Breathing life into delicate ideas

Developing a network of options to increase the chance
of innovation success

PHILIPS

Contents

Abstract

In an era where companies can no longer rely on technological breakthroughs and incremental product development, innovation is high on management agendas. At the same time, innovation has increasingly become a complex activity in which products, services, user needs and technologies need to be integrated, while bringing a lot of different stakeholders together.

However, innovation processes are often seen as being very linear, with research results, new technologies or user insights funneled via advanced development and new business processes onto the market.

We propose an alternative view; that innovation can in fact be seen as a network of options. We propose that there are different ways of capitalizing on imaginative ideas, and that it is necessary to explore the best way forward on a case-by-case basis, rather than trying to impose a business 'straitjacket' too early.

In this paper we explore the focus of design research in Philips Design (chapter 2). We look at the innovation territory and some popular models that are emerging from practice and literature (chapter 3).

Next we propose a model; 'the innovation matrix', which brings these ideas together in one overview. And we investigate how design can contribute to this process, by developing imaginative ideas, but also by presenting these ideas in different ways – depending on their place in the matrix – to ensure maximum acceptance by the different stakeholders in the process. This is illustrated by a number of Philips Design examples.

We conclude that finding the best way through the matrix will be a key factor in moving imaginative ideas effectively to the market. There is more than one path you can follow to breathe life into delicate ideas. What's more, the design discipline can play a central role in facilitating this.

The innovation debate

Innovation going nowhere

It is an inescapable fact that the hit rate for innovation ideas is pitifully low. This was clearly demonstrated in two articles published in Business Week in 2005. The first stated that "companies in the US, Europe and Japan were struggling with innovation." Despite spending huge sums on research & development, most corporations had dismally low levels of innovation productivity. The article continued by saying the "brutal truth was that up to 96% of all new projects fail to meet the targets for return on investment."

In December of the same year, an article by Christopher Farrel entitled *Mining the Vein of Great Ideas* examined if there was a way for investors to spot early innovation opportunities that had a higher chance of success. The point was made that "there is no simple correlation between increased research and development spending and higher stock prices. In fact, stepped-up research & development often depresses near-term earnings because those costs must be expensed now while the payoff of new innovative products could be years away. Besides, much research & development spending produces nothing that customers want."

'Funnel model'

Most of the conventional wisdom on innovation theory is based around the idea of a linear progression from research to development (see figure 1).

The innovation process is seen in terms of a 'funnel model', in which many different and disparate initial ideas are gradually whittled down – either inside or (increasingly) outside the company, according to the open innovation paradigm of Chesbrough – until eventually a small number
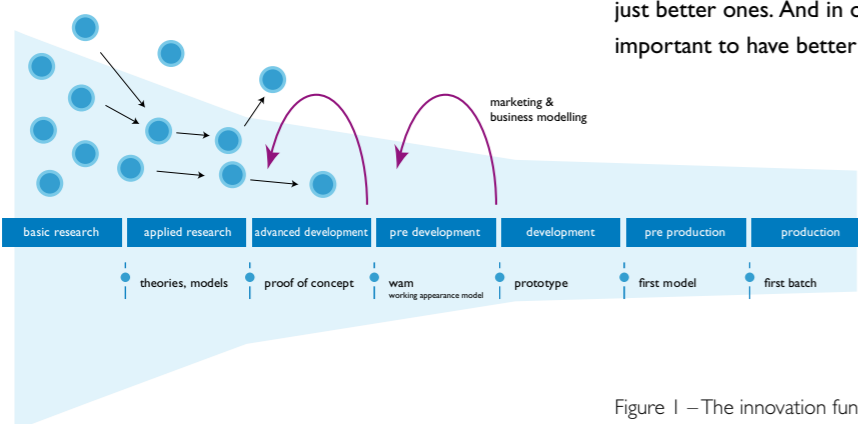
"An often-heard statement in the innovation discussion is that companies need more ideas, where in fact they are in need of better ideas and they are in need of a more disciplined implementation."

Bill Carrelli UGS – Conference presentation: the myths of innovation

of the most feasible concepts are left. These can then be developed and matched with the business case that will give them the greatest chance of becoming profitable propositions. At each stage of this model there is a go/no-go decision taken, based on criteria that are considered to be important to the future success of the idea.

What figure 1 also shows is that business models are being considered ever earlier in this process. This is seen by many as necessary as a selection mechanism, to act as stage gates, because it increases the possibility of new ideas maturing into products or services the market will embrace. In fact, the evidence, as can be seen in the Business Week articles, would point to the contrary.

Diverting from the conventional path

At Philips Design we believe that this forcing of business cases too early onto innovations confuses the issue rather than clarifies it. As will be explained later, innovations are often stifled if they are pigeonholed too early. Very often the route to market success is markedly different than the one described in this linear model, because ideas may need to divert from the 'conventional' path before they find their true application. This also conflicts with the funnel model described below, because it essentially proposes that we don't necessarily need more ideas, just better ones. And in order to facilitate this, it is important to have better input and better feedback.

Figure 1 – The innovation funnel

Design research at Philips

There is a long history of design research and innovation at Philips Design. Visionary projects were already taking place at Philips in some shape or form almost half a century ago. Ever since Le Poème Èlectronique, Philips' exploration of the future at the Brussels World Exhibition of 1958, designed by Le Corbusier, Iannis Xenakis and Edgard Varèse, there has been a succession of explorations into the medium-term and far future.

Figure 2 – Le Poème Èlectronique, Philips Pavilion, 1958

Exploring the impact of new technologies: experience prototypes

One of the first major design innovation research projects at Philips was Vision of the Future, which challenged the direction of new technologies and their impact on individuals and communities in the near future. The next step was to embark on projects intended to enhance the research component of the work, which also enabled us to develop Philips Design's competence and capabilities. Many of these initiatives were carried out in cooperation with academic and business partners, sometimes within frameworks set up by the European Union (EU).

