

Farming in your living room

Design Probes and their relevance

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The Philips Design probes program is a 'far-future' research initiative, typically looking 15-20 years ahead. It involves tracking emerging trends and investigating weak signals from the margins of society to gain contextual insights which may well evolve into mainstream culture and which could therefore be of significant interest for Philips.

The Probes program, which was launched more than a decade ago, often involves collaboration with experts and thought leaders in diverse and distinctly non-mainstream fields. Starting with the SKIN Probe in 2004, the program has addressed a succession of topics which at first glance may seem far removed from the day-to-day activities and fields of interest associated with Philips, but which nonetheless provide a rich source of valuable input for the company.

Helping drive innovation

Our Probes contribute to design research and help drive innovation, something that is high on corporate management agendas throughout the world yet which is generally characterized by abject failure. According to figures in Business Week, up to 96% of all new innovation projects do not meet the targets for return on investment.

Companies often do not just focus on one kind of innovation but spread their efforts over a wide portfolio. The most conservative end of the scale involves adding new features and improvements to existing products and services. But you could also consider creating a new product in an existing category, a

completely new category or, being even bolder, coming up with something that no one had thought of before.

The Probes program contributes by feeding into the far (radical) end of the scale. We are exploring areas and nascent trends that have often not been expressed in any physical or commercial way, yet which more often than not strike a chord by tapping into latent needs, beliefs and concerns that people have with issues like privacy, control, the pervasiveness of technology and health & nutrition.

Designed to provoke

The results of the Probes are manifested as what we call future lifestyle scenarios, which could be anything from a film clip to an exhibition or tangible manifestation of the idea being explored. As an example, to demonstrate our investigations into the concept of emotional sensing, whereby everyday electronic equipment could detect how we are feeling before deciding how best to communicate with us, we created bio-metric sensing dresses and other garments whose appearance change depending on the emotional state of the wearer or in response to the proximity of others. I'll talk about this, as well as other examples of Probes scenarios, in greater detail later. But no matter how we decide to visualize our explorations, all Probes scenarios are designed to provoke reaction, stimulate discussion and encourage debate. This invariably leads to the generation of valuable contextual insights which we can channel back into our design processes.

Additional relevance for Philips

Feeding the innovation cycle is one way in which the Probes are relevant to Philips. But they add value in other ways as well. They inspire the different businesses within Philips to think 'out of the box' about possible new directions and propositions. They contribute in terms of IP fortressing. They provide a vehicle for looking beyond technology to the kind of wider social forces that give rise to technological development. They generate a considerable amount of

coverage in everything from general media to lifestyle publications and futurist/technology blogs that, on the whole, reflect positively on the Philips brand. And Probes projects are an excellent training opportunity for designers, researchers, scientists and others drawn from our businesses.

Picking up on what most designers ignore

Our Probes explorations follow a well-defined process. For inspiration we immerse ourselves in topics most designers tend to ignore, like politics, economics, environmental issues and obscure sub-cultural trends. On the whole we are looking for inklings of problems that could be solved through design, new service or an innovative application of technology. This links in with what I said earlier about identifying emerging trends and picking up weak signals from what are often obscure and relatively unknown subcultures.

The 'best chef who has ever existed'

For instance, in 1994 I came across an article which described a Catalan chef not just as the best chef alive, but the best chef who had made the most significant contribution to gastronomy, ever. This was a weak signal. Further digging revealed more about the man in question, Ferran Adrià, and his deconstructivist approach to cooking which essentially involves combining ingredients in extremely unconventional ways, often using industrial-style machinery to achieve astonishingly original consistencies, for example liquid olives, cheese made of almonds or bread made of asparagus. This fascinating approach to preparing and serving food turned out to be one of the sparks that led to our Food Probe.

