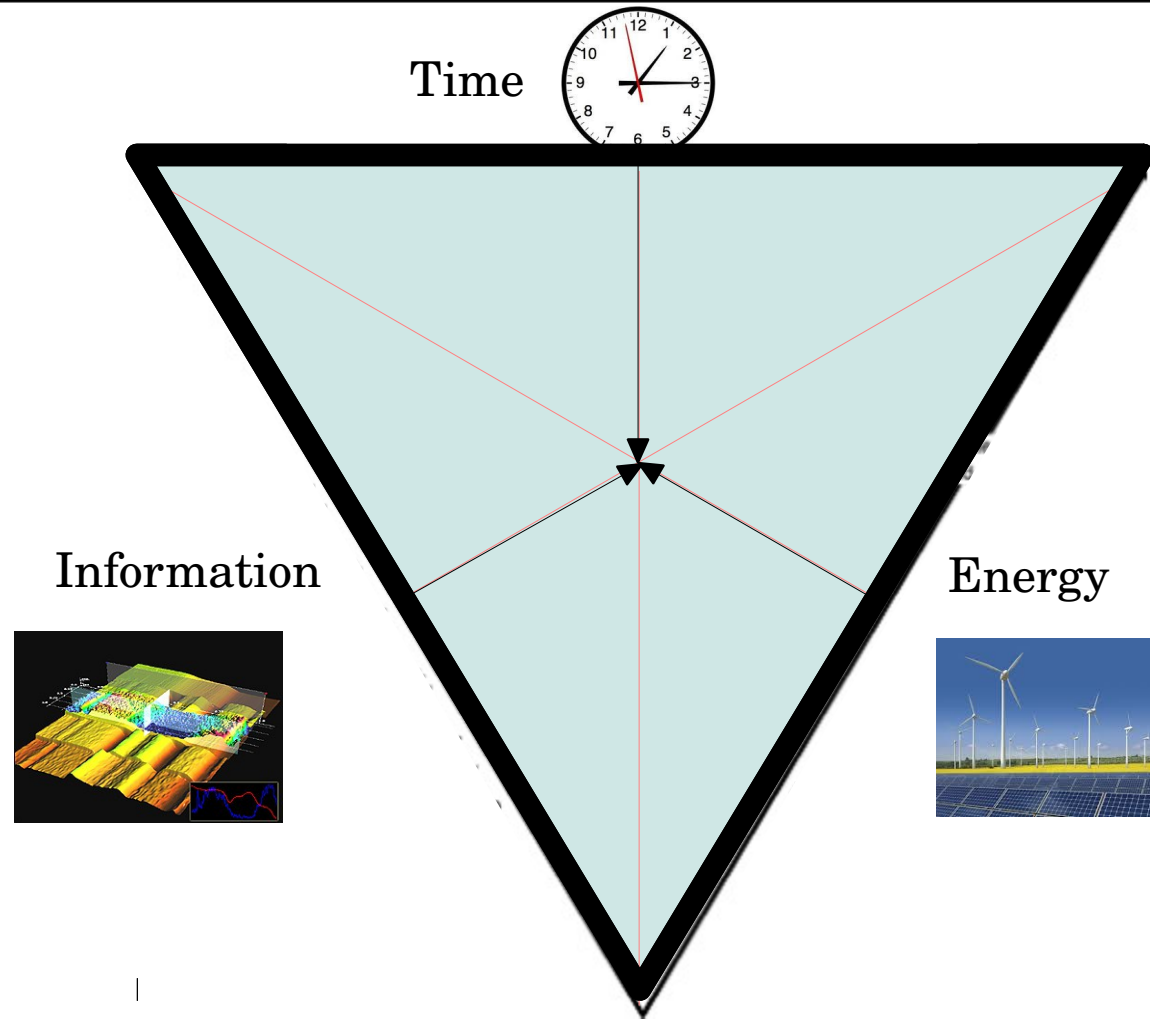


H.Rosa,
"Accelerazione e alienazione.
Per una teoria critica del tempo nella tarda modernità",
Piccola Biblioteca Einaudi, 2015

