Live More Sustainably

Smart Tools to Reduce our Impact on the Environment

by Michele Visciola, Erin O'Loughlin, and Irene Cassarino

Some people believe that making people consume less and more carefully — whether it be energy, food, clothes, consumer durables etc. — is not a user-centred approach because it is based on forcing people to give up things. Considering that the concept of wealth, in our society, is based on the power of consumption — strictly linked, in turn, to buying power, such a view is quite understandable. However, we believe it is quite mistaken, and one of the paradigms that keeps us locked into a cycle of consumption that is difficult to change, even when the motivations are real and obvious — such as the climate crisis and the need to change consumption patterns to help the environment.

The current economic crash is forcing a lot of people to reduce their consumption because they cannot afford to maintain it: they are driven to consume by a society that expects and rewards it, and yet they cannot: they are victims of the recession, victims of the power of things and when they are given incentives to consume more they are kept in this state of inhuman subordination.

By changing our perspective, we could see another story, another version of the future, another option to improve our wealth. We have the ability to leverage the freedom of choice of human beings to consume less to improve their health and the health of the community they belong to. Even when the result is similar — reduction of consumption due to recession vs. reduction due to choice — the resulting conditions and emotions are as different as renouncing food because you cannot afford it, and voluntarily dieting to live more healthily.

Change in people's lives should not imposed — and indeed, to be continuous and durable cannot be forced. We do not want people to told what they need to be happy (our culture says: you need to consume), but to carefully observe themselves, consider their personal and social values and real needs and then, only then, decide how to behave. This is, in our view, a sustainable way to live and our aim is to give people and their communities the best, smartest tools to live. In this way, behavior is intrinsically motivated, coming from felt needs and desires, and change is sustainable and long-term, because it supports people's chosen lifestyles, instead of imposing choices upon them.

The Case Study

Experientia, an experience design company based in Turin, Italy, took part in an international design challenge: designing a sustainable urban district in the Jätkäsaari area of the city of Helsinki. We shared this challenge with an outstanding team of engineers and architects from ARUP in London (a global company of consulting engineers) engineering and Sauerbruch-Hutton in Berlin (an international design agency for architecture and urbanism). Our responsibility was to address the delicate theme of how to initiate behavioral change to support a sustainable style of living in this completely renewed urban district. Sustainable, in this case, referred to the level of carbon emissions, which encompasses a wide range of human activities, from use of appliances to choices about transportation, food and consumer durable consumption. This meant that the project involved the whole lifestyle of the future Jätkäsaari inhabitants, visitors and workers.

Proposed approach

Personal choice and behavior, rather than the design of the places they live or work in, is a large part of an individual's ecological footprint.

People — along with their contexts, social networks, habits and beliefs — are crucial tools for creating sustainable change and a reducing energy consumption. Technology plays an important role in this change, but by itself is not enough to lead to true planetary recovery. For change to really be embedded in our world, it needs to be a part of our lifestyles, with action and commitment starting from a grassroots, community level.

It is easy to be overwhelmed by the enormity of the environmental problem, to lose faith in the effectiveness of individual action, and so take no action at all. Furthermore, changing behavior requires a consistent effort. Most of the time, this vision of a sustainable life cannot really be addressed at the individual level. In fact, regardless of our belief systems, interests and competencies, more immediate needs come first and we often do not have simple solutions to modify our living styles.

Within each of these contexts, a comprehensive strategy to facilitate behavioral change has to address the various factors that influence and constrain people's actions, whether physical, personal, social or cultural. When looking at carbon and energy consumption reduction, we considered the following factors:

- **Physical**

Considerations such as the space in which the community lives, its boundaries, heating needs, transport infrastructure, light conditions, water and food supplies, and available technology.

- **Personal**

People's personal green values, their consumption behavior, their transportation choices, and their level of self-awareness regarding their individual impact on the climate as well as their options to modify it.