The collapse of society in a month

To give another example, I remember hearing in the aftermath of Hurricane Katrina that, for the first time in modern human history, we had less than 30 days worth of oil reserves across the globe. In other words, our carefully constructed advanced civilization could conceivably start collapsing in the space of one

month. We were picking up other signals related to the same issue at the time, and in the end we put all the pieces together and came up with our Off the Grid Probe, in which we looked at how entire residential buildings could function independently of conventional utility infrastructures.

Upheaval; an engine of change

We also look into the broader context of major upheavals and seminal events in world history, because you find that they are often accompanied by breakthrough ideas. For instance, the First World War was the impetus for massive advances in the development of radio and electric motors, while the Second World War accelerated the introduction of electronics and jet propulsion. Today, our growing environmental crisis is shifting the focus away from electromechanical solutions towards more biological-based developments, as people try to bring greater harmony to our relationship with the planet we live on.

Based on these sources of inspiration we build a destructive narrative; create a provocation which expresses our thinking on the subject; publish, exhibit and discuss our provocation; and then gather feedback which leads to contextual insights. These are the four main steps in any Probes project.

Printing your evening meal

I'd now like to go into some of the projects we have already done in greater detail. The first is the Food Probe.

Since the 1920s the kitchen has largely been characterized by labor-saving devices that eliminate a lot of mundane and manual tasks such as chopping, purifying and heating food. These devices have also enabled many of us to reach culinary heights previously unthinkable in the domestic environment.

I would argue that now, in the second decade of the 21st century, labor-saving is no longer the issue, certainly in the developed world. We are entitled to largely

take for granted the fact that we can boil water in a kettle rather than having to heat it up on a pan over an open fire. If you look at the bigger picture you will see innumerable societies struggling to cope with an astronomical rise in obesity and diabetes. Mistrust about pesticides and pollutants which contaminate our food. Unease at the industrial processes used to supply what we eat. Reluctance to embrace genetically-manipulated crops. A growing awareness of the vast distances foodstuffs travel before they reach our plates. And literally hundreds of other concerns and issues relating to food.

We wanted to explore these concerns and issues by taking a fresh look at the equipment we have at our disposal when preparing food. Shouldn't kitchen tools analyze fat content, nutritional value, state of decomposition and the level of additives in the food we are about to eat, and compare this with our individual needs at that particular moment? What happens when you combine this information with 3-D printing possibilities and analysis using an electronic nose, so you have an extraordinary amount of freedom in how you combine ingredients and determine the way they look and feel on the plate? And, with a definite revival in the idea of - at least partially - 'growing your own', how about a new twist on the idea? One that would be relevant for Chinese families living in cramped apartments 27 floors above ground level, and not primarily for suburban English families with ample back gardens and a passion for making their own rhubarb jam.

We developed three separate provocations for the Food Probe:



A food printer, where people can individually add ingredients, if need be based on their dietary requirements, and then produce fantastical, imaginative and yet nutritious dishes like papaya

sorbet in a yoghurt crust, chicken & sweet corn chowder or squid ink 'caviar' in vodka jelly. It would also be possible to download instructions from an iTunes-like website and print three-dimensional dishes designed by the world's great chefs. A lot of the inspiration for this came from the so-called molecular gastronomists like Heston Blumenthal and Juan Mari Arzak, taking what they are doing in some of the world's leading restaurants and exploring the possibility of automating the process in the home.



Diagnostic kitchen, in which it becomes possible to find out an extremely easy manner how a foodstuff or combination of ingredients will affect the dietary profile of each of us as individuals. Through simple scanning you could analyze the nutritional

content of food before buying it or using it, and then check out this corresponds to what you - or others you're cooking for - actually need at that time.



Biosphere home farming, a compact, vertical and self-contained unit in the living room that supplements the nutritional requirements of a family by providing a platform for growing vegetables and protein without consuming electricity. Various mini ecosystems would interact to

make sure that waste from one cycle would be food for another. For instance, the plants release oxygen which is fed into the water for the fish. The fish fertilize the water for the plants. The vertical styling was deliberately chosen so the biosphere

would have a relatively small footprint and would therefore be a viable option in even the smallest apartment.