Two such projects, Living Memory and Pogo, were significant because they marked the first time truly interactive prototypes were created, which meant experimentation could be carried out by potential user groups in a way that allowed them to properly participate in and experience the concepts. We call these prototypes or working appearance models 'experience prototypes'.
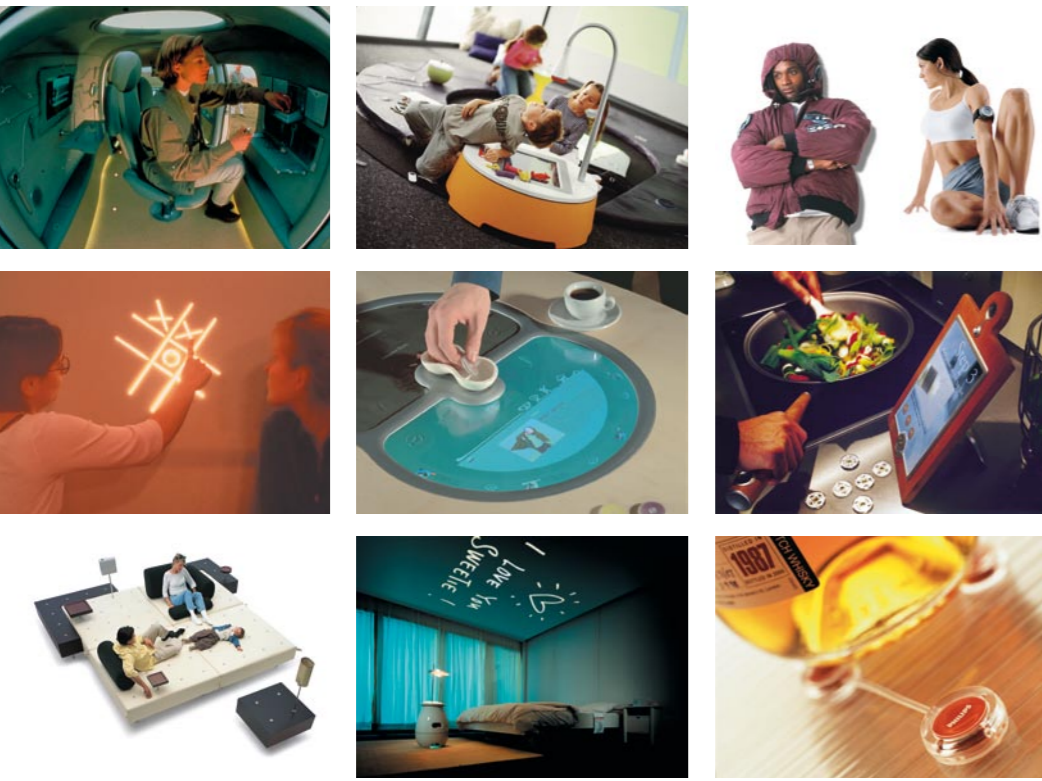
Figure 3 – Examples of experience prototypes

Understanding the innovation territory

In Philips Design we have built up quite a broad portfolio of this kind of innovation/design research project (see figure 3). One of the most recent, 'Next Simplicity', explored possible directions that the five Philips divisions could take in order to introduce even greater levels of simplicity and intuitive control into their products and systems.

Design or design research? Three distinct approaches
Carrying out this type of work allows us to develop knowledge and competence on 3 different levels.
But before describing them in any detail it is important to consider the difference between design and design research. In general, designers are trained to solve design-related problems, whereas research is all about developing generally applicable principles. There is quite a difference between the two. The former is about avoiding mistakes, whereas the latter often involves making mistakes that enable fast learning.

Design research is currently regarded by the design industry as research that designers require in order to do their jobs better (e.g. specific people research, cultural trends). We call this Research for Design. (level 1) This is important for designers at Philips, because the aim is to build and sustain a leadership position on subjects relevant to the design profession.

On another level it is all about researching new methodologies and design languages: Research into Design (level 2). This goes some way towards shaping the future of the design profession (examples include personas and the experience targets design process).

But what makes design research unique – and to a certain extent paradoxical – is the role of design as research tool itself. After all, you can come up with a novel new idea, but it can only really be properly validated and tested in an environment where it could eventually be applied – via the described experience prototypes.

We call developing these new application areas Research through Design (level 3). This is the most important aspect for Philips as a whole, because it enables Philips Design to propose timely business options with high potential value and build strategic partnerships with the Philips product divisions.

Other ways to capitalize on imaginative ideas
Over the last years we have examined how this last stream – using design as a research tool – can better contribute to innovation. This is particularly topical, given that sustainable innovation is high on today's industrial agenda. The conclusion of this examination, and the theme of this paper, is that innovation often has a higher chance of success if it is considered as a network of options that can be explored to find the best route to market. This means that transferring innovation directly into new business activities is not necessarily the best way forward, as there are other ways to capitalize on imaginative ideas.

Three horizons
In order to understand the innovation territory it is helpful to refer to a model described in a McKinsey book entitled *The Alchemy of Growth*. This model is based around the claim that companies have to manage three different horizons simultaneously in order to be able to innovate effectively. These three horizons are:
I   defending and extending the company's core business
II   developing new business
III creating viable options