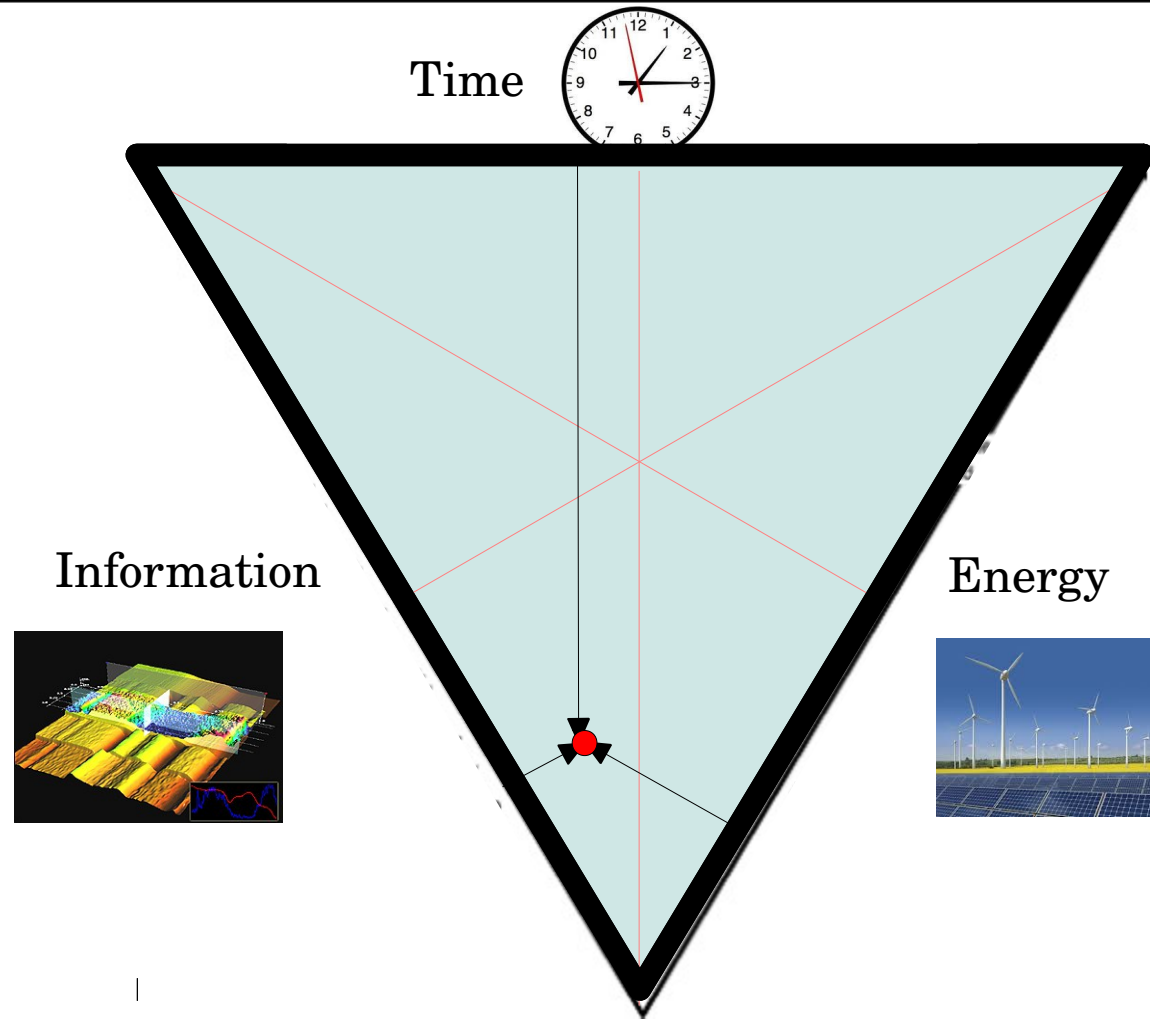
*La vita moderna è in costante accelerazione.
Gli strumenti che ci permettono di risparmiare tempo
hanno ormai raggiunto un enorme livello di sviluppo
grazie alle tecnologie di produzione e comunicazione,
eppure l'impressione di non avere abbastanza tempo
non è mai stata così diffusa.
In tutte le società occidentali,
le persone soffrono della mancanza di tempo
e si sentono in dovere di correre ancora più in fretta,
non tanto per raggiungere un obiettivo,
ma per non perdere posizioni...*

