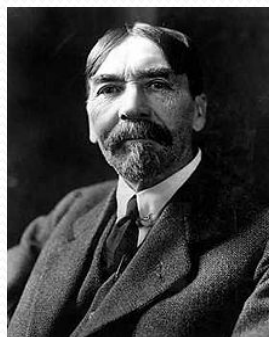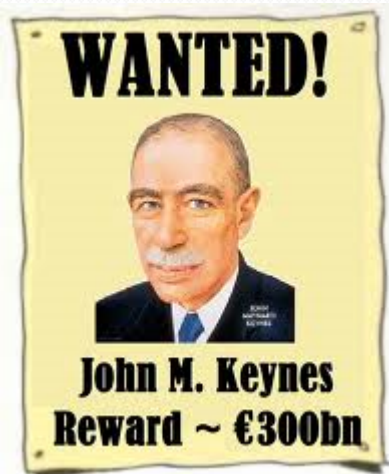# *Getting a grip on habitual practices: understanding the drivers of household energy consumption*

Brussels, December 8th, 2015

Kevin Maréchal – kmarecha@ulb.ac.be

Introduction

«*The truth lies, not with the new ideas, but in escaping the old ones*»

« You cannot solve a problem using the same thought process that created it »

"Two things are infinite. The universe and human stupidy.

...and i'm not so sure about the universe."

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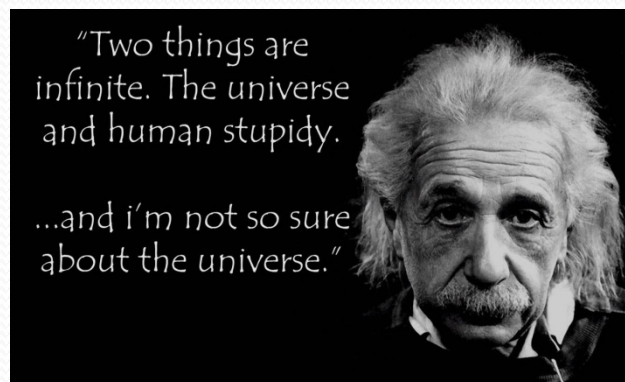
Necessary hindsight: take a step backwards

Picturing the rationale of our approach

What is the reality of perfect rationality?
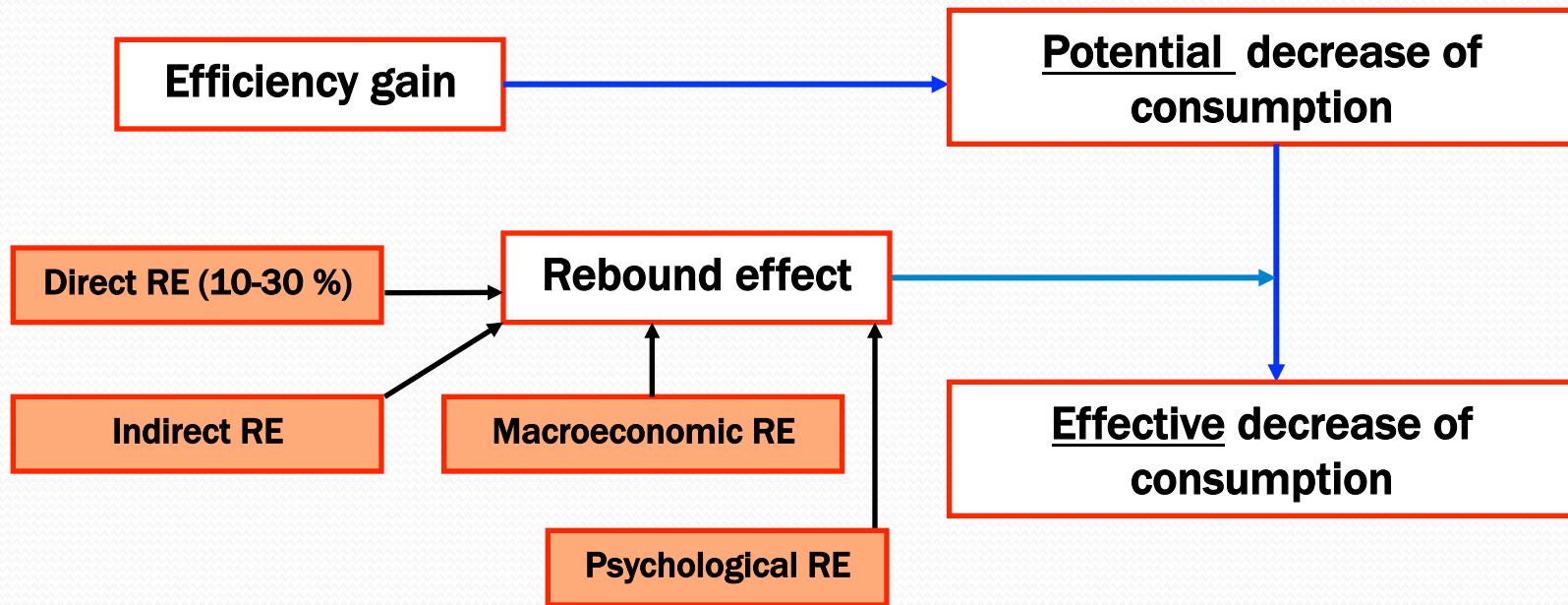
The crucial role of Economics

Economics acts as a referee in the energy consumption debate

The issue is framed to promote a technological approach

The importance of the rebound effect

Efficiency gain → Potential decrease of consumption

Direct RE (10-30 %) → Rebound effect → Effective decrease of consumption

Indirect RE → Rebound effect

Macroeconomic RE → Rebound effect

Psychological RE → Rebound effect

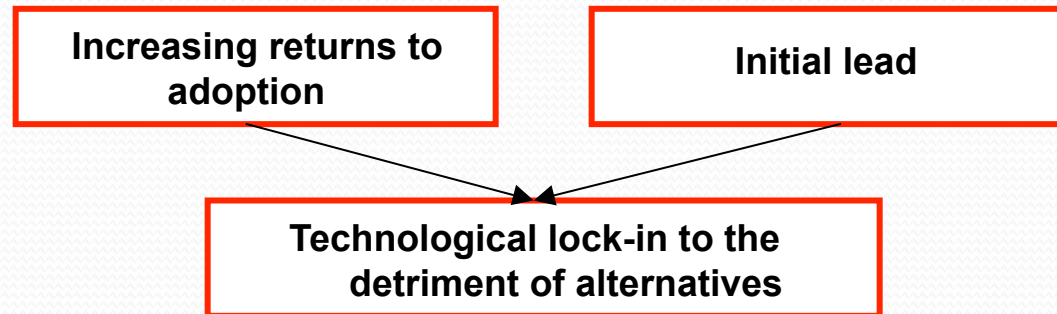# The no-regret potential

Controversy over the efficiency paradox

Overwhelming evidence → Transaction costs

Invalidated by empirical studies → market failures to be corrected (if welfare enhancing)

DRYOPITHECUS PARANTHROPUS HOMO ERECTUS HOMO OECONOMICUS

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A key concept: the notion of 'lock-in'

Increasing returns to adoption	Initial lead

Technological lock-in to the detriment of alternatives

A key concept: the notion of 'lock-in'

Adaptation vs Exaptation

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A key concept: the notion of 'lock-in'
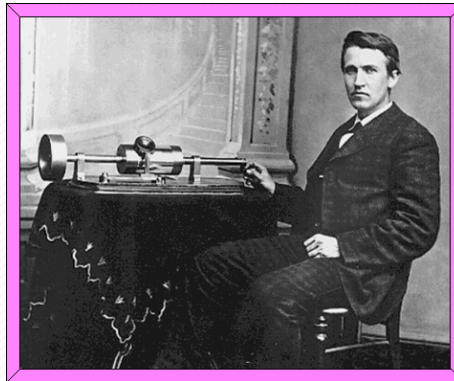
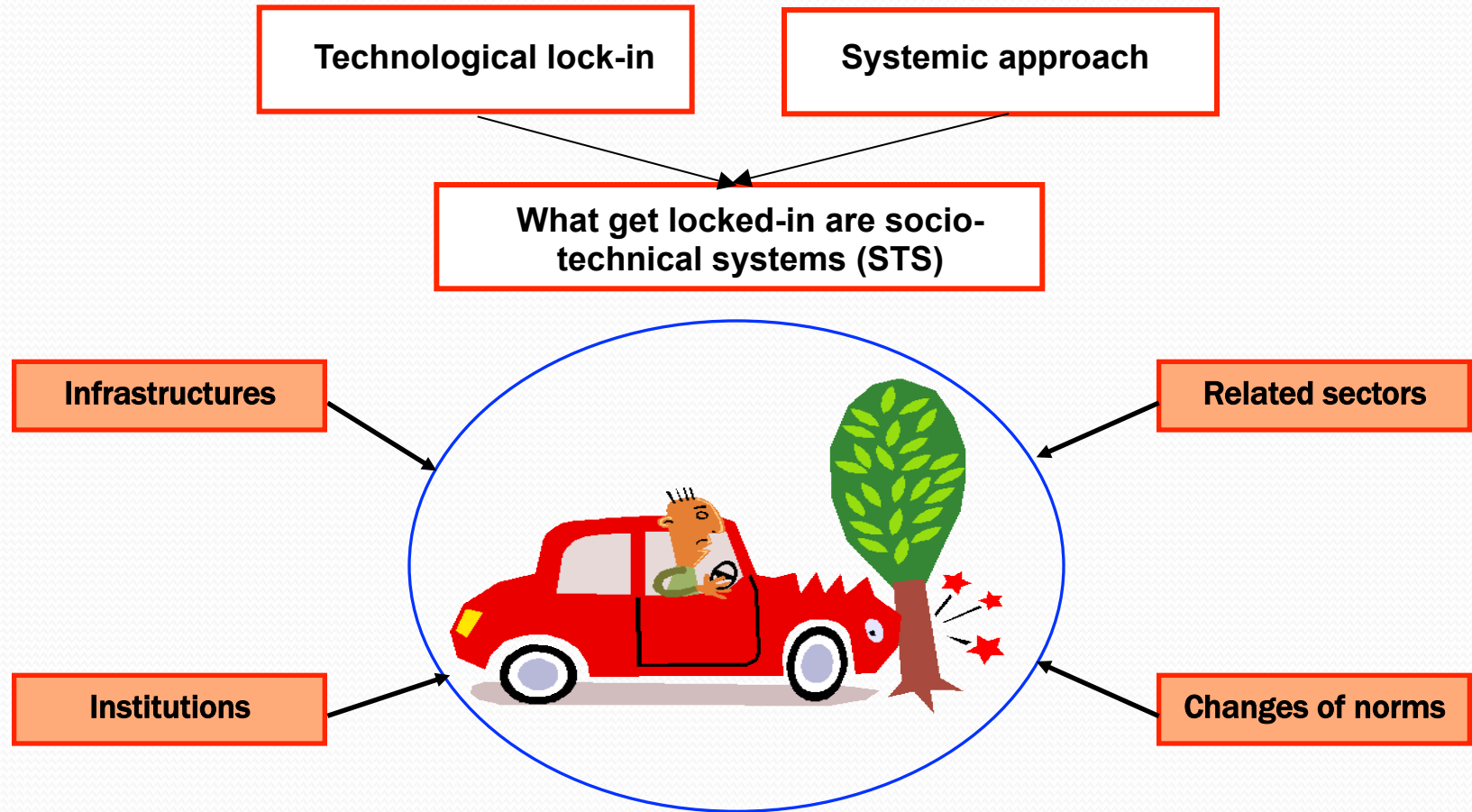
Maintain diversity