Emotional Sensing; dresses that blush

The second example I want to talk about is Emotional Sensing.

Most current interaction between people and electronic equipment is through button-pushing, keyboards and screen-based feedback. It is very predictable and impersonal, and takes no account whatsoever of how someone is actually feeling, or what activity they are engaged in, at that point in time. The Emotional Sensing Probe investigated the possibility of technology responding in a way appropriate to our mood or current behavior. As an example, a coffee-making machine which somehow knows you are just awake and very tired could interact in a very different way than if you are brim-full of energy in the middle of the afternoon.

In order to provoke a response and generate discussion on this subject, we decided not to propose ideas for some new generation of product interfaces, but rather to visualize our explorations using a platform that had no specific technical utility was aesthetically stimulating and easy to relate to; fashion.



One of our provocations, called **Bubelle**, was also known as 'the blushing dress'. This creation was intended to convey the emotional state of the person wearing the garment through 18 separate miniature projectors located between the layers of the garment. A series of biometric sensors collect data such as heart rate, respiration and galvanic skin response, and this information is then interpreted and equated to certain moods and emotions, which in turn are visualized by altering

the intensity, shape and colors of light generated by the projectors.



Another garment, called ***Frisson***, is an interactive bodysuit in which the 'skin' is covered with tiny LEDs at the end of very fine copper 'hairs' which illuminate when the hairs move as a result of air flow or come into contact with other objects. As with the Bubelle, the intention with the Frisson was to demonstrate that everyday objects like clothing can behave in a non-linear way depending on who is wearing and interacting with them.

Off the Grid; buildings that take care of their own needs

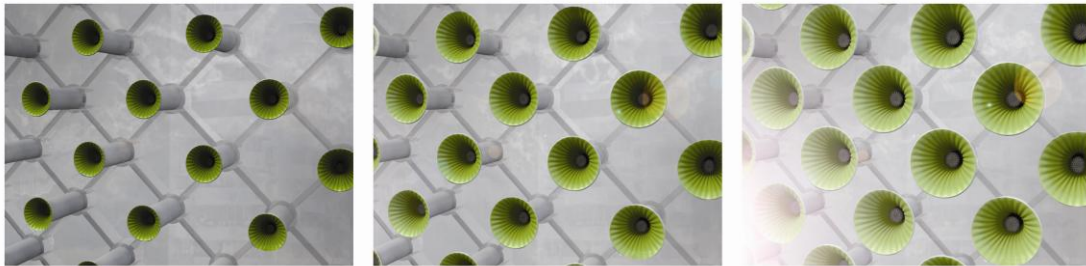
The third project I want to mention is Off the Grid.

With urbanization continuing at a relentless pace worldwide, many associated issues like the supply of clean drinking water, energy consumption, waste disposal, pollution, health and nutrition become more important than ever. The statistics can be quite staggering. Some predictions indicate that 200 new mega cities will rise in China over the next 10 years. 95% of the country's energy comes from fossil fuels. 200,000 tons of waste is produced by Chinese cities every day. I could go on.

But in this we also see unprecedented possibilities for innovating the domestic living space – especially in high rise urban situations After all, an average of 210 liters of fresh water is flushed away down the toilet per person per day. What if this water could somehow be captured, purified and reused? A large amount of domestic energy use goes into heating or cooling our living spaces. Surely there

must be a way of changing the structures we live in so this figure is drastically reduced or disappears altogether?

Off the Grid takes an unconventional new look at the design of the urban living space. Its context is Shanghai in 2020 and examines a typical apartment of 40 square meters. The intention was to stimulate thinking as to how the kind of giant tower block people will be living in doesn't place an additional burden on the urban infrastructure, but actually lightens it.