We now relate these three horizons (in reverse order from 3 to 1) to the Gartner Hype Cycle, which describes the path followed by new technologies as they try and establish themselves in the market (see figure 5). This curve identifies five distinct phases; the technology trigger, inflated expectations, disillusionment, enlightenment and productivity. Basically our interpretation is that often the real application of a technology is not in the area in which it was initially envisaged. After the initial hype (inflated expectations) there follows a period of disappointment during which there is less interest in the technology. This dip does, however, indicate that the true application for the technology needs to be found, after which comes a period of sustained growth.
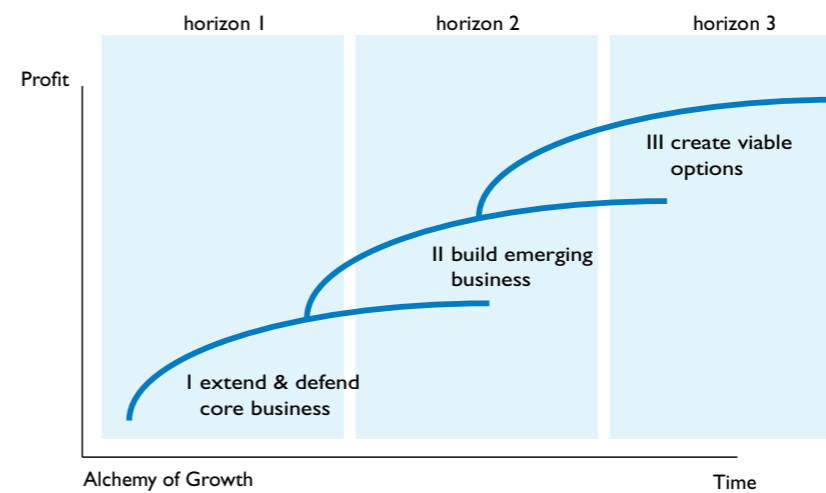

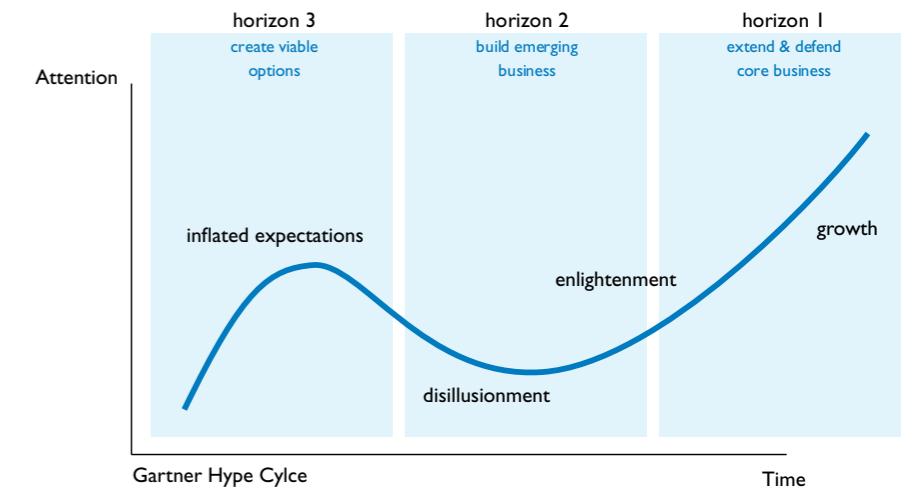Figure 4 – The three innovation horizons

Figure 5 – The Gartner Hype Cycle

From the bedroom to the examination room

This likely change of context is confirmed by numerous examples. Probably the most obvious is the Internet. The role it now plays in our lives could never have been envisaged when it was originally developed by the American military. This is also echoed by our own experiences at Philips. For instance, many of the ideas and technologies associated with our Nebula exploratory project – which looked at customizing the experience of waking up by for instance projecting images and messages onto the ceiling – are now used in medical examination rooms.
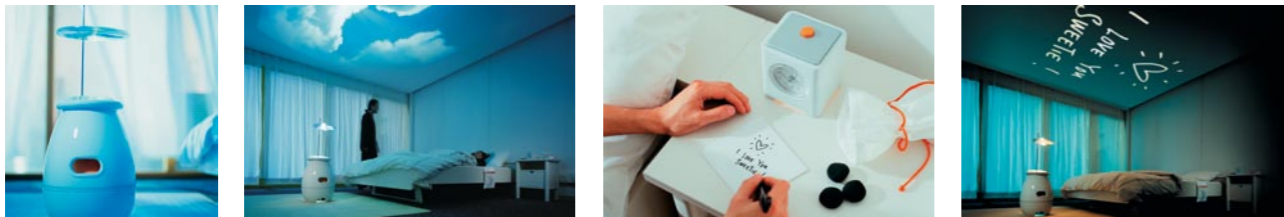

Figure 6 – The Nebula project – exploring the 'waking up' experience

Figure 7 – The Philips Medical Ambient Experience

The Philips Ambient Experience Design uses projection – as well as a number of other technologies – to customize the immediate environment in healthcare facilities for people who have to undergo examinations such as CT or MR scans. Figure 8 shows Nebula, where the competence and IP (e.g. patents) was developed, and Ambient Experience, where it is now being applied – in a very different context than originally imagined. This is interesting, because in the past Philips Design has often adopted a linear approach in trying to bring initial imaginative ideas to the Philips businesses and to the market with little success.
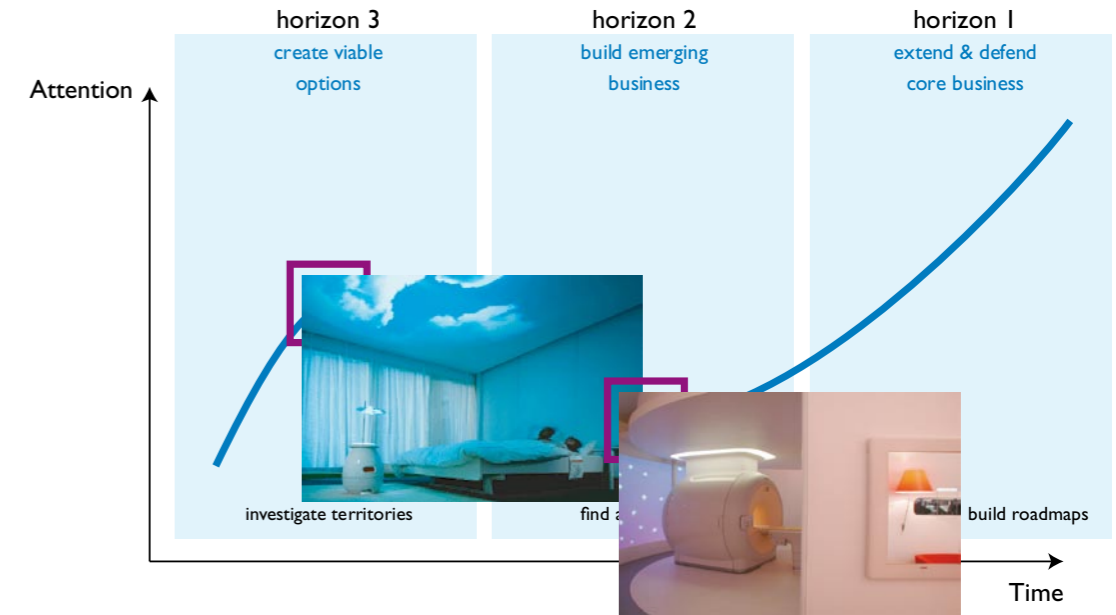