Persistence of obsolete element (design, characteristics, etc.)
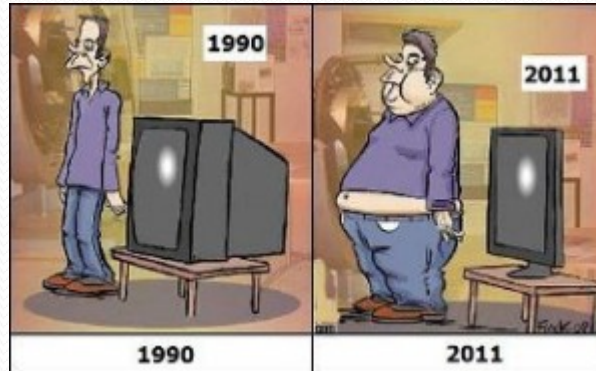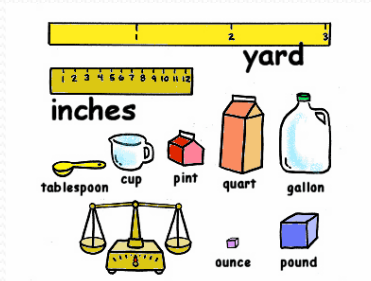
Dependent of previous choices and difficult and costly to change trajectories

The importance of the systemic perspective
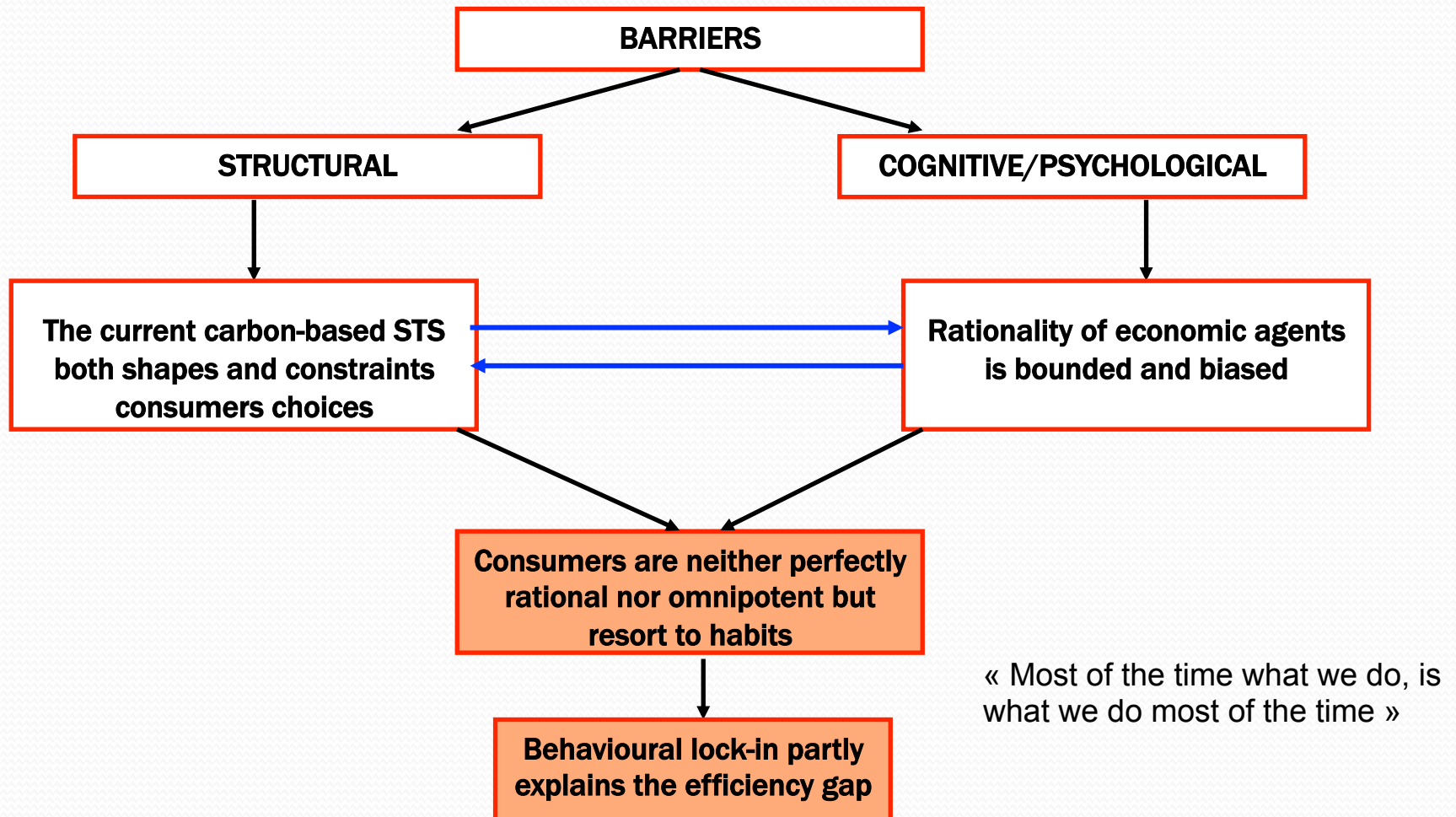

Technological lock-in

Systemic approach

What get locked-in are socio-technical systems (STS)

Infrastructures

Related sectors

Institutions

Changes of norms

The crucial role of habits

The presence of non-economics barriers neglected in analyses

BARRIERS

STRUCTURAL

COGNITIVE/PSYCHOLOGICAL

The current carbon-based STS both shapes and constraints consumers choices

Rationality of economic agents is bounded and biased

Consumers are neither perfectly rational nor omnipotent but resort to habits

Behavioural lock-in partly explains the efficiency gap

« Most of the time what we do, is what we do most of the time »

Formalizing the perspective

	1990	2010
E. Efficiency	100	127
E. Consumption	100	112.4

Energy saving is imperious

Focusing on promoting energy efficiency has failed

Depart from rational and sovereign consumers

Go beyond providing incentives and mass-media campaigns

Understanding behavior is necessary

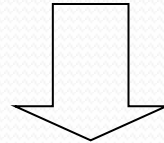**Get a better grip on what people really do in their life**
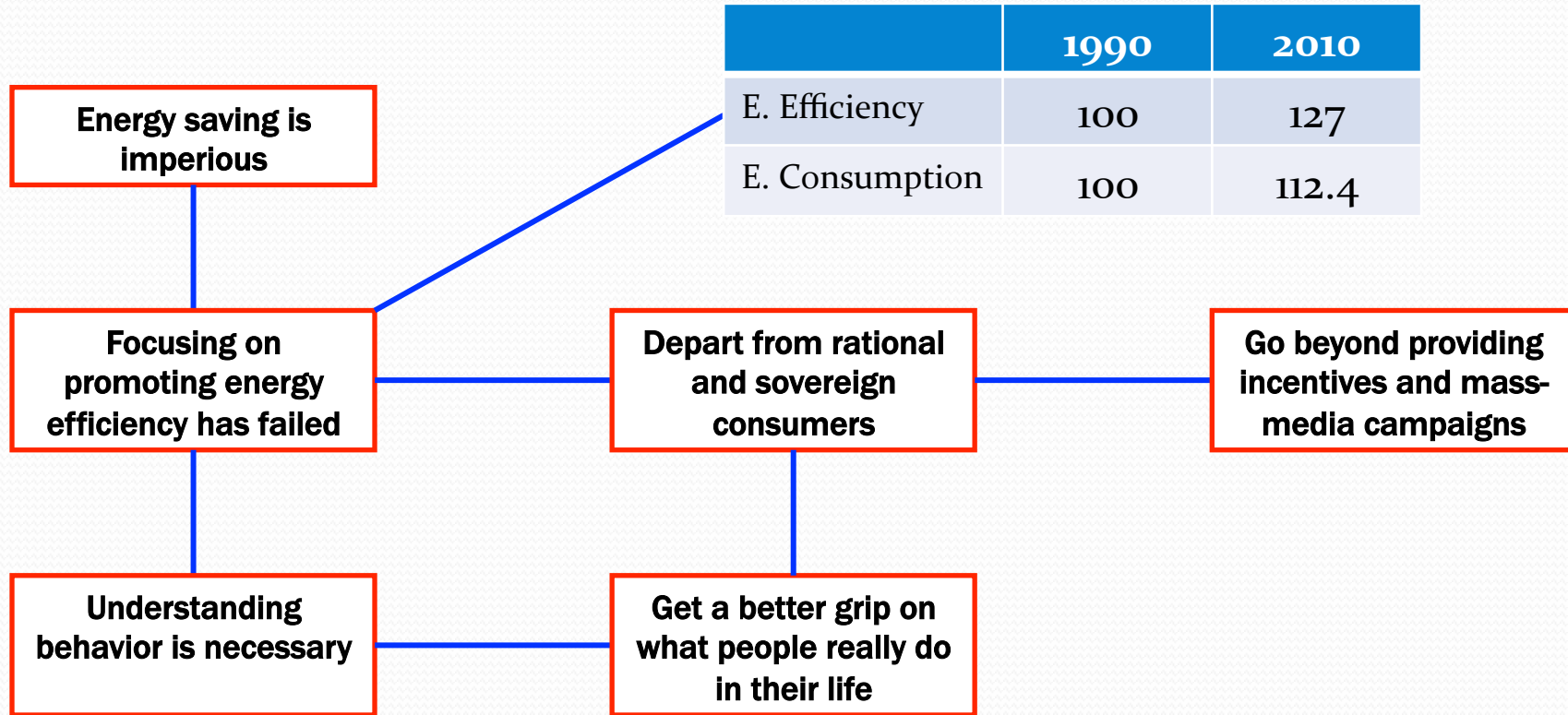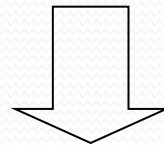
A first hint into our approach

Energy consumption is not significant in itself for households

People do not consume energy per se, they 'consume' services
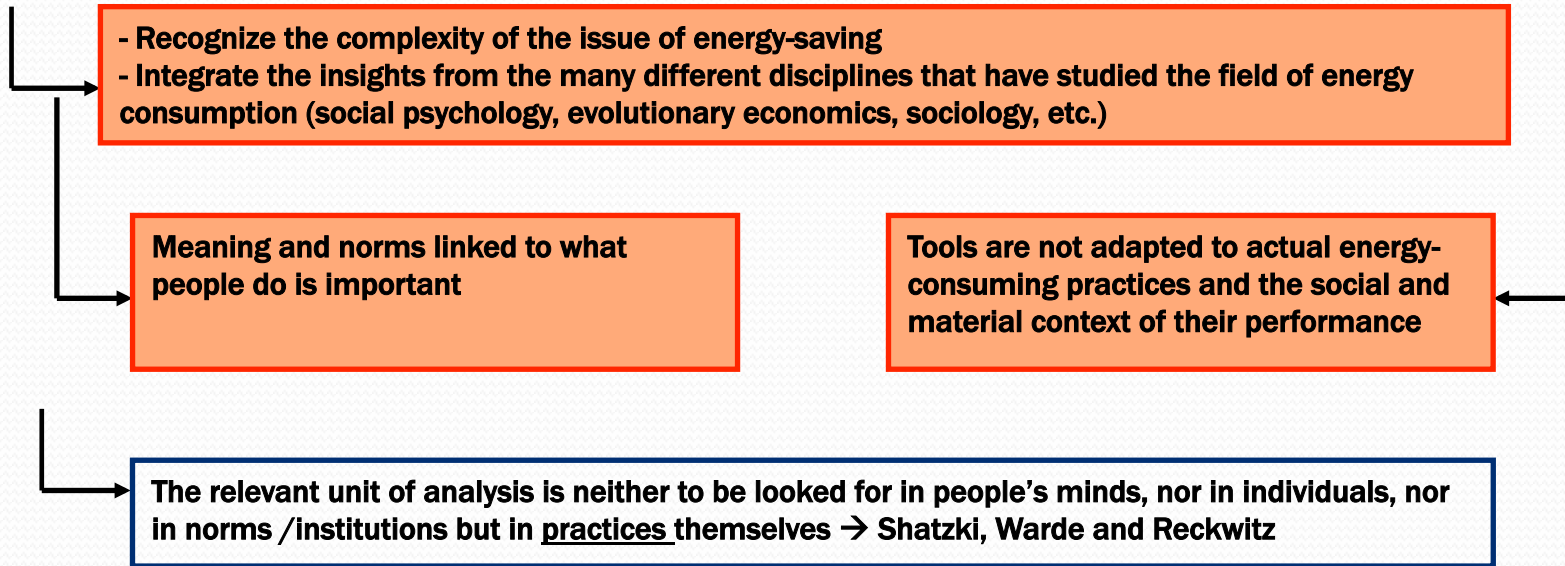
Ex: they get warm water, they watch tv etc.

