Enabling sustainable lifestyles
The Low2No project in Jätkäsaari, Helsinki
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Jätkäsaari Helsinki
Jätkäsaari Helsinki
An architectural rendering by Sauerbruch Hutton of the future low-to-no carbon district.
Low carbon living As part of a team made up of international engineering and planning firm Arup (London) and architectural firm Sauerbruch Hutton (Berlin), Experientia won an international competition to develop a building block in the city of Helsinki, Finland, which will have low or no carbon emissions.

Integrated approach to energy efficiency with high architectural, spatial and social values and constructed with sustainable materials, methods & operations.

Jätkäsaari covers a plan area of 100 hectares of mixed-use development and infrastructure and will house circa 16,000 inhabitants and 6,000 new jobs. www.low2no.org

Location
Jätkäsaari, Helsinki, Finland
23,000 m² residential
6,000 m² office & incubator
1,600 m² retail and services

Clients
Sitra, Finnish Innovation Fund
SRV, developer
VVO, housing agency

Time frame
2009 Competition, 1st prize
2010-11 design phase
2013 Completion
Create value through innovative processes

Experientia is responsible for the workstream “Low carbon lifestyles - enabling behavioral change”, designing energy demand management solutions such as advanced smart meters, mobile applications and services as well as designing and coordinating “mixed use” service offerings.

**Participatory design processes** with stakeholders, local entrepreneurs and future residents ensure the fit within the Finnish culture.

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**Our approach**
- Ethnographic research
- User & stakeholder interviews
- Personas & scenarios
- Concept design
- Participatory design workshops
- Prototype development
- Strategic communications

**Our deliverables**
- Research analysis
- Behavioral change models
- Personas & scenarios
- Concept development
- Interactive prototypes
European Union Performance of Buildings Directive

2020 new buildings in the EU will have to consume 'nearly zero' energy and the energy will be 'to a very large extent' from renewable sources.

Public authorities - set an example by building, buying or renting such 'nearly zero energy building' as of 31 December 2018.

EU regulations on internal energy markets (25.06.09)

“Implementing intelligent metering systems with a target of 80% of the population covered by 2020. The installation of smart meters allows consumers to be informed precisely of their consumption and promotes energy efficiency”
Low2No 40% carbon reduction in construction phase compared to building-as-usual (BAU)

Ability to control 18-25% of the footprint along a 67-year period
Influence another 10%

What we can’t control:
- Consumption
- Transport

BAU
286,349 tonnes

Toward zero carbon
113,787 tonnes
Why? Raising people’s quality of life, while reducing carbon emissions

An analysis by Climate Change Capital suggests that

- building sales price increases by 8%
- rental value rise by 16 to 20%

Increase quality of life
- Favor agency of individuals
- Increase utility
- Enable responsiveness/control
- Provide transparent choices
- Further social cohesion
- Build sense of achievement
- Foster social status
- Expand aesthetic value

Enabler: reduced costs

Financial Times: Upfront costs remain the biggest barrier; 13.9.2010 pg 8
Strategy and approach: Positive cycle of social interaction, awareness and incentives

- Invite people into a positive behavioural cycle through information intensive social interactions and incentives
- Provide a multifaceted, easy and convenient set of sustainable consumption choices

Offer lifestyle choices
- Reliable information
- Attractive services
- Convenient choices
- Rewards and incentives
- Social approvals
- Sense of achievement
Facilitating and enabling behavioural change

Engagement and Awareness
- Make behavioural change easier and convenient
- Present meaningful and contextual information
- Enable choices
- Create tools for evaluation
- Facilitate cognitive, emotional and sensorial appraisal

Self assessment
- 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

Community actions
- Utilize social reputation as behavioural enforcer
- Co-monitor to effect policy change
- Share common values
- Create a pool of shared knowledge
- Enable support networks

Leading by examples
- Facilitate open dialogue between public/private
- Make backstory transparent
- Create public incentives to sustain change
- Model behaviours
- Provide feedback loops to constantly refine processes and policies
Create value through innovative processes
Designing low carbon lifestyles - enabling behavioral change
Scenario and persona based approach

2010 – Low2No

- Luukas: Undergraduate student in Helsinki
- Peter, Hanna, Liisa and Tyko: Salesman and school teacher
- Fredrik and Josefin: City administration and senior manager
- Katarina: Service employee
- Anlika: Senior manager for the environmental protection agency office in Tampere
- Matias: Trained engineer, owns small company within SITRA incubator
- Samyon: Bus-driver
- Tom: Designer at Nokia
Fredrik and Josefiina

age Both 55
occupation Fredrik, city administration, Josefiina, senior manager
relationship status Married
live in 80-150 sqm apartment
reason for relocation To be able to "walk to cultural attractions, have space in the city centre, be close to Baltic sea"
originally from The suburbs

"We're willing to contribute to the common cause."

A day in the life
It's Saturday evening and Fredrik is busy in the kitchen singing at the top of his voice; Josefiina is splitting her sides laughing. "Fredrik! Think about the neighbours...!" Fredrick is busy preparing the three course meal for the church group dinner. After the evening is over and the last guests have left, Josefiina and Fredrick go for a walk into the centre to see the new beautiful art sculpture: it represents the energy usage of the area, and the couple donated some money to finance the installation.

would like to
- Produce and sell their own energy
- End the day in their private sauna
- Play an active role in the community and meet new people

Clean energy source selector
This display shows various sources of energy production, with carbon footprint and price for each type. People can see their usage of different energy sources, and can then modify their desired consumption (e.g. pay more, but use more green energy).