- **Social**

Community identity, values, beliefs, memories, needs, and habits. This covers the degree of shared acceptance of green values, the awareness of pollution conditions and associated risks, and the collective knowledge of behavioral impact on climate and options to modify it.

- **Cultural**

The commitment of public administrations and business organizations to green values, the number and quality of public/private incentives for sustainable behaviors, and the number and quality of continuous improvement and maintenance programs.

Behavioral Change Starts with Greater Awareness

Any change of environmental conditions will have an impact on people's behavior, which tends to be regular and stable. Any time external conditions change, people try to adjust their use of existing resources in order to re-establish their stable patterns. Such adaptation always implies a self-assessment process that can involve cognitive evaluations and/or emotional and sensorial appraisals, depending on whether the adaptation process requires an act of thought, a reflection or simply an automatic body response.

To facilitate a shared awareness of energy demand within the new community, we suggested several ideas aimed at enabling a continuous assessment of the current status of energy consumption. We created visualizations of carbon emissions, comparisons with communities of peers and against individual ideal targets.

We recommended challenging people's privacy paradigms, encouraging them to share personal energy consumption data, to create an individual, meaningful picture. People must feel they have control over their consumption, with actions that have visible effect on it. Smart meters, dynamic pricing systems, and data on cost and peak usage can all address this concern.

Self Assessment and Community Action

Consumption reflects social norms, as well as individual belief systems. To change consumption at the individual level, people need to be able to assess

Figure 1.
Foodprint: An application designed to help people gain more holistic information on their food purchases. In this screenshot, products can be viewed by source and method of production, eco footprint, and links to farmers and/or local traders that cater for direct delivery of local production.

their actual consumption patterns and their positive impact, creating a virtuous circle in which decrease of consumption reinforces further reductions. The reinforcement of desired behavior should always be positive. Individually, this might be financial incentives; socially, it includes games, competitions and a sense of community involvement and shared beliefs. In the view that we suggested, this is led by the strong example of decision makers and local power structures.

As we have already said, people are social creatures and like to share values that reflect common interests. Social behavior can be considered as a community-regulatory process through which people assess and verify their adherence to social norms and policies. Social pressure and tacit group norms have a remarkable influence on the behavioral regulation of its members. In order to envisage a strategic intervention plan at the social level, we recommended the design and implementation of a large program of design ideas and services aimed at creating social actions and customs based on green values. This program should create a pool of shared knowledge, both tacit and explicit, on CO2 conditions and related risks. In this way the community can assess the degree to which it adheres to its core values by increasing the individual level of control over consumption.

For instance, we designed the concept of so-called "Foodprint", a smartphone application enabled with tag or barcode recognition. It is designed to help people gain more holistic information on their food purchases. It visually provides food information, including its estimated total eco footprint. (see Figure 1).

Leading by Example

Both individual and community change must start at the cultural layer. We recommended creating an open conversation between the Jätkäsaari community, the local authorities and the district managers. Because our perception of what's possible dictates our standards of what's acceptable, there are also huge institutional, legal and regulatory barriers to social innovation and green experimentation. The program we suggested included designing incentives to sustain behavioral change, along with sensors and monitoring installations that we expect will affect policy changes well beyond the boundaries of the renewed urban district. As a consequence, the program will also offer clear responses to the growing appetite for more responsible and participatory decision making processes.

They are thought to be coupled with Figure 1, which represents the approach described above: the factors influencing behaviors (Physical, Personal, Social, Cultural) and the strategies to trigger behavioral change (Engagement and Awareness, Community Actions, Self Assessment and Leading by Examples).

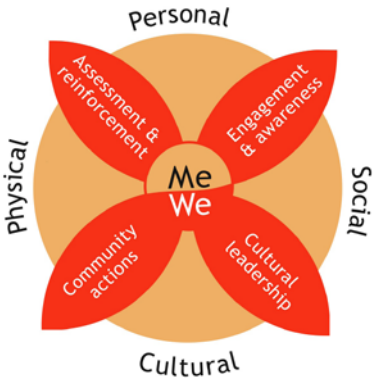

Figure 2.
Factors influencing behaviors and strategies to trigger behavioral change.