⬇

Energy use = one aspect of other behaviours

⬇

There exists other aspects that should be taken into account.

BUT … WHICH ONES ?

From habits to habitual practices

- Recognize the complexity of the issue of energy-saving
- Integrate the insights from the many different disciplines that have studied the field of energy consumption (social psychology, evolutionary economics, sociology, etc.)

Meaning and norms linked to what people do is important

Tools are not adapted to actual energy-consuming practices and the social and material context of their performance

The relevant unit of analysis is neither to be looked for in people's minds, nor in individuals, nor in norms /institutions but in <u>practices</u> themselves → Shatzki, Warde and Reckwitz

Reckwitz (2002)

A <u>practice</u> is "*a <u>routinized</u> type of behaviour which consists of <u>several elements, interconnected t</u>o one other: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know how, states of emotion and motivational knowledge. A practice - a way of cooking, of consuming, of working, of investigating, of taking care of oneself or of others, etc. - forms so to speak a 'block' whose existence necessarily depends on the existence and specific interconnectedness of these elements, and which cannot be reduced to any one of these single elements*"
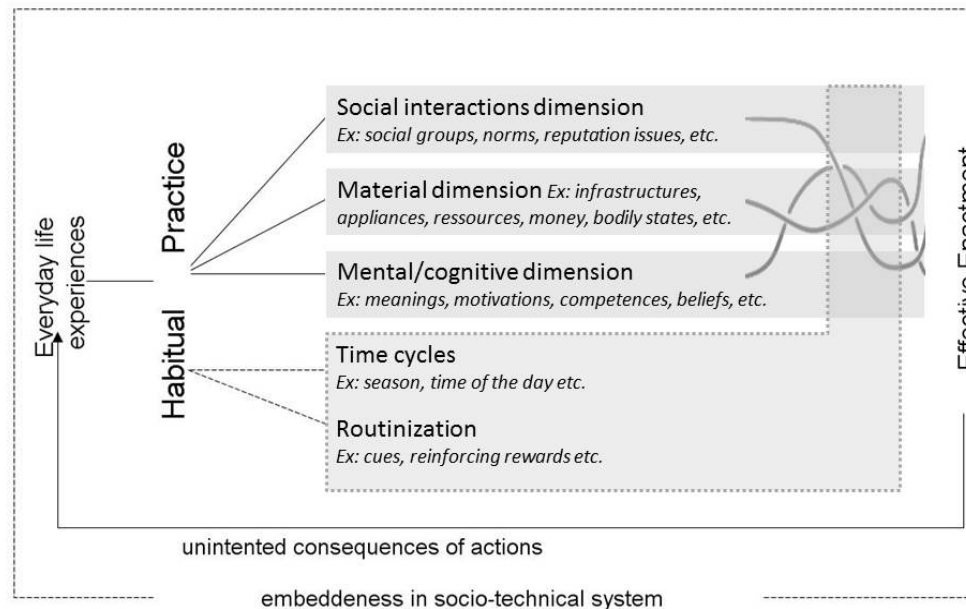
The framework of *habitual practices*

Habitual

- Automaticity
- Inertia, change and stabilization …

Practice

- Material, social and symbolic aspects
- Household-centered consideration …

The complexity that ensues from this innovative perspective on consumer behaviour undoubtedly constitutes both its richness as well as potentially its main drawback

Our integrative theoretical framework

Modifying the habit of showering depends on …

| Material related aspects | Ex: size of the shower, water flow, air temperature in the bathroom, etc. |

| Social interactions related aspects | Ex: norms of hygiene, cleanliness and freshness, others' perception, etc. |

| Cognitive related aspects | Ex: objectives of the shower (to relax, to get clean,), beliefs, etc. |

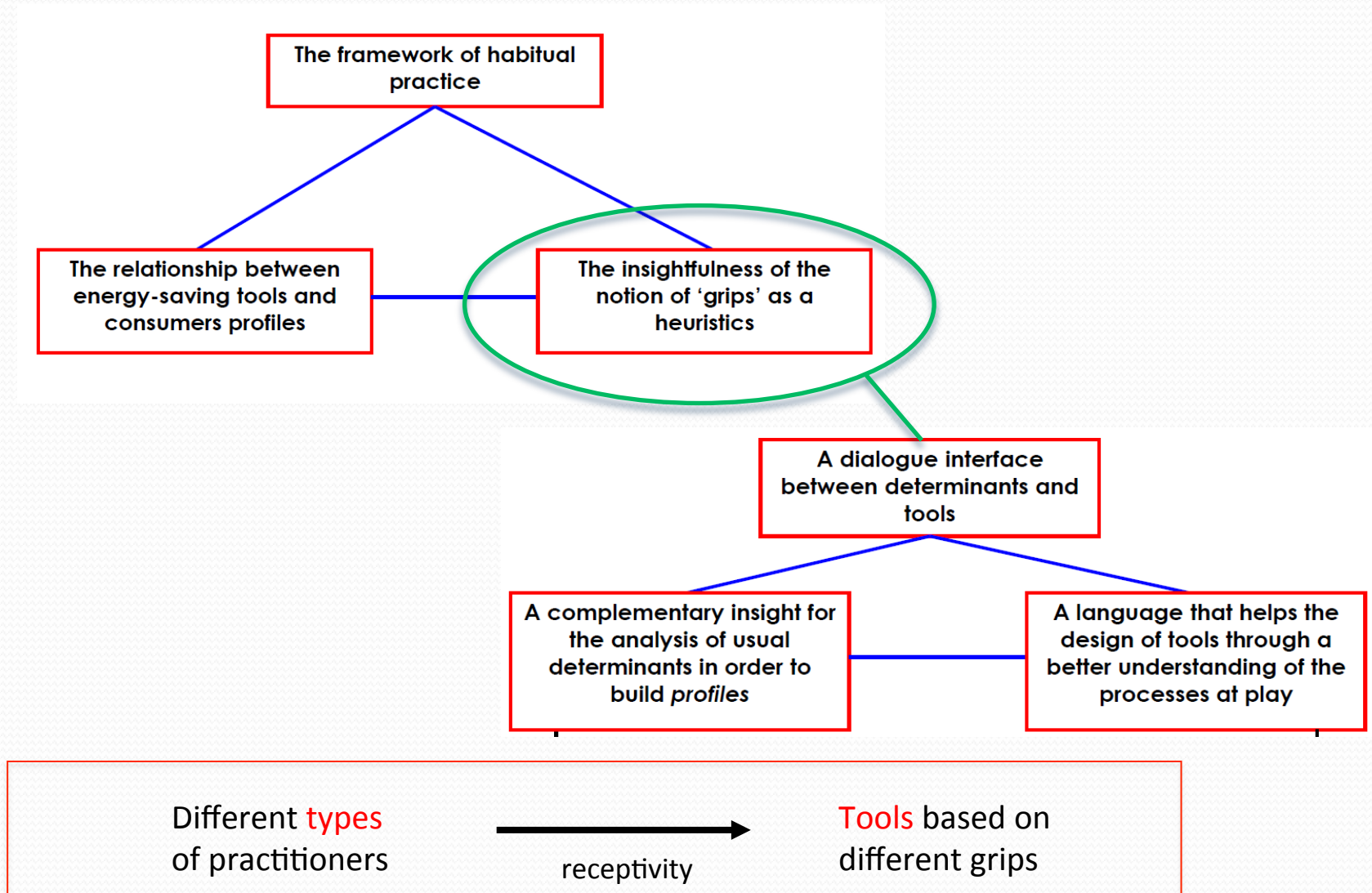| Routinization aspects | Ex: cues (shivering, stress, waking up, etc.) reinforcing rewards (freshness feeling, quietness, intimacy, etc.) |

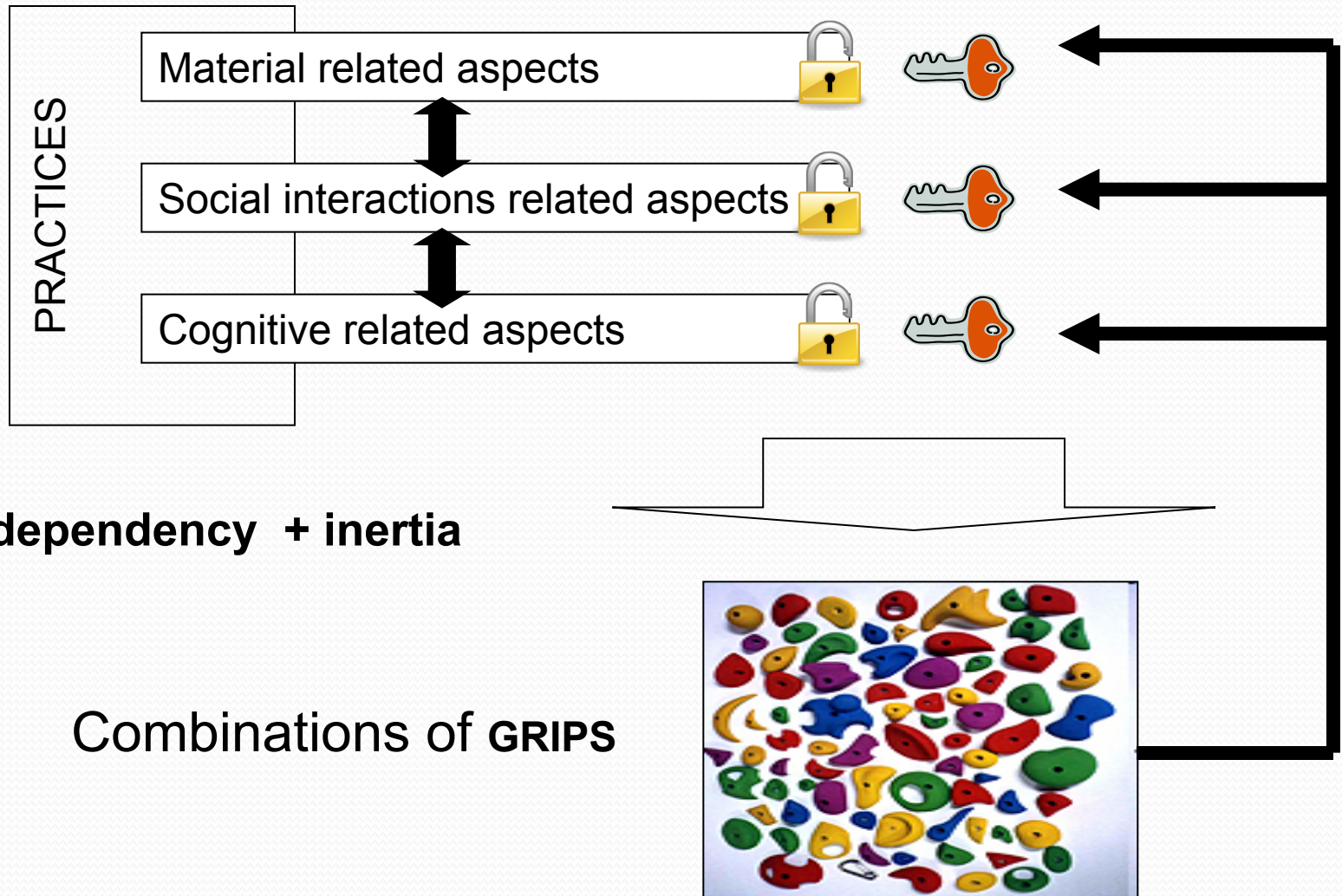| Time cycles | Ex: outdoor climate, time of the day, holidays, etc. |

It is thus not about changing **one** showering behaviour but **several** ones (e.g. take a hot shower to warm up, a long shower to relax, a quick shower to wake up, several showers a day to feel clean and fresh, etc.)