Figure 8 – The Nebula ideas and IP applied in the medical context

The Innovator's Dilemma

This is also backed by theory. Clayton Christensen's *Innovator's Dilemma* describes the familiar scenario whereby products that have established themselves on the market attempt to maintain their position by dint of a succession of new features. Think of the mobile phone, and how it has evolved from a portable telephone to a miniature multimedia device. But at some point no amount of new features capture the imagination of the public; something new is required. The problem here for companies is that they essentially have to start at the beginning again, and often the level of functionality associated with new propositions is below the threshold that makes them acceptable to the wider public. The trick here is to find a target group (e.g. hospitals that want to improve the patient experience) that embraces the new proposition and eventually help it progress into mainstream acceptance. The process of starting again is known as transformational or disruptive innovation, and is a further indication that the path to market success is not necessarily linear.
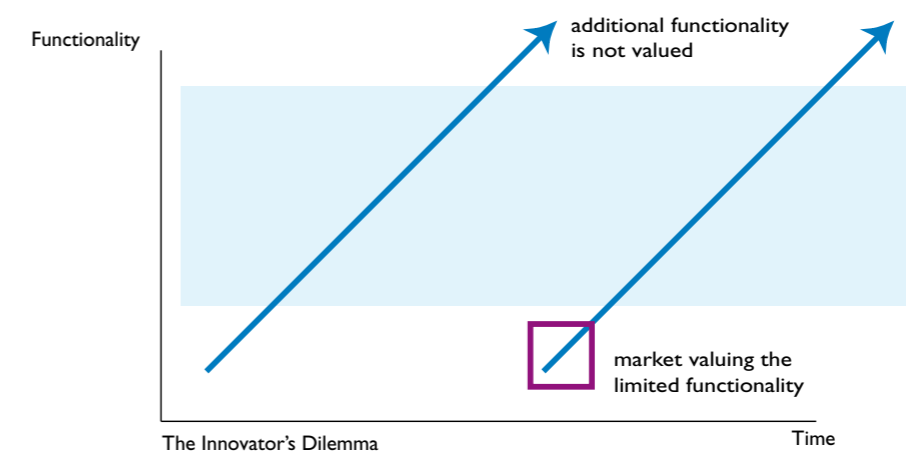

Figure 9 – The Innovator's Dilemma

Don't 'force' business cases too early

The 'three horizons' model emphasizes that different competences, capabilities and personal profiles are required for each phase. But the second important point is the notion that 'forcing' a business case in a linear way onto an emerging technology in horizon 3 will limit its potential because it denies it the chance to find its true place in the market. Horizon 3 is not about finding out how emerging ideas will be applied, it is about investigating territories; making sure that you claim, in a generic way, the space surrounding the idea. Horizon 2 is much more suitable for discovering the most appropriate application.
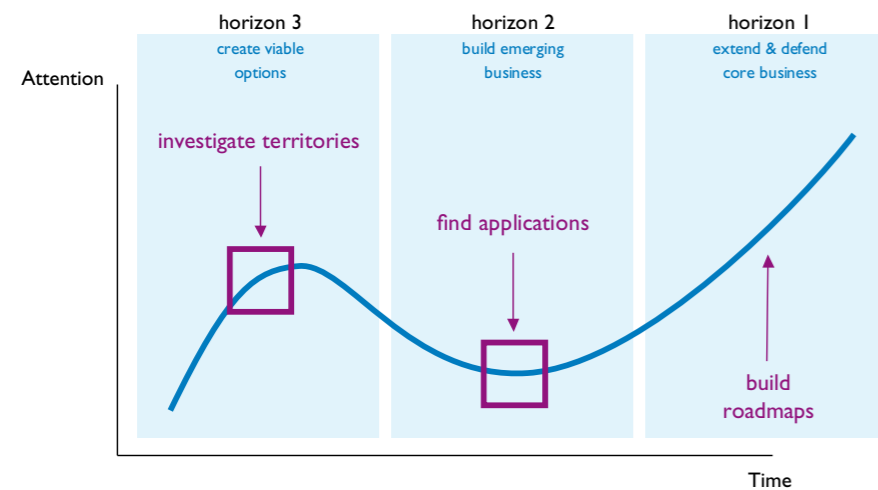
Figure 10 – The horizons with their own specific focus

This somewhat flies in the face of current business wisdom, which generally suggests that marketing and business models should be implemented as early as possible (figure 10). But rather than increasing the chances that innovations become mature and viable technologies, implementing these models too early can actually hinder progress. What is required is a more 'non-linear' path between innovation and commercial viability. We propose an alternative scenario for developing innovative technologies and ideas.

A new approach to developing innovation

There are many different models that describe the path from innovation to market via basic research, (pre) development and then product launch. An interesting and popular notion is the one already described by Michael Lanning and Edward Michaels in 1988 in *A business is a value delivery system* where they made a case for the customer – and not the competition – as key to a company's success.
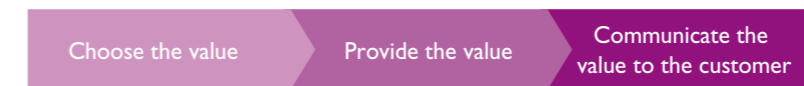
Figure 11 – The business as a value delivery system

Innovation matrix

But instead of positioning research at the start of a linear process that proceeds through the horizons with the goal of bringing imagination to market, we propose that the same mechanism of choosing value, providing value and communicating value – as described by Lanning and Michaels – can be superimposed on the three horizons model. In other words, there is more than one way of capitalizing on opportunities in horizon 3. What this matrix illustrates more than anything else is that there are a number of interesting and potentially effective new ways of capitalizing on innovations that arise from the 'identifying value' matrix square in horizon 3, which can be regarded as the point from which the whole process begins.