Energy, Time, and Information

Energy, Time, and Information

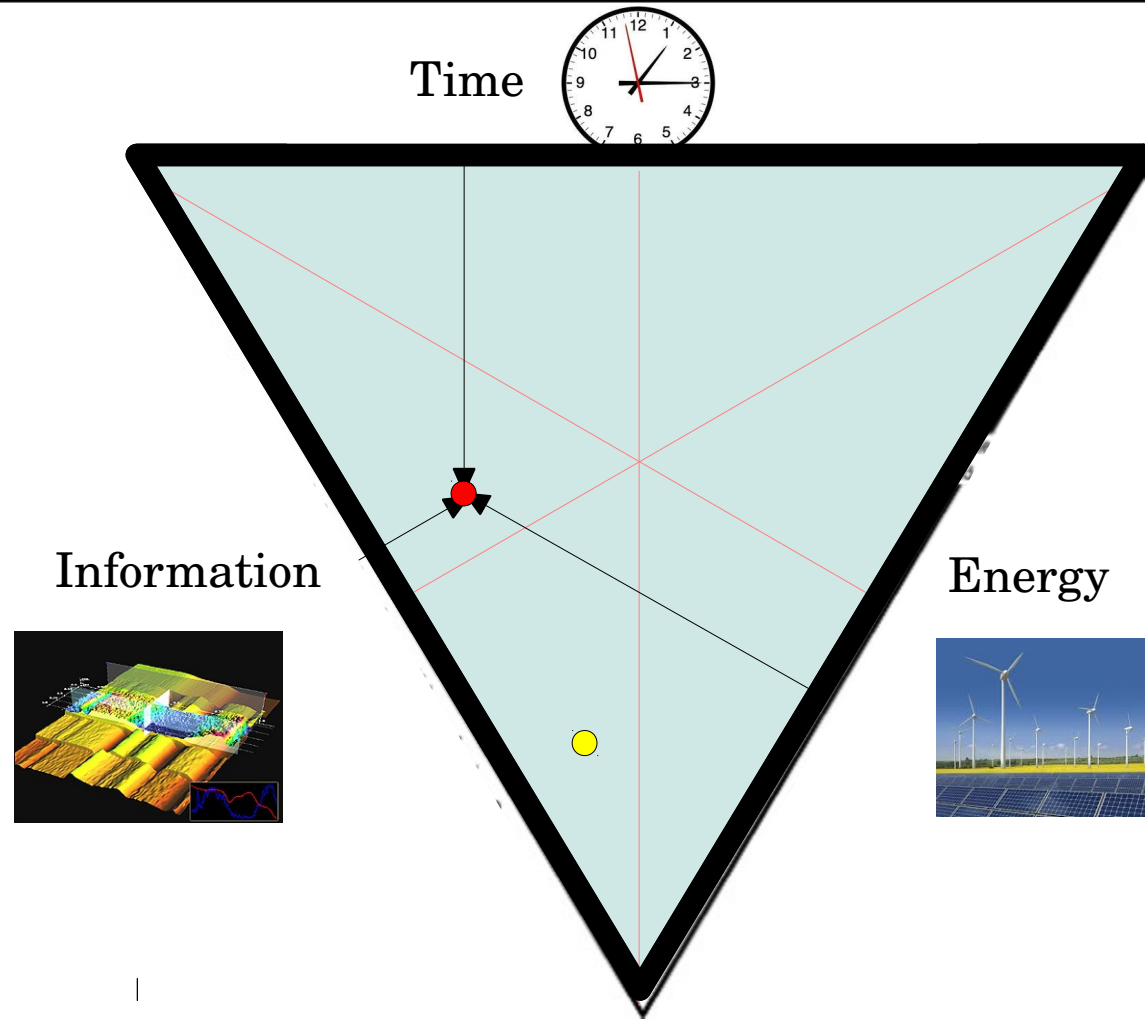


Energy, Time, and Information



Pre-Industrial Revolution
Energy=Low, Time=High, Information=Very Low