Objectives and reading grid of our approach

The framework of habitual practice

The relationship between energy-saving tools and consumers profiles

The insightfulness of the notion of 'grips' as a heuristics

A dialogue interface between determinants and tools

A complementary insight for the analysis of usual determinants in order to build *profiles*

A language that helps the design of tools through a better understanding of the processes at play

Different types of practitioners

→ receptivity

Tools based on different grips

Change is difficult: activating many grips

PRACTICES

- Material related aspects
- Social interactions related aspects
- Cognitive related aspects

Inter-dependency + inertia

Combinations of GRIPS

Preliminary de-briefing

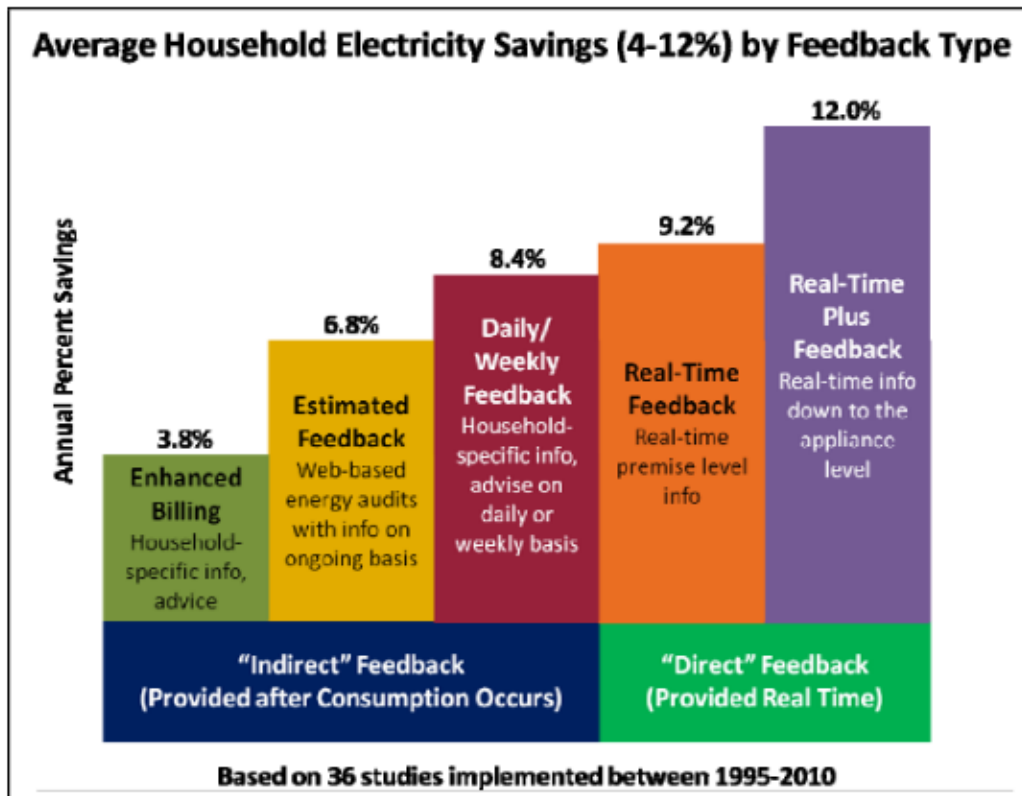| A behaviour is …	In reality behaviour change means…	Thus for effective intervention we have to…
…more or less routinized	… changing/breaking a routine	… identify and play on cues and rewards
…inscribed in a context, a system (socio-tech and of practices)	… changing only one element in the system	… identify and take into account the constraints and possibilities, external to the behaviour
…made of stabilized arrangements of different elements (social, cognitive and material)	… changing all the elements of an arrangement	…identify the stabilized arrangements, understand and adapt the tools to them

One crucial issue with domestic energy consumption

Make energy visible

Types of feedback and efficiency

Average Household Electricity Savings (4-12%) by Feedback Type

Based on 36 studies implemented between 1995–2010

'learning by looking' is more efficient than ex-post 'learning by reading and reflection'

Habitual practices and feedback

THAT DOESN'T EVEN MAKE SENSE!

Make energy sensible

More attuned to everyday life

Step 1:
Existing instruments → Action(s) → Grip(s)

Step 2:
Grip(s) → Action(s) → Innovative instruments

Step 1:
Smart meter → Feedback → Making energy visible + Awareness of the impact of behaviour

Step 2:
Making energy visible + Awareness of the impact of behaviour + SKILLFULNESS AS INTERNAL REWARD → Feedback + SET A GOAL → Smart meter + DISPLAY

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Habitual practices and feedback
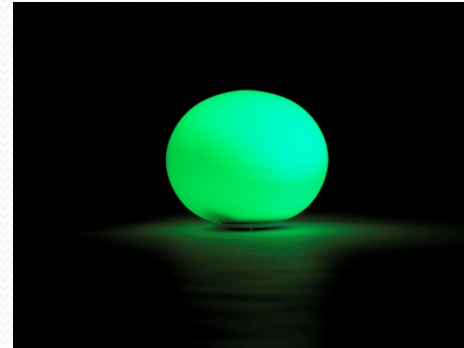
- In comparison to numerical feedbacks, ambient feedbacks have the particularity to lower the cognitive load required to decipher the message brought by the device. Ambient feedback have several advantages on numerical feedbacks:
  - Colours are immediately interpreted.
  - Uses emotions as well as reasons.
  - The change in colour catches the eye.
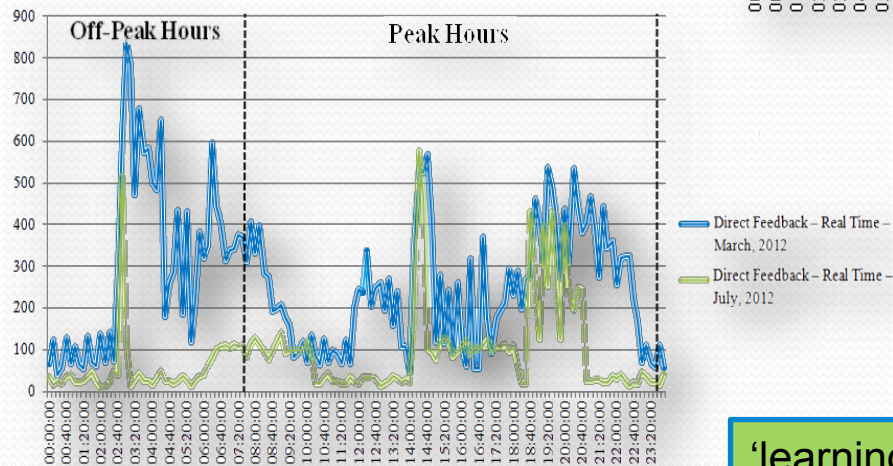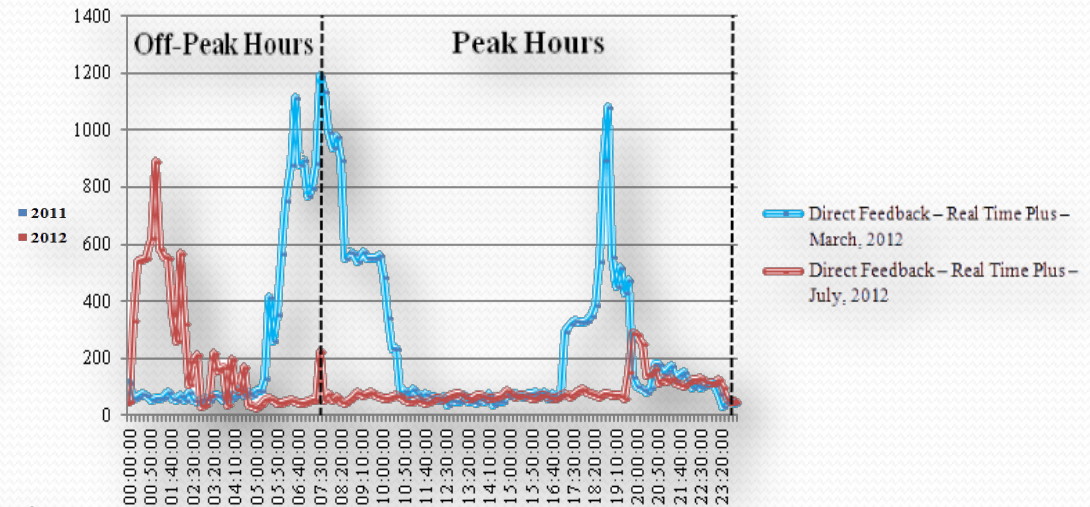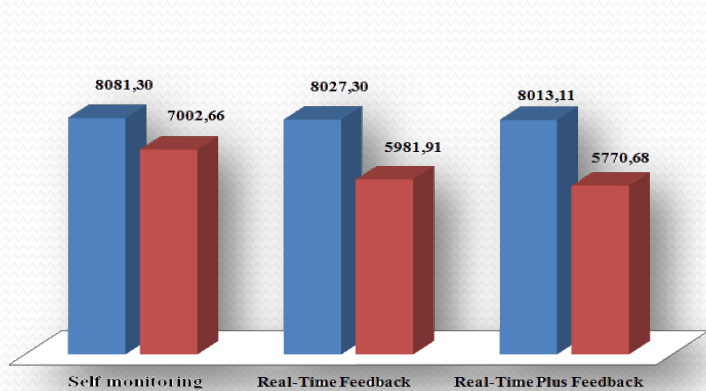 - More easily integrated in daily life.