The building has an active skin which reacts to the wind. By channeling air and wind into the interior of the building you can generate electricity and also obviate the need for air-conditioning. The building can also collect its own drinking water and incorporate clever systems for recycling waste to turn it into a source of energy or nutrition.

Metamorphosis

The most recent Probe project we have been working on is called Metamorphosis, and it investigates the notion of 'bringing the outside inside' by extracting the qualities of nature and developing a language of abstract 'behaviours and effects' that can be applied to everyday objects. Ever since humans decided to settle down and build permanent places of habitation, our living spaces have gradually been evolving from natural environments into places where sensory stimulus from nature is diminished and, in some cases, virtually absent altogether.



Somewhere we took a wrong turning. We marvel at nature's variety, unpredictability and constantly changing character, yet we don't seem to factor it into the design of our living and working spaces. With Metamorphosis we take a playful yet thought-provoking look at transforming our interior spaces by introducing natural qualities which we generally take for granted outdoors yet do not even expect any more inside our homes.



Examples of this include a range of natural light diffusers where daylight is piped indoors using reflectors, which has the double benefit of enlivening while saving energy otherwise required for lighting. We also explored artifacts which filter out industrial noise while letting through natural sounds and objects like tables with properties which change during the course of the day to reflect the passing of time as well as the ever-unfolding variations in the natural canvas outside. We were stimulated by the healing effects of natural light, sound and air and developed a range of concepts that respond to the activity of people as well as the changing conditions outside.

Generating surprising contextual insights

Publishing provocations on these and other topics has had a major impact. Through the feedback and discussion which arises we generate sometime surprising contextual insights that could be of vital importance to the future of our business. For example, through successive Probes we have identified that people have major issues with control and the pervasiveness of technology. These are extremely valuable observations for the whole Philips organization.

We've also touched on a raw nerve with our investigations into food. The amount of positive feedback on our vertical domestic farm has been amazing; and has led to it being exhibited in the London Design Museum and at the Shanghai World Expo. The idea obviously resonates with those concerned about food tainted by industrial pollutants, genetically tampered with or which has been shipped in from the other side of the world. These kinds of insights are extremely valuable for our business.

I also believe that the strength of feeling unearthed by the Food Probe shows there is already latent demand for smarter kitchen appliances which give information about nutritional value and dietary requirements, and which link to web-based services and supply chains. And on a more general level, as a health and well-being company, it is crucial for Philips to understand how global food

shortages affect nutrition, or how lifestyles change as two thirds of the world's population becomes urbanized. These are exactly the areas we are exploring with our Probes.

Adding value to the Philips brand

To date we have completed approximately 10 Probes projects and all of them have generated plenty of attention. There have been numerous articles in leading lifestyle publications like Wallpaper, Dwelland, Time magazine. Exposure on global news networks like CNN. Exhibitions in design museums. And so on. The majority of this exposure has been favorable, which indicates that Probes are systematically adding value to the Philips brand and helping us cement our position as a company capable of thought leadership.

Stimulating projects

For each Probe project we make sure that between one third and one half of the team is new to the organization and bring in as many parts of Philips Design as possible. These people spend anything from two to six months on a project and leave having experienced a very different working methodology as well as having enjoyed extended exposure to some truly fascinating and stimulating subject matter. The Probes projects are also very motivational; very often they are the sort of projects designers dream of participating in. Many Probes have involved collaborators from within and outside of Philips.

Testing the future, not predicting it

With Probes we're not trying to tell people what the future will look like; we are just trying to test it. We put out soundings and see what resonates and what doesn't, and we then use the contextual insights that arise from these explorations to fuel nearer-term activities and inspire longer-term thinking.

In doing so we are looking beyond technology, and instead trying to understand the kind of events, trends and cultural evolutions that give rise to technological

advancement. In other words, we are focusing on solving problems rather than just developing technology for the sake of it. The results, we believe, could have a far-reaching impact on how our lives and our societies unfold.