They can charge their next bill based on this preference. This shifts more funds towards green energy, educates people about energy sources and indicates to the energy provider who is willing to shift to green sources and by what amount.

Dynamic pricing offers extend long-term purchases based on personal value systems to short range decisions. Display could be linked to an energy minimizing smart home system.
50 behavioural change solutions Experientia designed

fifty initial ideas for tools and services that could facilitate

behavioural change in Jätkäsaari.

These included:

- **technological solutions**, such as smart meters, dynamic pricing systems, and data on cost and peak usage;
- **public installations**, such as artworks catalysing energy consumption reduction;
- **participatory solutions**, such as games, competitions, workshops and websites;
- **business initiatives** to encourage private and public entities to get involved.
Connectivity and citizen engagement

» Involve local entrepreneurs in developing a competitive ecosystem of products, services and initiatives

» Favour spontaneous participation in the decision making process

» Support stakeholders in creating a synergic team and sharing a common business code

» Engage local residents through collaborative and participative activities

Strategic interventions
Awareness and engagement
Self assessment
Community action
Cultural leadership

User-centred approach
Ethnographic research
User requirements gathering
User recommendations
Design opportunities
Commercial, mobility and social services complement the behavioral change intervention.
retail functions in synergetic clusters

Cluster 1: communal services
Cluster 2: public services
Cluster 3: food hub
Cluster 4: offices
Services: The Food Hub  A “Food Hub”, offering services related to the purchase, consumption and sharing of food, an ethical and sustainable alternative to the products commonly offered in the Finnish market.

- **Purchase**: a sales point and open market to buy biological and seasonal products provided by a network of local producers (Community Supported Agriculture scheme);

- **Consumption**: a 0 miles restaurant, with catering services and a cafeteria providing biological products;

- **Sharing**: cooking courses, a meeting room for cooking lessons and informal work meetings, and a green house.
**Services: Eco-laundry** Uses highly efficient practices and detergents with a low environmental impact.

It provides

- a support service for reusable diapers for individuals and the daycares in the region;
- services and lessons in sewing, washing and caring of textiles;
- home delivery for individuals and businesses in the area.
Services: communal sauna An eco-friendly response to the presence of a private electric sauna in most Finnish homes.

The sauna will be a traditional, wood-fuel sauna, providing spaces for families, friends and small work groups. Communal areas will be furnished with fires and wood logs, with catering provided by the Food Hub.

The heat generated by the sauna will be reused to heat local greenhouses.
Live & work In collaboration with various stakeholders
Experientia conceptualized incubator, live&work and office facilities. A living lab arrangement will test resulting outcomes.

The co-working/incubator space will serve three needs:

- Incubating start-ups related to Sitra’s innovation programmes
- hosting micro start-ups selected by venture funds or external innovation programmes
- desk-sharing of professionals from the ‘public’
Advanced smart meters. Experientia's concept prototype is a holistic, people-centred, advanced smart meter.

We have envisioned an empowering smart meter that tracks personal carbon footprint, offers handy tips to reduce it and connects people to a like-minded community.

**User requirements:**

- Provide contextual realtime feedback
- Analyse personal consumption (energy, water, waste...)
- Incentivize reduced consumption through social reward systems
- Integrate controls - holistic approach
- Design intuitive and meaningful interface controls
Check, Compare, Act We identified core tasks a smart meter must enable:

- **Check** personal energy consumption information (raising awareness and understanding of real-time consumption);
- **Compare** personal consumption with peers, past behaviours, goals, patterns and trends, and comparisons between similar offerings;
- **Act** to control consumption, through interactions offering personalised real-time tips and the ability to program and modify household settings.
Did you know that this morning you used your oven during a peak hour? You can save money and energy by waiting 30 minutes to heat up your breakfast.

LEARN MORE!
Seasonal configurations
With fewer hours of daylight during the winter months, configure your sources to include less solar and more wind, you'll save money and be more efficient.

MONTHLY TOTAL

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NEXT MONTHS PREDICTED WITH OPTIMIZED PLAN

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Award-winning service design. Experientia's service platform design for Low2No won the prestigious Italian National Prize for Innovation in Services, 2011.

The Low2No service platform will contribute to making sustainability an integral part of the daily activities and lives of the residents and workers of the area.

Experientia worked with carefully selected local entrepreneurs to design multiple businesses with a good fit with the soul and mission of the zone.
by 2021 your full personal carbon footprint will be negative due to the combined effect of building design, lifestyle and wind farm offset.

2037 is the year in which c_life will offset 50% of its cumulative carbon emissions.

45% reduction on embodied energy from buildings compared to typical building.

1,200sqm of communal gardens for residents of c_life.

€ 76 is the capital cost to abate 1 metric ton of CO₂ in the Climate Neutral District.

14 days a year saved due to shorter commuting times.

30% of residential units are affordable – rent controlled.

33% reduction on embodied energy from buildings compared to typical building.

9.14% internal Rate of Return for the Wind Farm investment by Climate Neutral District.

5.4 million metric tons of CO₂ saved if the population growth of Finland where to live in buildings with c_life standards in the next 25 years.