How do feedbacks work? Results from TICELEC

A field study in Southern France
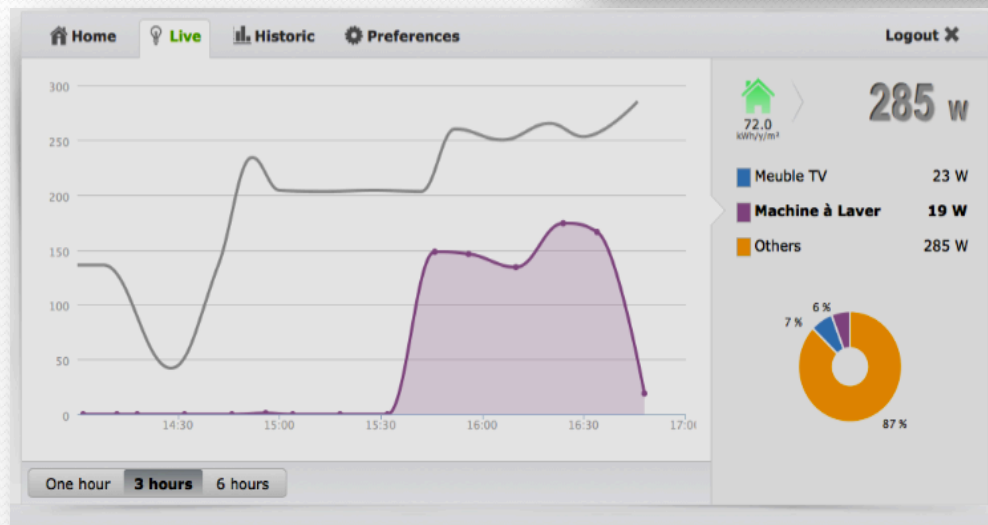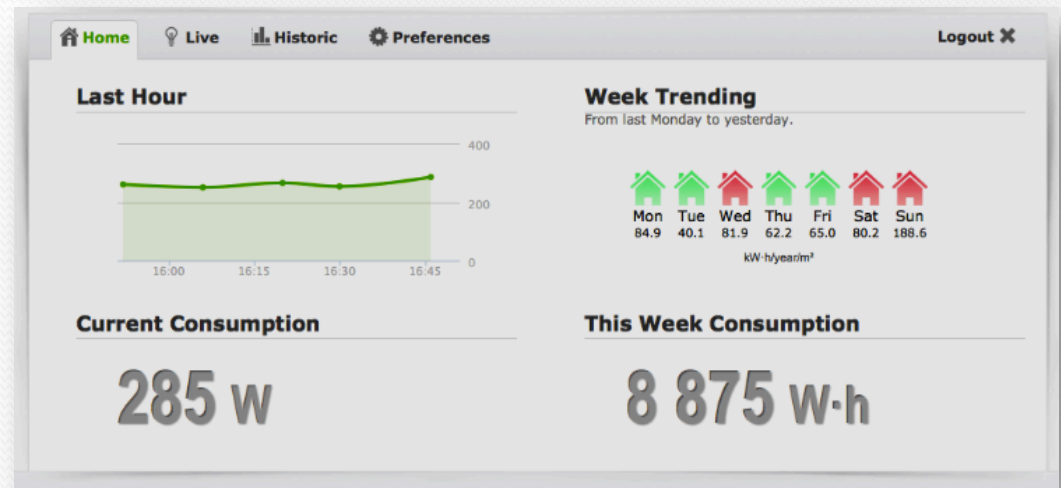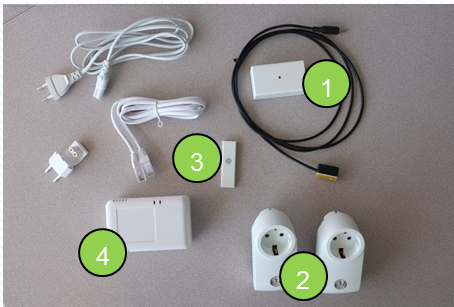
How do feedbacks work? Results from TICELEC

'learning by reading and reflecting' is crucial
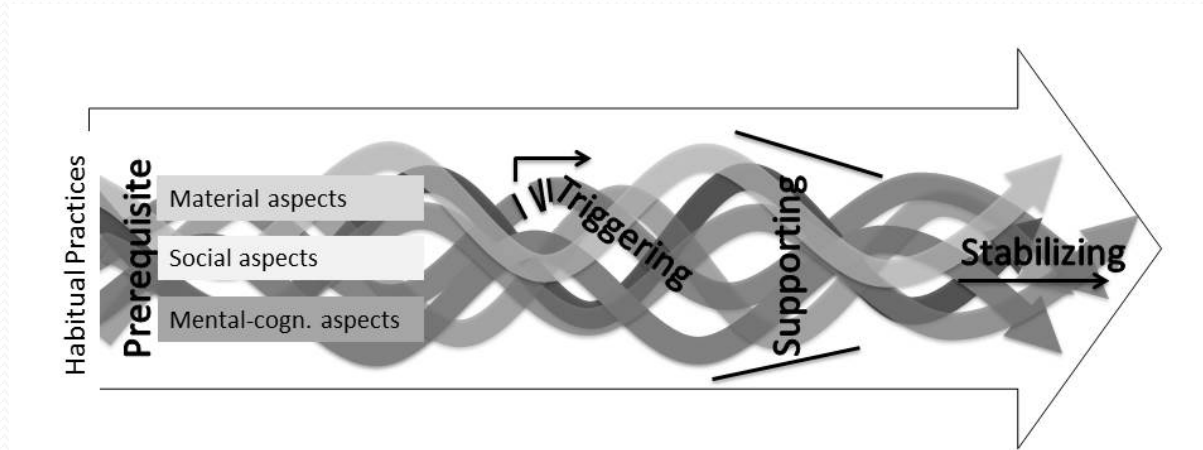
Building a toolbox for behaviour change

1. The need to build <u>profiles</u> => need for <u>segmentation</u>

> *Profiles can differ according to the attached cues, rewards, constraints, possibilities, arrangements of practices elements*

2. The need to take into account the <u>dynamic</u> aspect of behaviour change

> *We have to go :*
>
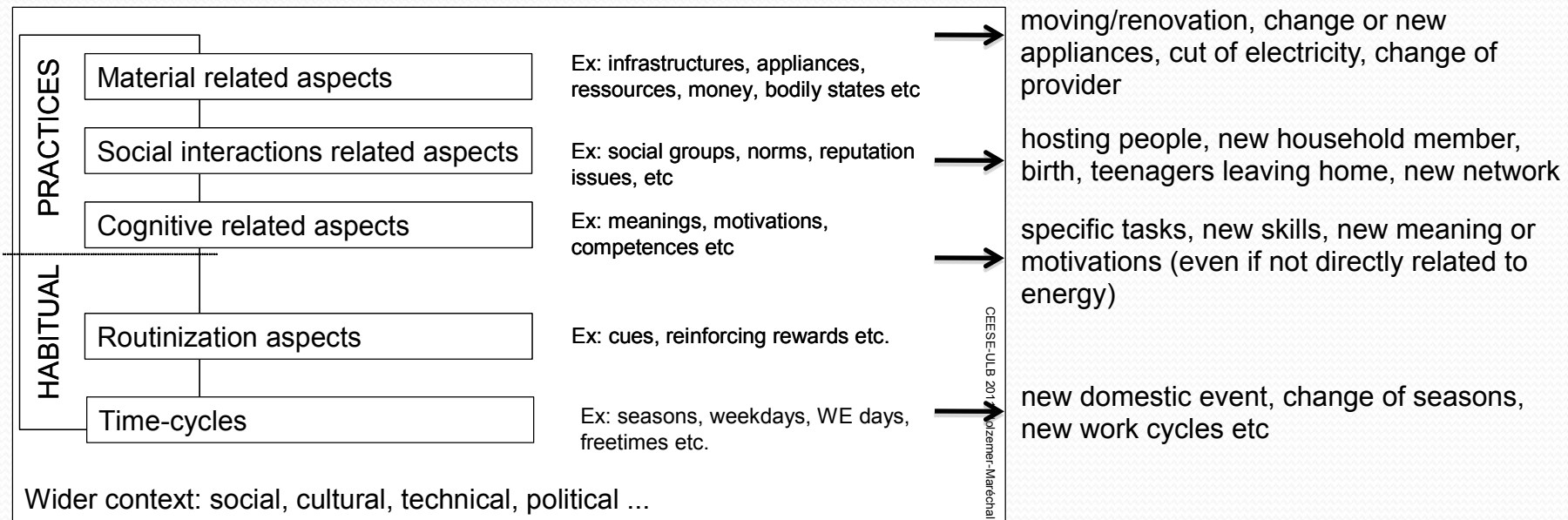> *From a stabilized behaviour A* ⟶ *To a new stabilized behaviour B*

Pre-requisite = profiles → **Triggers** ⟶ *Sustainers* ⟶ *Stabilizers*

Target/Favour 'windows of opportunity' (WoO) for interventions:
-> Stabilized arrangements temporally misaligned
-> New arrangement (a change) is going to occur

When? When there is a change or disappearance of a practice element (spontaneous or induced):

Possible WoO: some ex.

PRACTICES		
Material related aspects	Ex: infrastructures, appliances, ressources, money, bodily states etc	→ moving/renovation, change or new appliances, cut of electricity, change of provider
Social interactions related aspects	Ex: social groups, norms, reputation issues, etc	→ hosting people, new household member, birth, teenagers leaving home, new network
Cognitive related aspects	Ex: meanings, motivations, competences etc	→ specific tasks, new skills, new meaning or motivations (even if not directly related to energy)

HABITUAL		
Routinization aspects	Ex: cues, reinforcing rewards etc.	
Time-cycles	Ex: seasons, weekdays, WE days, freetimes etc.	→ new domestic event, change of seasons, new work cycles etc

Wider context: social, cultural, technical, political ...

CEESE-ULB 2011 Wallenborn-Maréchal

Pre-requisite = profiles ⟶ *Triggers* ⟶ *Sustainers* ⟶ **Stabilizers**
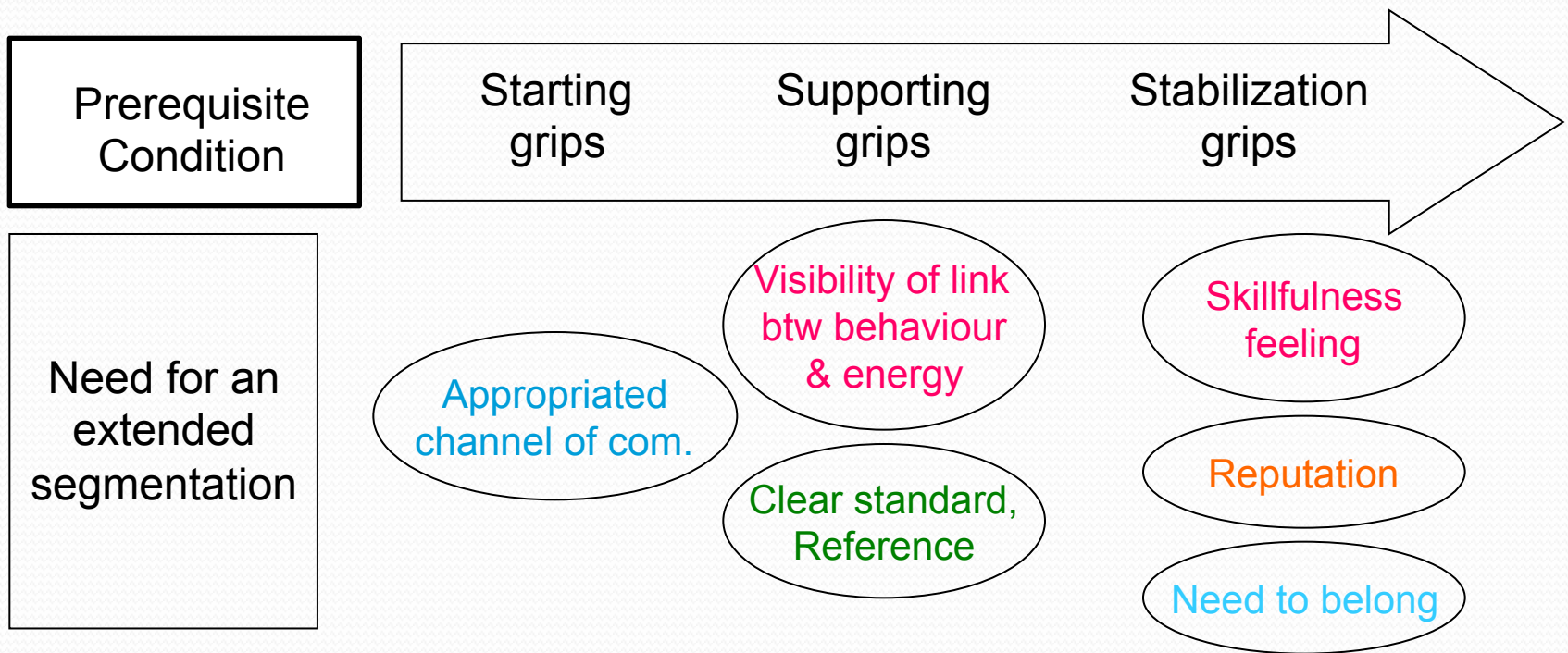
• Favour **intrinsic motivation**

⟶ means that the locus of causality is perceived as internal

Ex: the motivation for doing something to make my daughter happy is more internal than the motivation of doing it because a rule/law obliges me.