Let us first start by taking a look at the conventional linear path from horizon 3 to horizon 1. This roughly corresponds with the middle row in the matrix. Value is initially developed through the research hypothesis; what we call the innovation debate. It then passes into a phase of collaborative innovation, where the focus is on working together with strategic partners to develop opportunities for short-term growth. After this the technology then moves into the incremental innovation phase, whereby new features are gradually added to improve the performance of the existing product.

	horizon 3	horizon 2	horizon 1
communicate value	aspirational promise	concept car	specific campaigns
develop value	innovation debate (probes)	collaborative innovation	incremental innovation
identify value	social cultural trends & narratives	future focussed persona research	people & market research

Figure 12 – The innovation matrix

Design probes

"The probe comes from the world of conversation and dialogue; it is non-linear and adapted to discovery and illuminating situations."

Marshall McLuhan

If we look at the middle matrix square in horizon 3, called 'innovation debate', we see that this belongs to the traditional area of developing value. Here we have further developed the idea of 'experience prototypes' like Nebula into what we call 'design probes.' Building on the notion of probes as developed by Marshall McLuhan we are taking the concept of the cultural probes (Gaver et al) a step further, by providing experience prototypes as probes. The probes are designed to help explore new territories, develop creative insights and determine whether there is anything to be gained by protecting intellectual property in these territories.

The intention of the probing is to start a discussion on specific territories. An example is the work Philips Design carried out in 2005 with the Helen Hamlyn Research Centre at the Royal College of Art, in which prototyped linked appliances – that together constituted a digital ecology – were given to selected users without a specific design application in mind beforehand.

The aim was to explore the relationship that can emerge between a user and an object capable of expressing dynamic content by showing movement. To achieve this, the research targeted technically creative individuals with a passion for a particular domestic hobby such as robot building, music or animation. Each person was involved in developing the prototypes, and then adapted the objects to create their own desired choreography of movement.
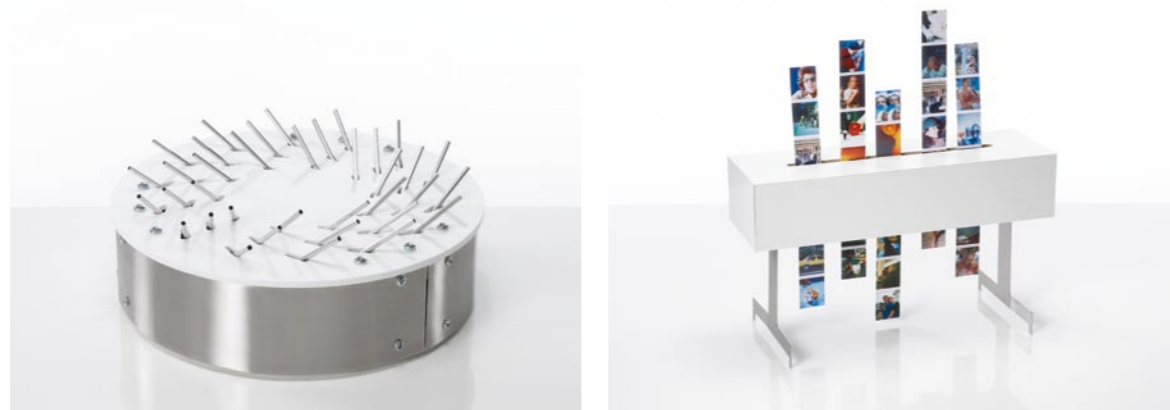

Figure 13 – Examples of design probes – using dynamic objects to express digital content

Another example of this kind of work is our research into wearables. We have carried out a significant amount of 'probing' into this territory and, while it is unlikely that Philips will actually produce conductive fibers, it will be an important area for future personal health applications. It was therefore worthwhile developing intellectual property. This is also known as IP fortressing or blanketing, and can be an important source of future income streams. Philips Design generates a substantial amount of patents based on this type of work.

Figure 14 – Examples of wearable probes

New ways of exploiting innovation potential

But there are other ways of exploiting the potential of innovation developed through design probes. Why not, for instance, go from the innovation debate matrix square into aspirational promise, which is also in horizon 3.

No longer a dumping ground

Rosabeth Moss Kanter describes this phenomenon very well in 1999 in the Harvard Business Review. She argues that business had traditionally viewed the social sector as a dumping ground for spare cash, obsolete equipment and tired executives but today, "smart companies are approaching it as a learning laboratory." She also added that "a company has a better chance of making a difference if it knows how its business agenda relates to specific social needs." Moss Kanter backs up her story with a number of examples, such as the Marriott Hotels project – Pathway to Independence – which was targeted at the job skills, life skills and work habits of welfare recipients in inner cities. The result was reduced turnover rates of hotel staff as well as improved job prospects for the participants.
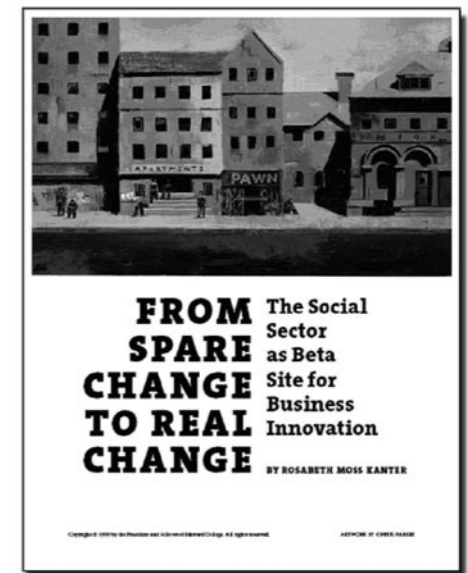

Figure 15 – From spare change to real change

Aspirational promise – building brand equity

This is the concept of aspirational promise. A prime example is TNT, the worldwide logistics and delivery company. TNT is working together with the World Food Programme (WFP) in projects aimed at tackling poverty and hunger through the globe. This long-term partnership is the largest charitable initiative ever undertaken by TNT, and costs the company approximately €7 million every year, as described in the INSEAD article: *Logistics Firms and Relief Agencies*.