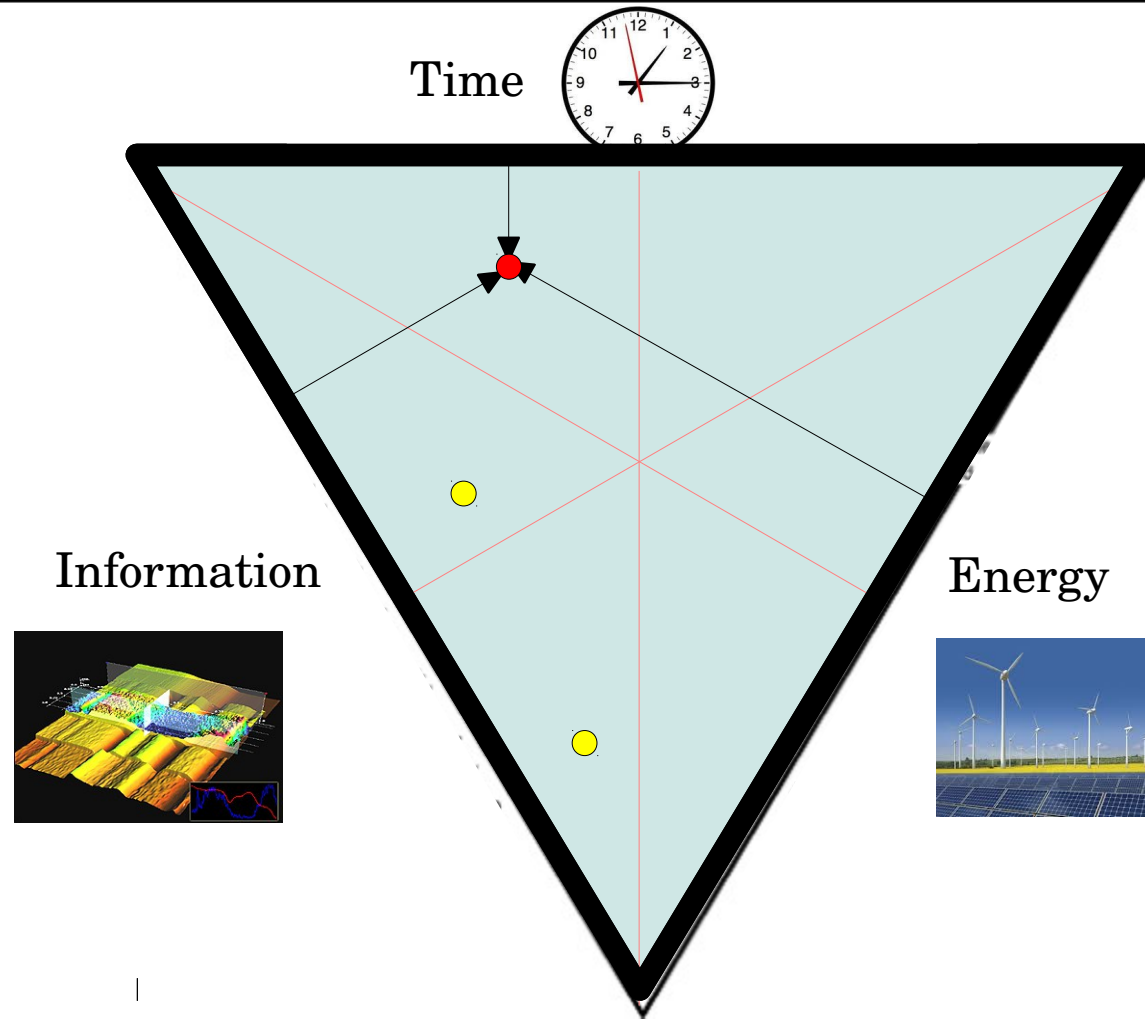
Energy, Time, and Information



Industrial Revolution 1/2

Energy=High, Time=Medium, Information=Very Low

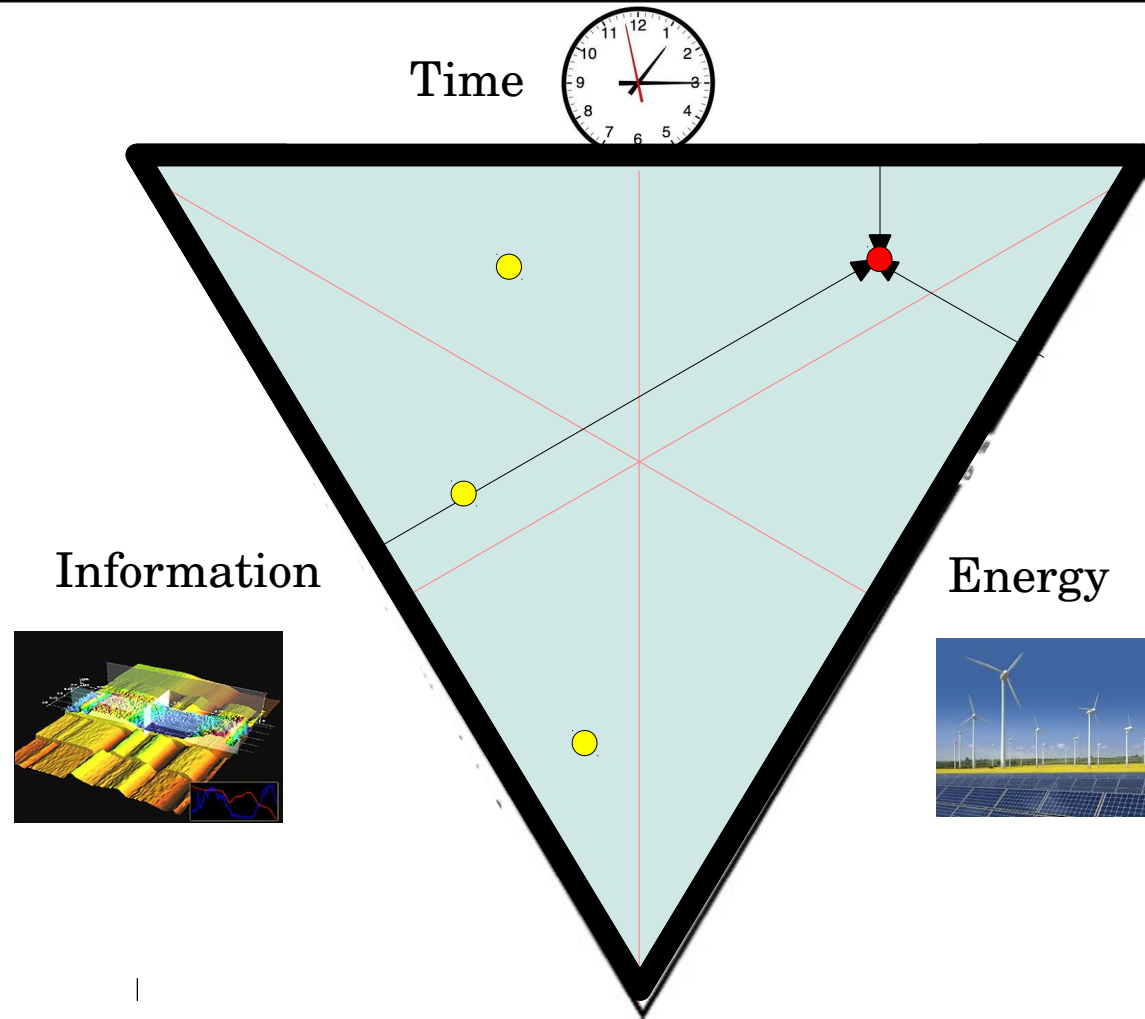