Grips to enhance intrinsic motivation:

• To feel a sense of relatedness and as belonging to a group.
• To feel recognized and valorised by significant others, with real or
  desired similarities => reputational concern and relative status
• To feel skilful in a practice
• To feel autonomous
• To feel helpful / able to "make a difference"
• To feel an inwardly grasping of values and meanings of an action

Illustrating the dynamic process of change

| Prerequisite Condition | Starting grips | Supporting grips | Stabilization grips |

Need for an extended segmentation

Appropriated channel of com.

Visibility of link btw behaviour & energy

Clear standard, Reference

Skillfulness feeling

Reputation

Need to belong

Action = Giving an objective to a specific profile

+ achievable

+ channel of com: ex. words of mouth

+ made public to the peers

+ made completely or partially collective

Feedback and grips: one example

Ex 1	Tool	Actions	Grips activated

"Do the green thing.com" :
Possibility of public evaluation of the members by the peers

→

Feedabck by the peers
Public feedback

→

Reputational & status concern
Skillfulness feelings

↓

Intrinsic motivation and symbolic rewards

Andy's Profile
Signed up since September 07
Estimated 8,243kg of CO2 saved

👁 15040 views
💚 63 likes
💬 41 comments
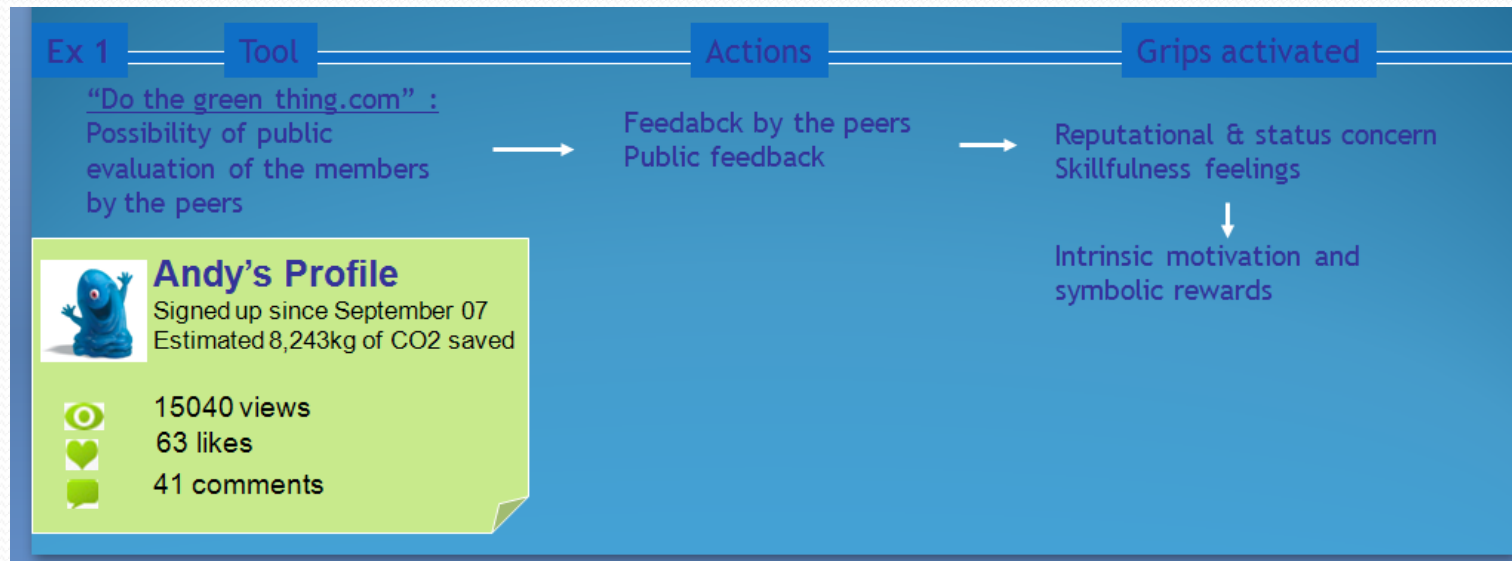
Grips and tools: one example

Ex Grips to activate	Possible actions	Examples of tool elements
	Informing	**Welcome!** Consider yourself one of the family. You're now a fully fledged member of Green Thing. *from www.dothegreenthing.com*
	or/and	
Sense of belonginess to a group	**Feedback**	Provide collective feedback
	or/and	
	Social networking	Create virtual or real communities
↓	*or/and*	
Intrinsic Motivation Intrinsic Reward	**Comparing**	Through comparisons make emerge groups, similarities in behaviours or conditions
	or/and	
	Targetting/Committing	Set collective targets/commitments
	or/and	
	Rewarding	Reward of 35$ (for a green project) given to the eco-district for each of its inhabitant engaged in the program. « Mieux consommer » d'Hydroquebec

Conclusions on feedback mechanisms

There is no perfect FB for every individual

Preferences regarding content and format varies with consumer profiles ... but also with practices !

Handling food	Handling the laundry	Entertainment
Ambient with colours	Ambient with colours	Numerical
Display	Display	Computer

WHAT ABOUT THE CONTENT????

Need to think out of the box
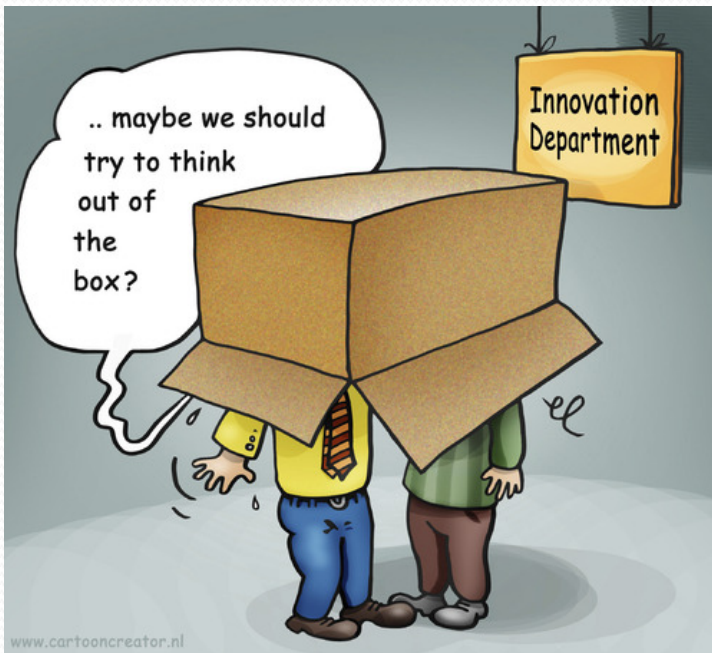
Kenneth **Boulding (1910-1993)**

«*Anyone who believes in <u>indefinite</u> growth in anything physical, on a physically finite planet, is either mad or an economist*»

Unlocking the economic model

https://www.youtube.com/watch?v=zCRKvDyyHmI

Out of the box currency?

Medium that has emerged naturally to facilitate transactions

Focus on the medium of exchange function to the detriment of the unit of account

Need to perform an analysis of the historiy of currency taking into account its social embeddedness

A monetary system serves the interests that gave rise to its creation

Induces practices that are accordant with these interests

Conceive other monetary systems

System resilience: a forgotten concept?