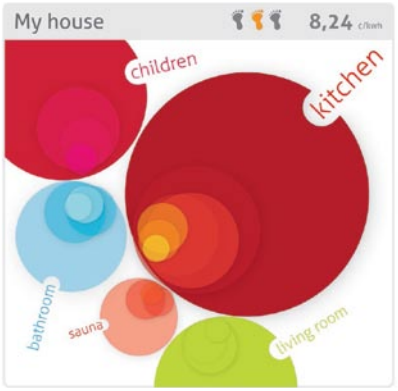

Figure 3.
Home assistant: A smart grid device that controls the household power appliances, heating and cooling systems, lights and sockets, etc. The figure displays key consumption zones highlighted by size and color.

Figure 4.
Appliances can be selected and controlled via smart grid — from timer controls to utilising low peak /low price times.

Engagement and Awareness in snapshots:

- Make new behavior easier and convenient
- Present meaningful and contextual information
- Enable choices
- Create tools for evaluation
- Facilitate cognitive, emotional and sensorial appraisal

Community Actions in snapshots:

- Use social reputation to enforce behavior
- Co-monitor to effect policy change
- Share common values
- Create a pool of shared knowledge
- Enable support networks

Self Assessment in snapshots:

- Translate understanding into actions
- Set targets to make information measurable and actionable
- Simulate impact or alternatives
- Provide immediate feedback
- Reward to create and sustain change

Leading by Examples in snapshots:

- Facilitate open dialogue between public/private
- Create public incentives to sustain change
- Model behaviors
- Provide feedback loops to constantly refine processes and policies

Conclusion

To gauge success in creating change and in the results of that change, we need to be able to assess and monitor certain indicators both at an individual level and at the community level. This is a vital part of creating programs of continued improvement of living conditions and consumption patterns.

The story has not ended yet. We offered 50 proposals for smart tools to facilitate the evolution of people's behavior and inspire and trigger an open and collaborative process of ideation and creation: these proposals cover areas such as tax benefits and incentives, co-operative community groups, smart meters, individual, business and community targets, carbon accounting, and lifestyle products and services.

While some may be highly specific (such as the Finnish relationship with light and dark and the wide use of saunas) many of these needs and contexts are universal. We believe they can be replicated in other communities and nations, letting sustainable lifestyles and behavior spread virally from Jätkäsaari to all over the world.

In our view, people's ultimate reason to live and play the compelling adventure of life is to be happy and nurtured by joyful and delightful experiences. They have to be provided with the right information to understand the value of their actions on their personal wealth and happiness, and tools to make such an understanding actionable. That is, to effect change, people must be offered the right tools, as well as the information and the conditions to create new tools. Not to have more, but to be better.

About the Authors

Michele Visciola is Experientia's president. He is an international expert on usability engineering, human factors, and user-centered design, and heads the Italian chapter of the Usability Professional Association. He has lived in the UK and the USA (where he studied at MIT Sloan) and is known as Italy's top expert on usability.

Erin O'Loughlin has a bachelor of arts and a bachelor of business degree from the University of Ballarat, Australia. She has lived and worked in Australia, Japan, and Italy as an editor, writer, and teacher. She has edited a number of books and translated academic papers and a book from Italian to English. She works for Experientia as an editor, copywriter, and proofreader of English-langugage documents, as part of their commitment to high quality deliverables.

Irene Cassarino is a researcher on open innovation. She has a Ph.D. from Polytechnic of Turin and also studied at Queensland University of Technology, the Univeristy of Sussex, and MIT's Sloan School of Management in Boston. In her collaboration with Experientia, she has been involved in projects focusing on open innovation, ethnographic research, value exchange, design strategy, and sustainable development through behavioral change.