TNT chose to work together with the WFP because it is the logistics arm of the United Nations. The WFP distributes food over the whole world; TNT distributes more or less anything over the whole world. By linking itself and actively helping a cause that is very close to its core competence, TNT fulfils the conditions of creating aspirational promise. It developed competences and specific intellectual property (e.g. logistics software) it uses in the normal business processes. This leads to an increase in employee moral, but also develops considerable brand equity through developing and positioning TNT as a socially responsible company.

We feel that building this brand equity and the securing of the IP are the real business case of horizon 3. And when carried out with genuine social concern – as described by Moss Kanter – it builds upon the (aspirational) competences of the company and lays a perfect foundation for development and communication in the other horizons. This is especially valuable in a world where values like trust and transparency are increasingly required from companies. Philips Design has already carried out exploration into this area. Together with various partners such as Medicine sans

Frontieres and Save the Children, workshops were carried out in 2005 to develop concepts and ideas for sustainable solutions.

Futures and foresight

Our work on futures and foresighting, which involves developing socio-cultural trends and narratives to identify emerging values and needs, is the basis for innovation towards a better future quality of life.

"Thinking about the future we must have insight both on the longer term possibilities and the realities of today. Quantitative data gives way to more creative and qualitative approaches that feed the creative and imaginative process. The combination of creative and analytical methods, of design-driven and research-driven approaches within Philips Design, enriches our knowledge and understanding," according to Josephine Green in Thinking the Unthinkable.

Outcomes of this research range from scenarios and narratives for horizon 3 – to serve as input for the probes and the experience prototypes (TO:DO:SOs; see next page for an explanation) – to ethnographic insights used for personas for Horizon 2. Other deliverables are the annual Philips World Compass that enriches strategic and innovation thinking for Philips and the businesses, and Culture Scan, which feeds aesthetic, communication and product trends.

But while the foresight activities provide direction for design probes, the probes also feed back into the foresighting. We call this Foresight by Design.

Figure 16 – Developing sustainable solutions

Managing the chain in a clever way

What all these examples prove is that effective innovation is about managing this entire chain in a clever way. There are all kinds of links between the various matrix squares. As we have shown, you can move from the innovation debate directly into aspirational promise, but you can also move into horizon 2. Communicating in horizon 2 is well understood by the car industry with its concept cars. These invariably do not evolve into production models, but that is also not the intention. They are in fact simply the physical embodiment of an approach, a direction, a brand statement. Stefano Marzano refers to this as the multi-purpose strategy: testing potential directions with users while at the same time "creating memories of the future." (a term was originally coined by the Lund neurologist David Ingvar), referring to the process by which people's awareness is raised and anticipation is stimulated in order to help improve market readiness.

There are numerous examples of this at Philips Design. The City-People-Light visionary project of 1997 explored ways in which lighting could enhance the lives of urban residents. Working models were conceived, developed, publicly exhibited and discussed with opinion leaders – such as mayors, city planners and architects – with the aim of establishing an ongoing dialogue. 'Next Simplicity', which has already been mentioned, is another prime example.
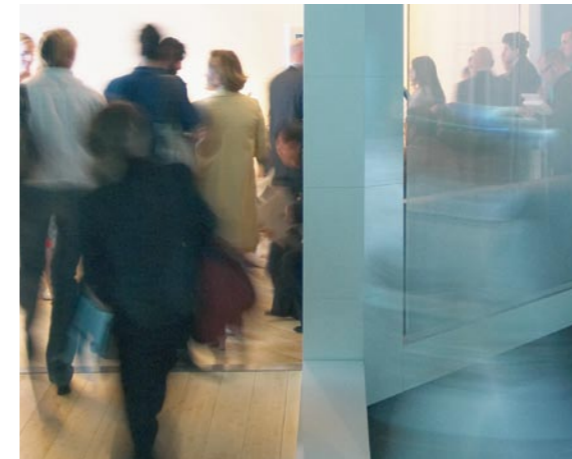

Figure 17 – 'Next Simplicity' exhibition 2005

The potential success of this path is illustrated by the example of the Philips Ambient Experience Design, which was mentioned earlier. The fact that this entirely new concept was shown at the RSNA (Radiological Society of North America) exhibition in Chicago was instrumental in its subsequent success. Yet this was a departure from the normal trajectory these kinds of technologies follow.

"All the management consulting talk about core competencies fuels another innovation myth – stay focused on the road ahead, and don't get distracted by detours. However, too much focus on the road ahead can be dangerous, because it impairs your company's peripheral vision. Sometimes, what seems like a detour actually may become the main road."

Mohanbir S. Sawhney Tribune Professor of Technology

Linking user input to technology

In horizon 2 we have recognized that although having the right user input is important, it is also crucial to link it to technology. It is not enough just to have technology on a roadmap. If nobody is actually working on the technology it still gets you nowhere. You have to have proper experimentation and interaction between design and technology to make sure that the products and services being developed will be able to reach the market in a foreseeable time frame.

TO:DO:SO

To this end, we have developed a process called TO:DO:SO. This process is particularly effective because it aligns Technology Objectives (TO), Design Objectives (DO) and Strategic Marketing Objectives (SO) already existent in the respective parts of Philips, and is therefore also a way of internal alliance building.

The deliverable is one or more 'experience prototypes' that build on user insights, but which are created using actual or producible technology. The TO:DO:SO methodology starts by sharing the objectives of the different participants and by defining a common scope for a possible application area among the technology partners (1). The next step is to carry out user research in the appropriate area (2), followed by defining the experience concepts (3) based on the technology the partners can deliver. These concepts are prototyped in the 'experience prototype' (4) and user tested (5). A perfect example of this is the Intuitive Connected Home, an initiative between Philips Design and 10 different technology partners including Philips Research and Philips Applied Technologies (Apptech).

