Personal and Organizational Transformation Towards Sustainability

Walking a Twin-Path

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BEP BUSINESS EXPERT PRESS

Abstract

Leading change towards sustainable development

Inspired by the WBCSD Vision 2050 in which "all people live well within the limits of the planet", this books asks how do we achieve this bold ambition? Telling a story of personal growth and corporate transformation, it provides insights and tools for anyone driving sustainable development within their organizations and in their own lives.

Discover how you can consciously use your professional role as a source of change. Learn how the consistent use of few, yet meaningful visuals, enables generative dialogue and communication for aligned problem solving within multi-disciplinary and multi-stakeholder teams. See how personal mastery can guide you in identifying the contribution you can make, both towards wider goals and your individual well-being.

On this journey, "meaning-making" is essential. In organizations, co-creation of a shared language and an understanding of disruptive innovation are fundamental to successful transformation.

In exploring these topics, the book builds on a set of core concepts: Rogers' innovation diffusion curve, the triple bottom line (people, profit, planet) expanded with a fourth "P" (the individual), and the WWF "ice-breaker" graph which maps the environmental footprint against the human development index.

Key words

Flow of Contents

Embodying

Exploring

Pioneering

Daring

Personal

Leadership Path

Organizational

New Business

Corporate Scope

Preface

We cannot solve our problems with the same thinking we used when we created them.

<div align="right">(Albert Einstein)</div>

If—in a situation, when you hit a wall and there seems to be no way out—you trust in life and in yourself, you'll find a solution.
It might not be obvious.
It might feel counter-logical.
Even so, it is there, often close by, where you don't expect it.

<div align="right">(My mother to me when I was around 17 years old)</div>

Foreword

Half of a century has passed since, when at lunch with my parents and brothers one Sunday, we hotly contested the prospects for future generations if the world's forests were to continue to shrink, populations to rise, and desertification to increase. Much has changed since then. Substantiated data increasingly supports the insightful intuitions that informed our 60's lunchtime debate. Sustainability has become mainstream and every corporation that looks to the future knows that its' reputation could be severely damaged if this once marginal issue is not properly managed. So much has changed and yet……… the world's forests continue to shrink, populations to rise, and every year deserts roll forward. We are prodigiously clever, but wisdom it seems, remains out of reach.

Dorothea Ernst's travel report is wrapped around the concept of the Twin Path of leadership. This idea was first explained to me when a small group of Native Americans undertook the challenging task of completing my education. Interested in my access to business leaders they shared some of their knowledge on the theory and practice of leadership.

> *We do not trust any leader who does not walk the Twin Trail–the inner trail of self-understanding, self-unfolding, and deepening; the outer trail of action and powerful effect in the world. The outer trail of having effect in the world is hugely important, but without the ongoing wisdom path of the inner trail, it will inevitably become hostile to the greater good.*

Dorothea walks the twin trail and her narrative invites us to walk alongside. Many of us never get closer to the world of corporate business than the purchase of goods and services marketed by them. A relatively small number of us work inside the behemoth, and right now it is to this population that a question of some significance presents itself for enquiry. The corporations that bestride the world are the engines that power our modern global economy. They function on the basis of sever-

al beliefs, and one of these beliefs rests on the idea that the purpose of such organisations is to drive growth and create profit. After many years inside Philips, Dorothea offers the following advice to those who continue to search innovation for sustainable development.

Dare to re-connect to being human.

It is this challenge that will ultimately oblige us to re-examine what we mean by growth and profit. Our understanding of these concepts, as revealed in the world that we are so energetically manifesting, will send us to the cliff edge if not fundamentally revised. The confidence to co-create the World Business Council for Sustainable Development's Vision 2050 will be inspired and enabled by a kinder, more generous, inclusive, truthful, and profound notion of growth and profit. With this in place the extraordinary creativity, dedication, and resourcefulness of the people working inside our organisations will find traction and the guiding principles that can, eventually, take our species home. Home to ourselves and home to the wider community of non-human life forms upon which we rely for the future worth having.

Mac Macartney

27th October 2015

Acknowledgments

This book draws on the vast array of publically available material, from 2000 to 2011, accumulated and applied to the ongoing thinking and acting within Philips Lighting, Philips Research, Philips Design, and the Philips Corporate Sustainability Office. It is rooted in my personal experiences and insights and covers my very individual perspective of a twin-path journey. I am very grateful for having had the opportunity to experience this journey. It was sometimes hard, yet overall very rewarding.

I thank all my colleagues and professional and private friends who were part of this journey, an endeavor that would have been impossible to pursue alone. It's our personal relationships that gave me the energy and courage that is required to go for bold dreams and stay on course. A special thank you goes to my bosses and the coaching team members of the Think the Lighting Future and Atmosphere Provider time for their trust in me and our shared passion to contribute to meaningful innovation. If one of you read this, you'll know who is meant.