Energy, Time, and Information



Industrial Revolution 2/2

Energy=Very-High, Time=Low, Information=Medium

Energy, Time, and Information

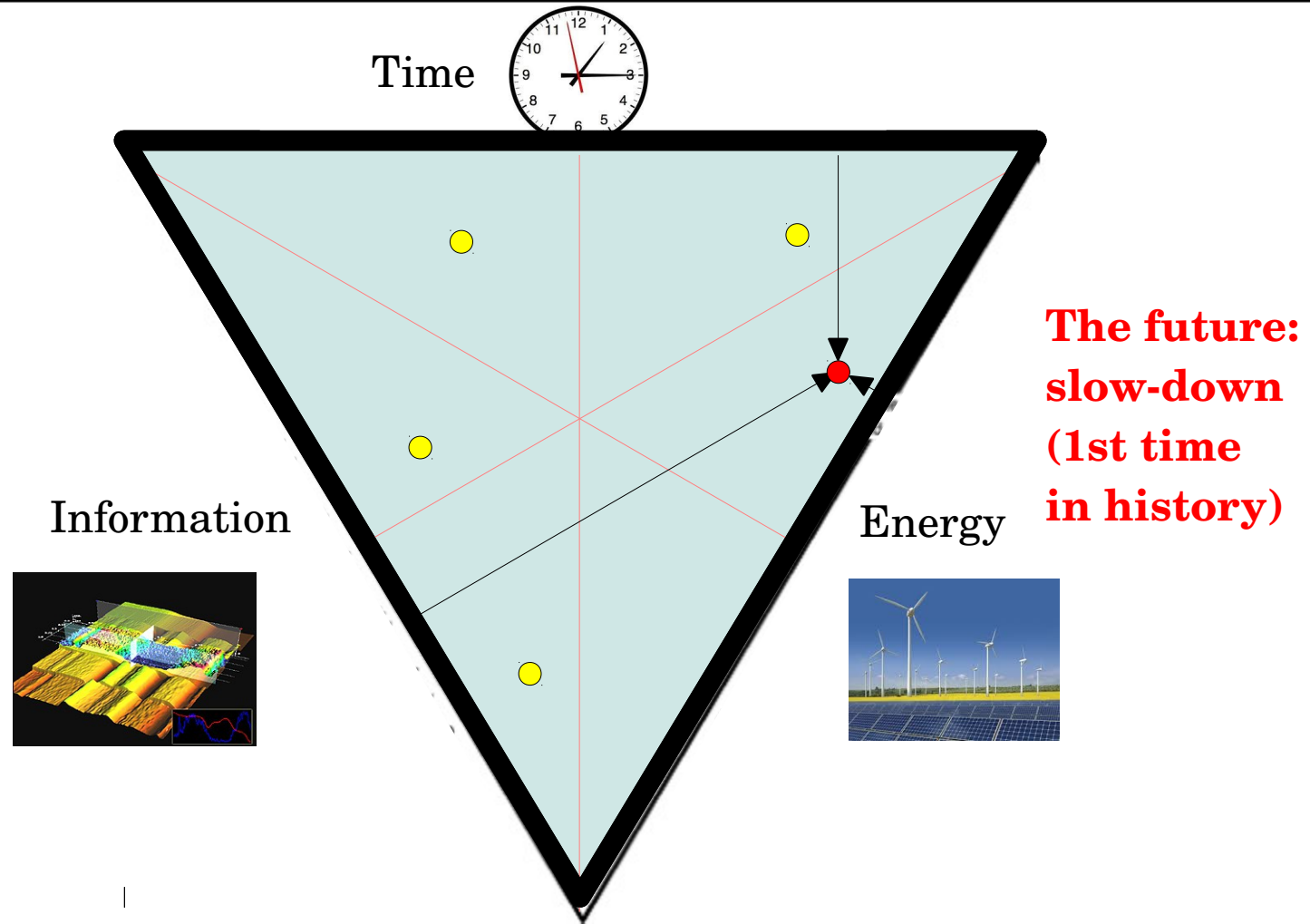


TOMORROW (2030)

Post-Industrial Revolution 1/2

Energy=Low, Time=Very Low, Information=Very High

Energy, Time, and Information



TOMORROW (2050)

Post-Industrial Revolution 2/2

Energy=Very Low, Time=Medium, Information=High