Work of Bernard Lietaer and colleagues
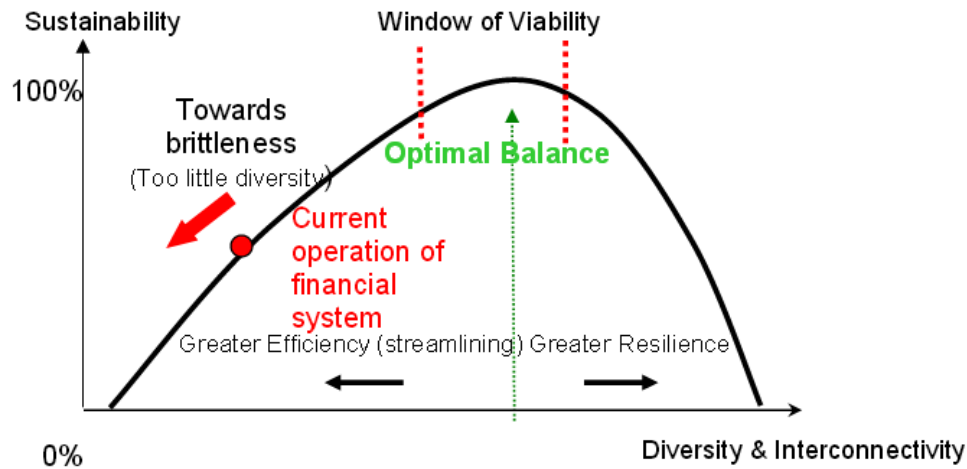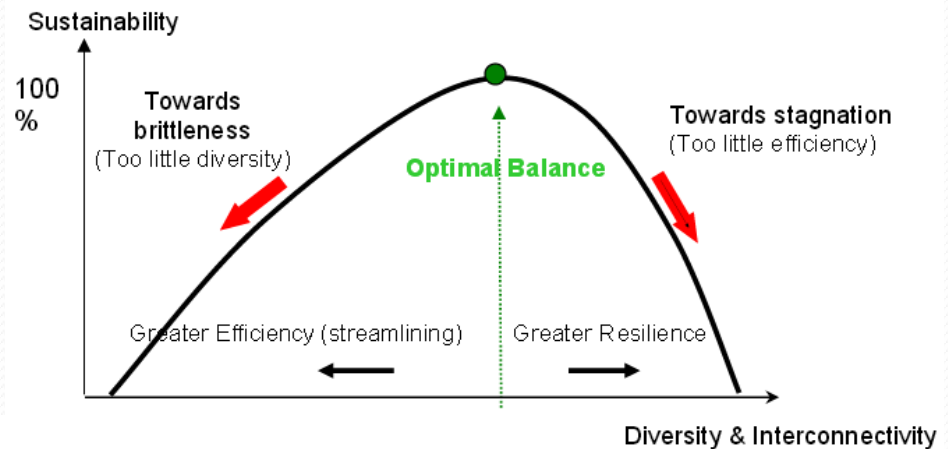
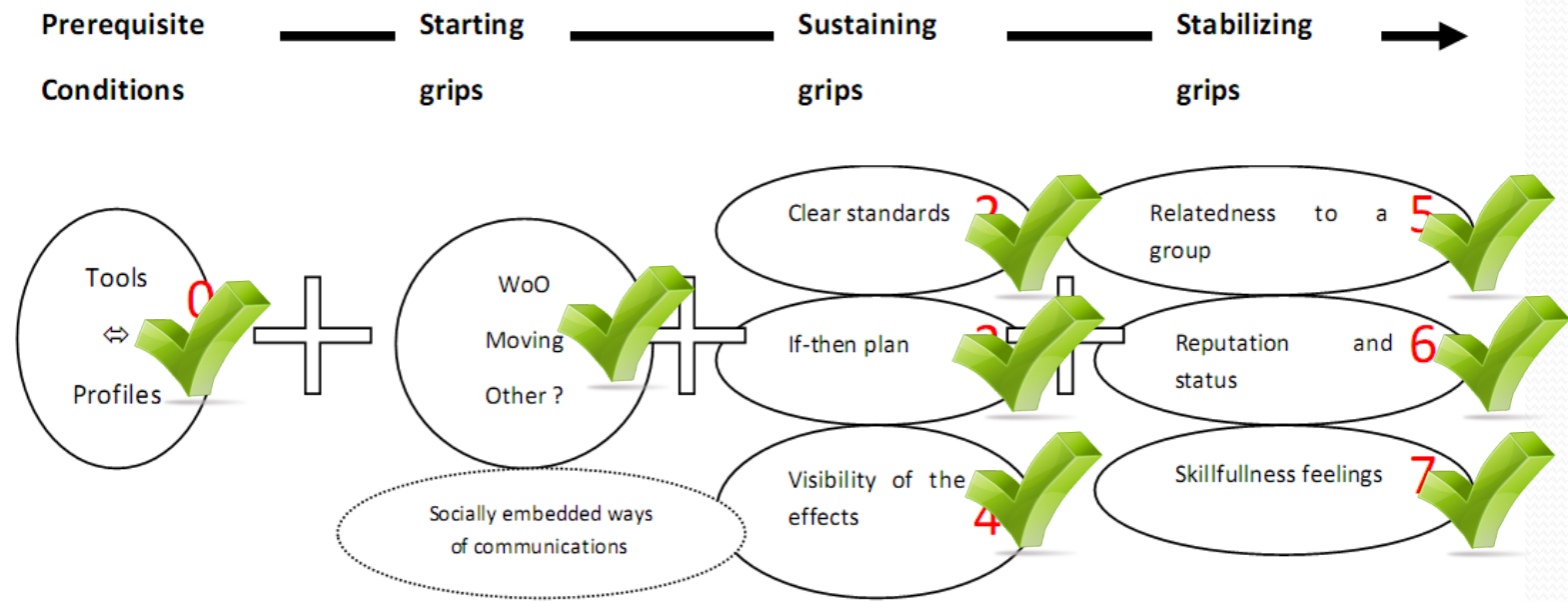# Explosion of social CCs in recent years
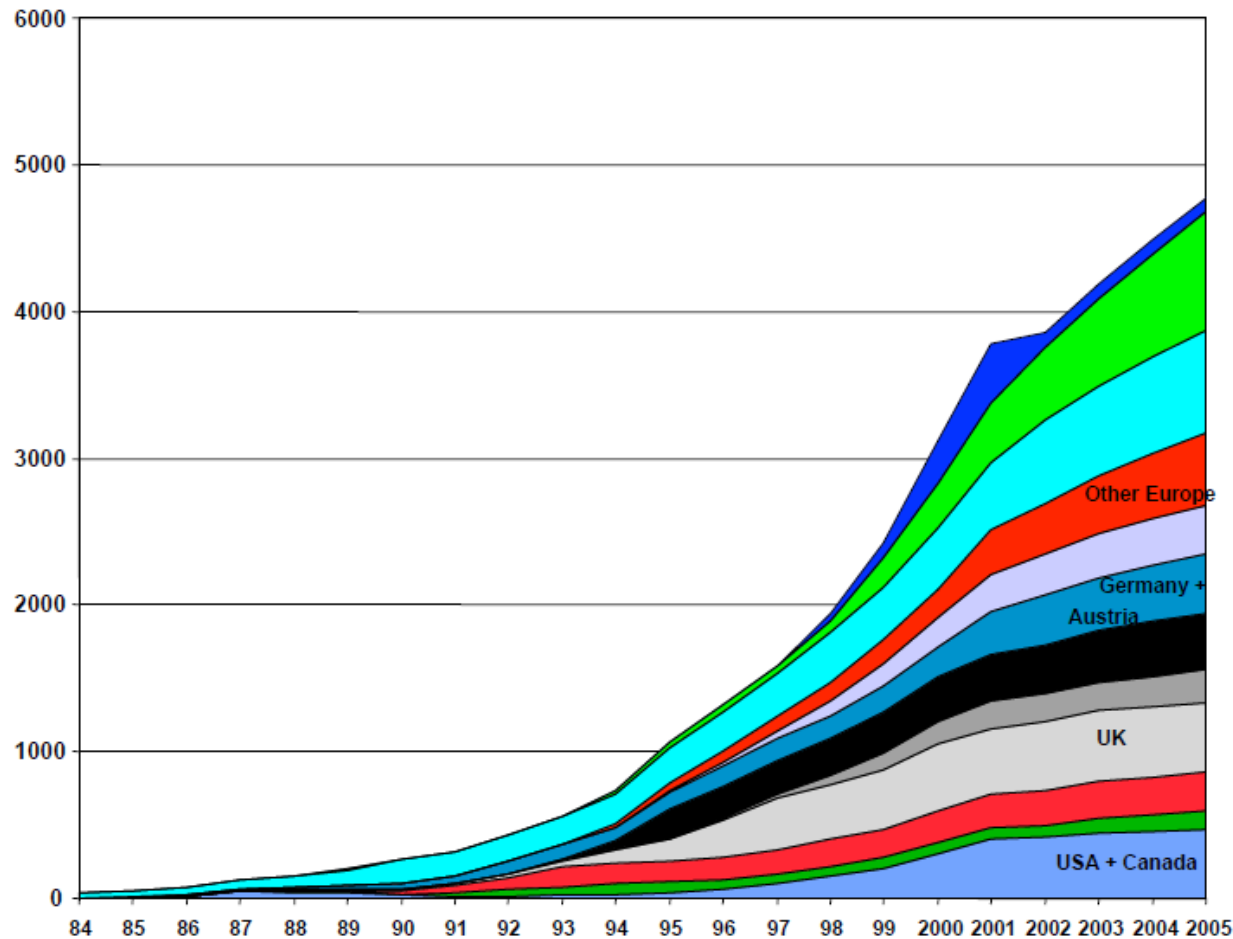
CC and the environment: re-localisation
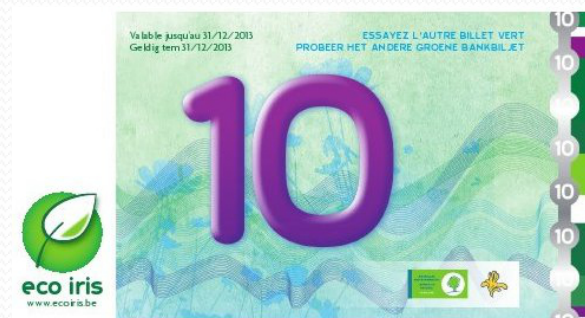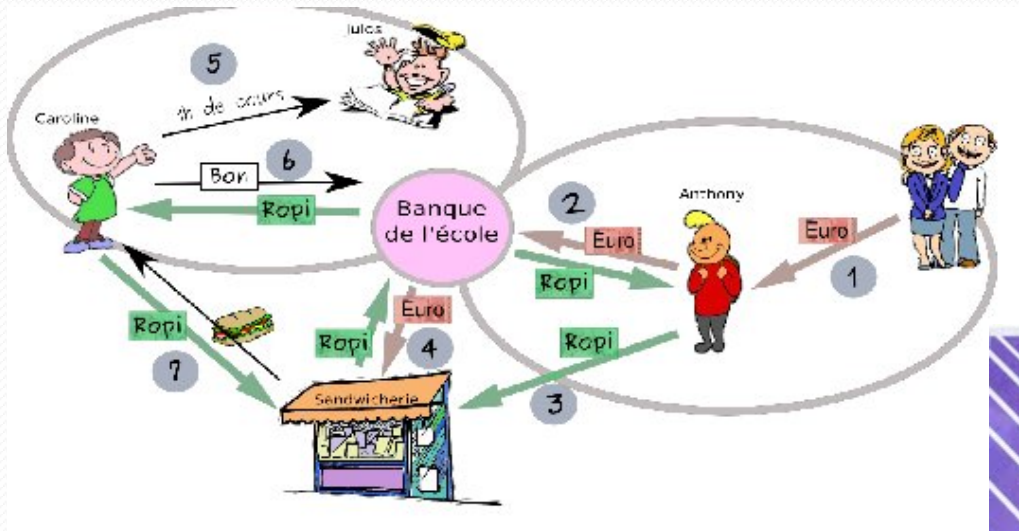
Complementary Currencies (CC): potential grips

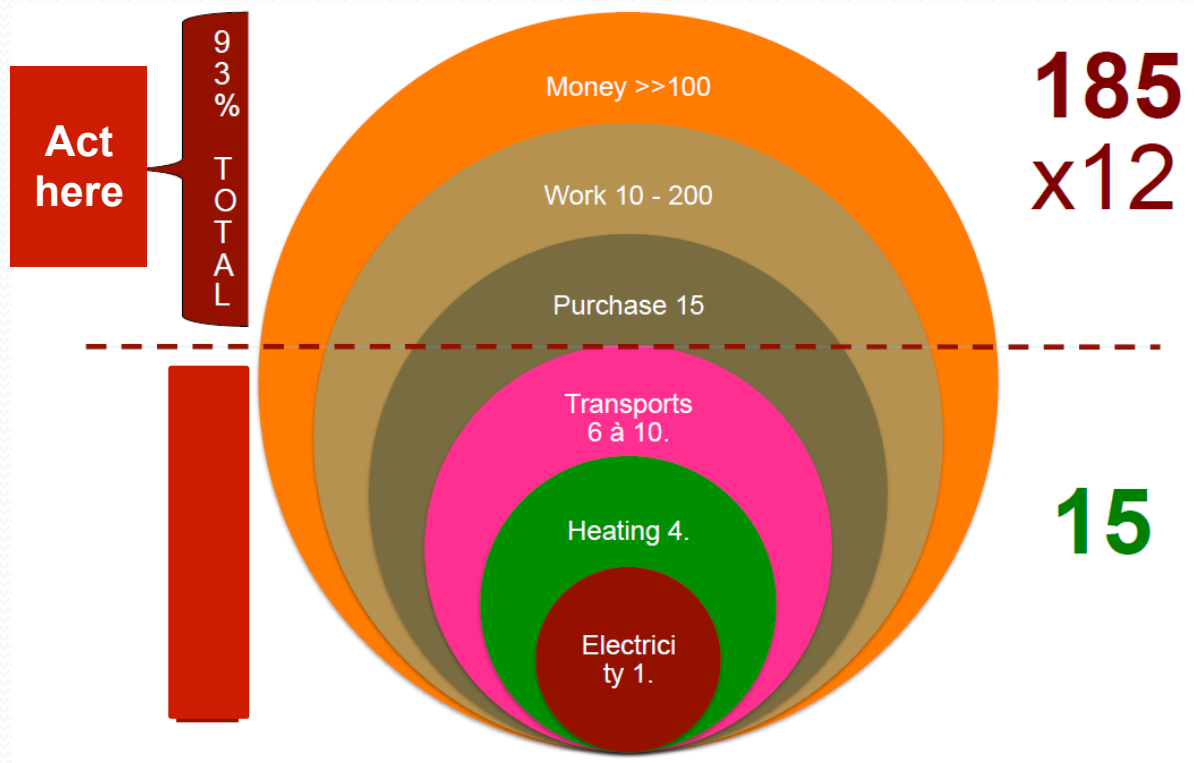Based on the design and actions included → various grips can be more or less activated…

The quantity of points associated to an action = a reference
! Need for measurement → possibilities with smart meters

Environmental footprint of our ways of life

Embedded tCO$_{2eq}$ in Belgium

Act here

93% TOTAL

Money >>100

Work 10 - 200

Purchase 15

Transports 6 à 10.

Heating 4.

Electricity 1.

185 x12

15

Work of F. Chomé (Factor X)

Preliminary conclusion

«Energy analysts should change their habits of not taking habits into account»

Further readings

Maréchal K. And Holzemer, L. (2015), Getting a (sustainable) grip on energy consumption: The importance of household dynamics and 'habitual practices', *Energy Research and Social Sciences* 10: 228-239.