A big thank you goes to Susan Wild and Volker Frank for their very helpful and always encouraging feedback during the entire writing process. Liesbeth Scholten, Bettina von Stamm and Wolfgang Budde gave valuable comments in the final phase of the text development. Oliver Laasch inspired me to work on this book and supported me to find the way through the "jungle" of publishing administration. I highly acknowledge the open and constructive cooperation with entire BEP team during the publishing phase. Mac Macartney and his work at Embercombe inspired me to tell this story as a twin-path travel report.

I am very grateful to my grandmother and parents for the spirit of caring civil disobedience. They lived a great example, giving me the opportunity to intuitively understand what it means to state "Zukunft hat Herkunft"; in English "future has provenience".

I devote this book to my husband, daughters and all the children of this world. They and all the coming generations deserve a world that offers the possibility of living well.

Framing

When pioneering "innovation for sustainable development" for a multinational corporation (MNC), I was invited to participate in a project called Vision 2050,[1] organized by the World Business Council for Sustainable Development (WBCSD). In 2008 to 2009, when the world was shaken by multiple crises, such as climate change, the global financial crisis, a severe food crisis, water scarcity, and more, I witnessed the emergence of an amazing vision, a new really bold dream for humanity:

In 2050, some nine billion (all) people live well and in the limits of the planet.

When sharing this vision in deployment sessions in recent years, I used to pose the following three questions:

1. Do you think this is a desirable future?
2. Do you think—taking into consideration all knowledge and creativity humanity has—it could be achieved?
3. Do you think it will be achieved?

In my experience close to 100 percent of the audience agree on the first question; for the second question the yes drops to 50 percent or slightly less; the third question in optimistic groups is positively answered by about 8 percent of the participants, in pessimistic groups by only 3 to 5 percent.

What does that mean?

Our initial challenge at this moment in time is a lack of confidence, a lack of pioneering spirit, a lack of trust that innovating for sustainable development is a possible and worthwhile journey.

Where does this come from?

Scary headlines and new concepts bombard us with accelerating pace: big global challenges, economic crises, waves of refugees, system innovation, crowd sourcing, collaboration, time is running out... And we humans are the root cause for all that trouble?! The problems of the world nowadays seem to be so complex, overwhelmingly big, and immensely risky that pessimism and cynicism grow and keep many of us in a paralyzed state of non-action or withdrawal into private life. However, if you dare to take a closer look, you might discover convincing reasons to become optimistic and roll your sleeves up and join to co-create an amazing future...

At the end 2012, I joined a personal mastery program called *The Journey.* It suggested a *twin-path*[2] of leadership towards sustainable development. In early 2014, I shared my twin-path journey with a group of Marie-Curie PhD students in Brussels and got invited to write it down in a book, which brought me again to my personal "fuzzy front-end"[3]— a highly unfamiliar situation, asking for courage, imagination, new skills, and so on.

Surprisingly, through the process of writing, I became aware that the essence of my work at the Dutch MNC Philips was *sense-* and *meaning-making.* Sense- and meaning-making on an individual level have a lot to do with increasing self-awareness and consciousness development; on a group- or organizational level transparency, communication and human relationships play a central role.

Having an educational background in science and professional legacy in (originally technology-driven) innovation, initially this was an unexpected insight; in the meantime it makes perfect sense for me. Why?

Vision 2050 lifts us to the fuzzy front-end of innovation:

- It demands (social) system innovation and multi-stakeholder collaboration: in other words dealing with complexity.
- It confronts us with the *ambiguity* of not-knowing and opens a lot of space for human creativity, curiosity, and the will to discover and pioneer.

- It challenges some fundamental implicit assumption about our current economic logic, asking us to consciously develop *new response-ability* replacing routine and unconscious reaction behaviors.

Why is it so difficult to deal with complexity and ambiguity? What does it take to develop new response-ability?

In order to answer these questions, let's first look into "normal" business and innovation practice…

- The essence of successful business is value creation (via product[i] and revenue stream [sales] creation).
- Value creation is the target of impactful leadership.
- The essence of impactful leadership is sense- and decision-making followed by effective implementation.
- Sense- and decision-making and its implementation require meaningful communication.
- Meaningful communication is rooted in common language.
- Common language is anchored in (corporate and local/national) culture and generally is unconsciously used, so part of our daily routine.

How is this different from innovating towards Vision 2050?

- The fuzzy front-end is the messy getting started period of often disruptive innovation.
- Disruptive innovation is characterized by multiple dimensions of newness combined with the absence of proven or aligned ways of working, challenging existing market expectation.