Intuitive Connected Home showed how people can enjoy, share and creatively use and create digital content at home or on the move. A full working demonstration was created, using existing technology such as Philips Near Field Communication and the LikeMusic algorithm, which allows people to actually access the functionality of the system and experience what it is like to use it.

Five crucial factors

This approach aligns with research carried out by Peter A. Koen of the Stevens Institute of Technology. He identified that the success of high risk (innovation) projects is dependent on five crucial factors, namely; 'opportunity identification in white space, idea genesis using ethnography, idea genesis using new and emerging technology, early experimentation, and a selection management process using risk tools'. It is interesting to note that aligning innovation with business cases is not seen as one of the key success factors. This is, according to Koen, because "You don't know what you don't know".

As an example, Philips Design applies its Consortia Vision to examine white space opportunities, which are the gaps between existing companies where new innovations may occur. The link to technology is clear from the TO:DO:SO approach, which also enables the necessary level of experimentation. The use of personas and other similar tools and methods provides the necessary ethnographic input. This approach delivers 'first-of-a-kind' products, which can be fed directly into Philips 'incubators', special entities within the Philips organization intended to promote the creation of feasible new innovations.

Future-focused personas and grass root innovation

The search for the right application area is supported by identifying user groups that 'live' the values as identified by the foresight activities from the bottom left corner of the innovation matrix. We have developed a number of approaches like future-focused personas and the multiple encounter approach as described in the Philips Design paper for the ESOMAR conference, entitled; *People Insights at the Fuzzy Front of Innovation.*

But we are also tapping into those we refer to as 'cultural innovators' when we explore specific segments. Cultural innovators are those people in today's society who hold the values and beliefs of the next era. As 'lead users' of new values and behaviors they are already helping create the future, giving the emerging age its character, leadership and social identity. This follows on from the debate started by Richard Florida, an academic who argues that the time has come for a new social class – which he refers to as the creative class – to claim it's rightful place higher up the pecking order in society.

In this period of considerable change and transition, people themselves are finding their own sustainable solutions to meet everyday concerns of living. A major EU project EMUDE, in which we participated, scanned Western and Eastern Europe to identify how people are collectively innovating around such areas as co-housing, mobility, food purchase and consumption, and thus developing grass-root innovations. Or as William Gibson put it, "The future has already arrived. It's just not evenly distributed yet".

Both cultural innovators and social innovators are making the future and feed us new insights and solutions which we can further enrich and enable through the horizons.

Horizon 1

The activities of horizon 1 are of course core business for a design organization and already well-explored territory. They are therefore beyond the scope of this paper. But note that ideas from this horizon also flow to the left of the matrix.

Figure 18 – TO:DO:SO experience prototypes

Passionate champions

Finding the best way through the matrix is crucial in bringing imaginative ideas effectively to the market. It is equally important when moving in the other direction, as is the case when ideas from horizon 1 enter the incubation area in horizon 2 or provide ideas for new territories in horizon 3. Managing the crossroads between matrix squares is therefore vital. The chances of success will also be increased when there is what is known as a 'passionate champion'.
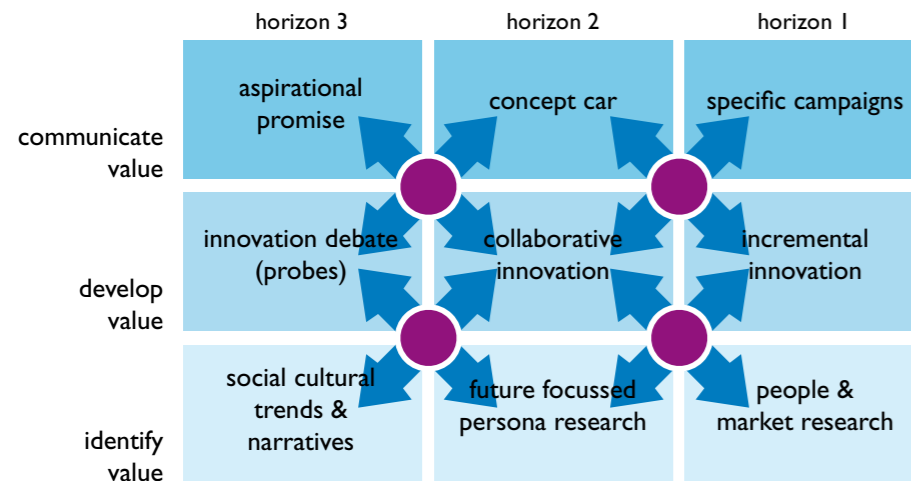

Figure 19 – Navigating the matrix

'Passionate champion' is a term used by, among others, Harley-Davidson in its new product development model. At the early stages of the model it embraces the same kind of 'free-thinking' attitude proposed by this paper. It tells its people for instance that "product development is bounded only by your creativity" and "you can do anything – but you can't do everything". It also uses a model for the initial phases of product development known as the swirl. This contends that ideas initially swirl around competing for attention and legitimacy until they pass through a zone of consideration and ultimately become accepted. It also says that concepts and ideas stay in the swirl until they evolve, expand, contract and are adopted by a passionate champion who can promote and sell the concept throughout the organization.

"An undeveloped idea, no matter how great, isn't worth much. It seems that innovators get a lot of praise for great ideas and unique solutions, but their real gift is not out-of-the-box thinking. It's in their rare ability to breathe life into delicate ideas. Without recognizing the incredible value in the ability to grow an idea, we're selling great 'innovators' short."

Erik Bjornard – In a reaction on the article Method, Not Madness

If we look at design it can play a major role as being a passionate champion. The design discipline has by nature considerable expertise in integrating technologies, generating and interpreting end-user insights and marketing information and above all visualizing outcomes, enabling the discussion needed for the innovation quest.