Marechal K. (2012), *The Economics of Climate Change and the Change of Climate in Economics,* Routledge, Routledge Studies on Ecological Economics, 190p.

Maréchal K. (2010), Not irrational but habitual: the importance of 'behavioural lock-in' in energy consumption, *Ecological Economics* 69/5: 1104-1114.

Maréchal, K., (2009), An evolutionary perspective on the economics of energy consumption: the crucial role of habits, *Journal of Economic Issue* 43 (1), 69-88.
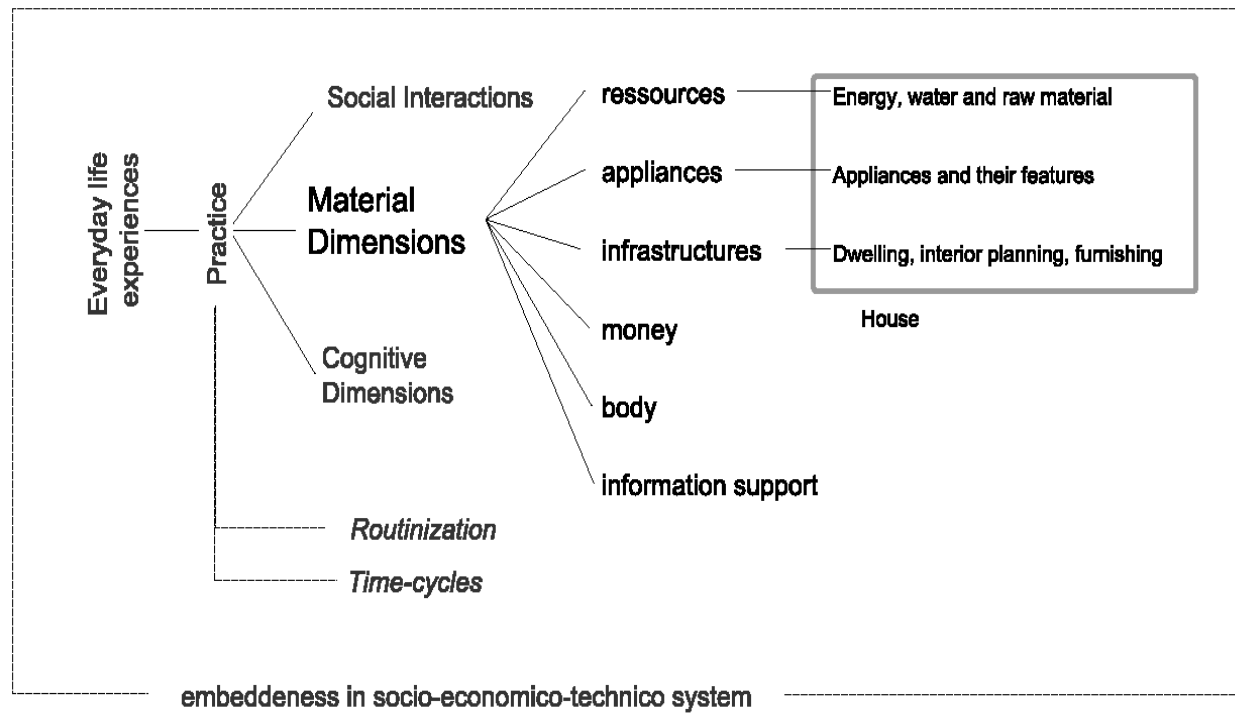
Overall conclusion
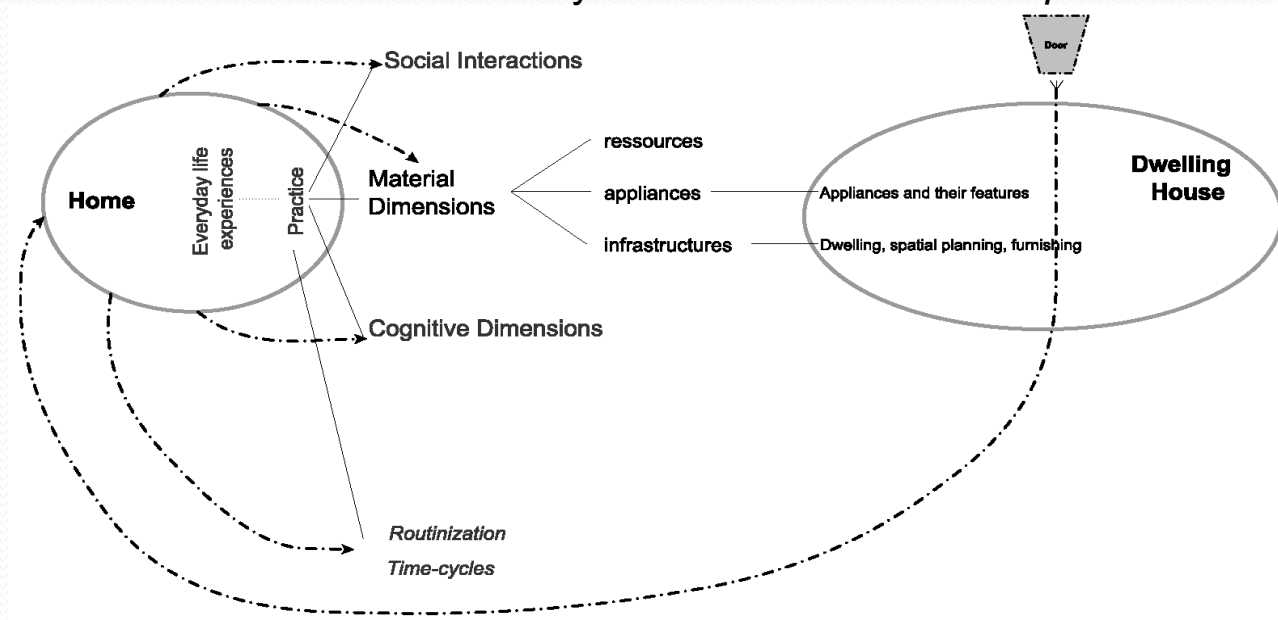
« Venture off the beaten path »
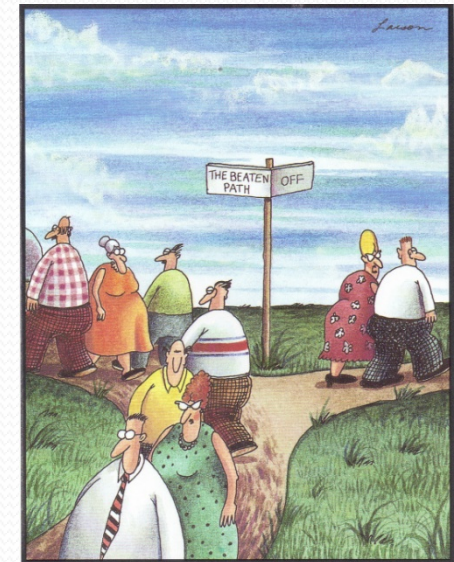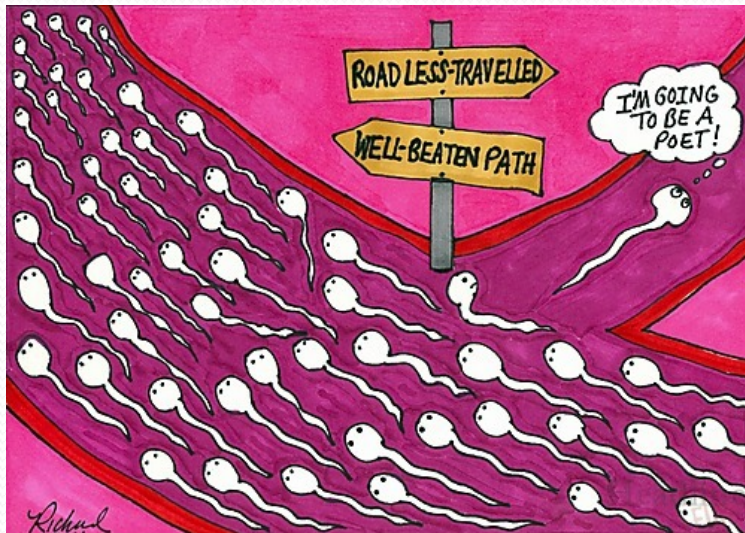
From a *house* ...

Highly tangible and concrete is the house

... to a *home*

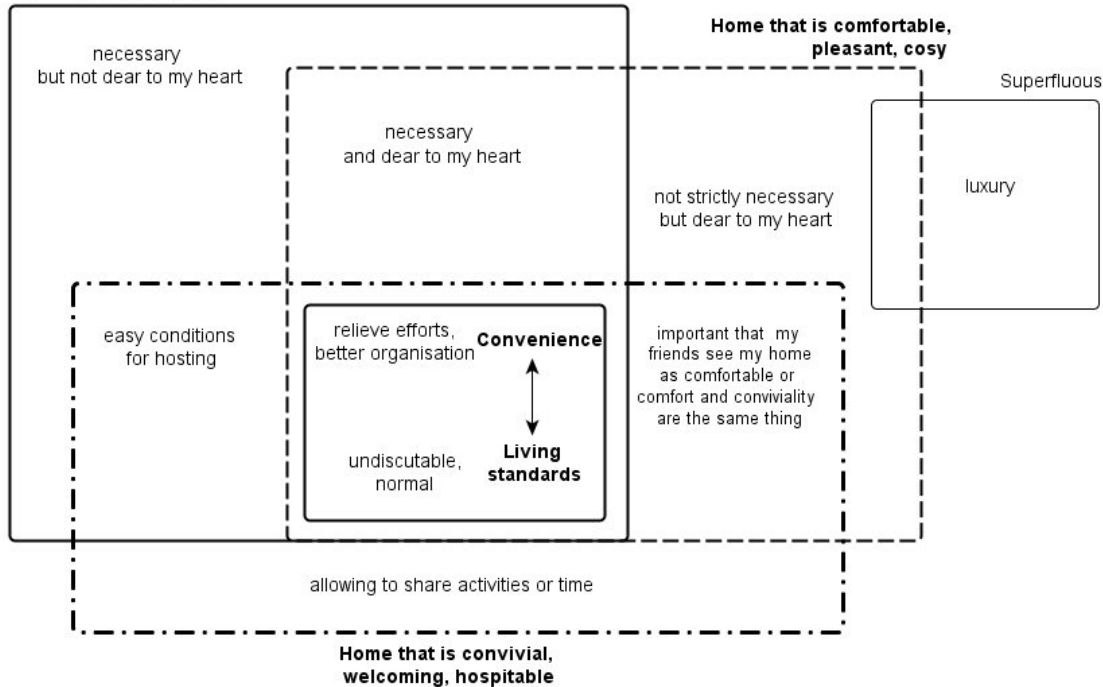The 'home' as a doorway to the world of *habitual practices*

Cocooning

Hotel-like

A quick overview of the results

Practical, functionnal and allows for time saving

necessary but not dear to my heart

necessary and dear to my heart

Home that is comfortable, pleasant, cosy

Superfluous

luxury

not strictly necessary but dear to my heart

easy conditions for hosting

relieve efforts, better organisation — **Convenience**

important that my friends see my home as comfortable or comfort and conviviality are the same thing

undiscutable, normal — **Living standards**

allowing to share activities or time

Home that is convivial, welcoming, hospitable

-Touching on **concrete and tangible** aspects (how a room is decorated, why it is organised this way) make people provide the researcher with some clue **on underlying forces (beliefs, meaning, norms, etc.)** that are more delicate to discuss

- objects are not inanimate but **carriers of social meaning and symbolic value** → there are **key appliances** that can serve to understand how a dwelling is 'appropriated' and made a 'home' → can be used for getting a better understanding of the **underlying drivers** of energy-consuming practices and for identifying **patterns and profiles**.