Conclusions

One of the great attractions of this matrix-based approach is that it offers more possibilities for generating innovation than the traditional linear approach. It does not see the innovation process as a one-way street. Ideas and concepts can pass in many different ways between the various squares in the matrix. This means, for instance, that there is greater scope for feeding ideas from current business back into the innovation process to come up with something new.

It also identifies that very often the real focus in horizon 3 is not to force the business case on a new idea but instead to develop equity that can be used to leverage the brand in the future. What is also important at this stage is to identify and protect territories that could lead to profitable intellectual property income streams.

It also becomes clear that different competences, capabilities and personal profiles are required for each horizon. But by using design as a research tool to develop imaginative ideas, while also using design to present these ideas in different ways depending on their place in the matrix, we ensure maximum acceptance by the different stakeholders in the process.

But possibly the most important and overriding message is that making innovation more successful is all about managing imaginative ideas in different ways, and not necessarily following the well-beaten path that all too often ends up being a road to nowhere.

References

1   *A Creative Corporation Toolbox* - Get Creative - how to build innovative companies, Business Week special report, August 2005.

2   Christopher Farrel, *Mining The Vein Of Great Ideas – Patent can clue smart investors in to the Next Big Thing from innovative companies*, Business Week on-line (www.businessweekon-line.com), December 2005.

3   Henry William Chesbrough, *Open Innovation - The New Imperative for Creating and Profiting from Technology*, Harvard Business School Publishing Corporation, 2003.

4   Merhdad Baghar, Stephen Coley and David White, *The Alchemy of Growth* - Practical Insights for Building the Enduring Enterprise, Perseus Publishing , 2000

5   "Hype Cycle" is a model of the Gartner Group. Since 1995, Gartner has used Hype Cycles to characterize the over-enthusiasm or hype and subsequent disappointment that typically happens with the introduction of new technologies, www.gartner.com.

6   Clayton M. Christensen, *The Innovator's Dilemma* - When New Technologies Cause Great Firms to Fail, Harvard Business School Press, Boston, 1997.

7   Michael J. Lanning and Edward G. Michaels, *A business is a value delivery system*, McKinsey staff paper, (June 1988), described in: Marketing Management (eleventh edition) - Philip Kottler - page 111

8   Marshall McLuhan, David Carson, *The Book of Probes*, edited by Eric McLuhan, William Kuhns, and Mo Cohen, Gingko Press, November 2003.

9   Bill Gaver, Tony Dunne and Elena Pacenti, Cultural Probes, in Interactions Magazine, January/February 1999.

10 Tobie Kerridge, Andy Law and Bas Raijmakers, *Media Mediators* - Exploring the Movement of Digital Objects in the home, the Helen Hamlyn Research Centre - RCA Interaction Design, 2005.

11 Rosabeth Moss Kanter, *From Spare Change to Real Change* – The Social Sector as Beta Site for Business Innovation, Harvard Business Review, 1999.

12 Rolando M. Tomasini and Luk N. Van Wassenhove, *Logistics firms and relief agencies - learning from each other*, Insead Quarterly Magazine - Unpuzzling Strategy, July - September 2005, www.insead.com.

13 Josephine Green, *Thinking the Unthinkable* in: *In the Long Run (Corporate Foresight und Langfristdenken in Unternehmen und Gesellschaft)* by Klaus Burmeister and Andres Neef (Hrsg.), 2005.

14 Stefano Marzano, *Creating Value by Design* - Twin Books Thoughts and Facts, V+K publishing, 1998.

15 Philips Lighting and Philips Design, *City-People-Light* 1997.

16 Steven Kyffin, Luc Geurts and Anton Andrews, *TO:DO (Technical Objectives: Design Objectives)* – Integrating design, technology and business for rapid, people-driven innovation, Philips Design position paper, 2005.

17 Peter A. Koen PhD - Associate Professor Wesley J. Howe School of Technology Management at the Stevens Institute of Technology, Conference Presentation: *Front End of Innovation* – What Does World-Class Feel Like?, 3rd Annual PDMA/IIR Front End Conference, 2005, www.iirusa.com.

18 Lucile Rameckers and Stefanie Un, *People Insights at the Fuzzy Front of Innovation* – How to achieve human-centred innovation?, Philips Design position paper, 2006.

19 Richard Florida, *The Rise of the Creative Class* - And How Its Transforming Work, Leisure, Community and Everyday Life, Basic Books, 2002.

20 *EMUDE*, - Emerging User Demands for Sustainable Solutions, EU project, www.sustainable-everyday.net/EMUDE/, April 2004.

21 Anthony Reese (Director, Engineering Planning) and Dantar Oosterwal (Director, Product Development Office) New Product Development, Harley Davidson, *Bins, Swirl, Cadence & Flow - Harley-Davidson's formula for NPD*, www.pdma.org.

22 Quote: *Breathing life into delicate ideas*, form a response by Erik T Bjornard (Director, New Business Development D&S Creative Communications) on an article *Method, Not Madness* - Innovation may look casual. But behind every creative leap, there's a real process at work, by Samar Farah, CMO Magazine, www.cmomagazine.com, September 2005.

23 other quotes, Bill Carrelli, conference presentation: *The myths of innovation*, October 2005, HighTech Campus, Eindhoven - Mohanbir S. Sawhney, *Seven Innovation Myths*, www.mohansawhney.com.

Acknowledgments

The author wants to thanks all the Philips Design
employees who worked on all the innovation projects that
where the foundation of this story. He also wishes to
thank Stefano Marzano, Grant Davidson and Laura Taylor
for their input in developing this paper, with a special
mention to Josephine Green and Steven Kyffin for there
inspiring thoughts and valuable input.

About the author

Ir. Paul Gardien studied Industrial Design Engineering at
the University of Delft in the Netherlands. He has worked
in Philips Design in a large number of different areas,
ranging from product design, user interface design to
multi-media and internet design, both in the professional
as in the consumer domain. At present he is responsible
for New Solution Development, a program encompassing
our own Design Research program, the development of
New Business for Philips Design and the development of
the current Service Portfolio.

PHILIPS