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[i] The term product is used here in its broadest sense-embracing material goods (e.g., pens, cars, mobile phones), software (including computer games, apps, B2B machine codes), services (consultancy offers, event organization, train rides, flights, etc.), and system solutions (healthcare delivery, education, …)

- Multiple dimensions of newness ask for exploration, pioneering, and integration of a variety of different (expert or stakeholder) perspectives.
- Different experts or stakeholders seldom have a common language.
- A common language is a prerequisite for meaningful communication.
- Meaningful communication enables collective problem understanding, common goal definition, resilient decision making, and co-creation.

Having worked at the fuzzy front-end of innovation for more than a decade, in my view, *sense- and meaning-making* should become a consciously managed innovation process step at the start of any disruptive or complex innovation project. It is this often not recognized and undervalued activity that helps to embrace and understand complexity, clarify ambiguity, and develop new individual and collective behavior patterns that finally lead to appropriate response-ability that creates disruptive innovation opportunities.

Interestingly language and words allow *sense* to travel from one place to another and conserve it over time. Likewise money since its invention has been a means to transport *value* across spatial distance and preserve it over time. Which *meaning* a word has, though, highly depends on the context of use, comparable to the *impact* that money can have in different situations.

This book is a travel report of my twin-path journey of leading innovation at the fuzzy front-end: a journey of sense- and meaning-making in order to enable future value creation. To make this explicit, the book is written from two angles: my personal leadership development journey is interwoven with the innovation and organizational change that I inspired and witnessed at Philips, a Dutch multinational in the first decade of the millennium and beyond.

Travel reports are written to stimulate curiosity to discover something new, inform, as an invitation to let go of prejudices and assumptions, to share tips and tricks, thus offering those who want to go on a similar journey, a way to build confidence.

Twin-Path: Personal Mastery in Coherence with Impactful Action in the World

The notion of *personal mastery* is prominently introduced by Peter Senge's in his book: *The Fifth Discipline*.[4] It is "the discipline of continually clarifying and deepening our personal visions, focusing our energies, developing patience, and seeing reality objectively." It's all about an inner dialog between intuition and intellect. Especially at the fuzzy front-end of innovation, personal mastery is an essential leadership skill to navigate the related complexity and uncertainty.

In the context of innovation, *impactful action* can be characterized through opening and using potential for multi-stakeholder value creation, such as value for the user through high-quality, fairly priced products; economic value for the shareholders; and value for the employees through safe work and a fair salary. At the fuzzy front-end of innovation, the main action lies in opening new value creation space, generating new business ideas and incubating them to traditional Product Creation Process maturity. This is likely to happen in *learning organizations* that are conscious about the *mental models* that influence their decision making and acting. Such organizations are capable of developing a *shared vision* about the common future. They practice the art of *dialog* as a process for *team building* and use *systems thinking*. If the participating individuals have a well-rooted self-awareness, the probability of success increases significantly.
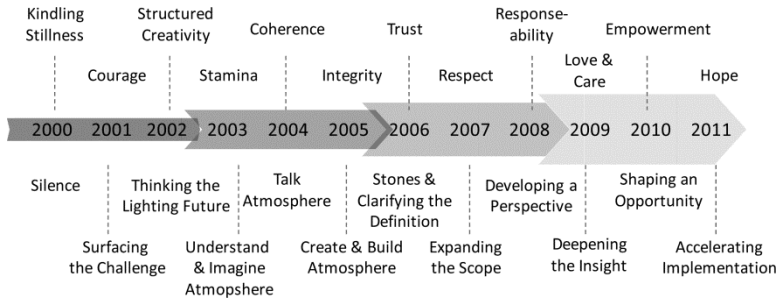
Figure 1 Timeline twin-path journey

Figure 1 gives an overview of the twin-path journey shared in this book in yearly steps. The upper steps capture my personal mastery, the lower my view on the steps that Philips took. I contributed to the Philips journey until mid-2011.

The grey arrows indicate the four parts of the journey. Each part is captured in a separate chapter (Chapters 2 to 5) and is characterized by a scope extension with respect to the impact on the world and a growing depth of the self-awareness development.

CHAPTER 1

Departure Points

Every journey starts from a context and is rooted in an intention. This chapter introduces the departure points of both Philips, the organization that was the "landing point" of my professional contribution and my personal situation. The twin-path journey was deeply influenced by some fundamental sociopolitical disruptions that humanity witnessed at the end of the 20th century.

1.1 The End of Modernity

The term "modernity" is used by many different expert groups in a broad variety of contexts: philosophy, art, history, politics, and so forth. In the context of this book, I use it to capture a "world view" that is rooted in the scientific thinking that had emerged especially in Western Europe since the late 16th century initiated through the discoveries of Galileo Galilei, Johannes Kepler, Isaac Newton, and so forth. and the complementary philosophical ideas of initially Rene Decartes and Gottfried Leibnitz and later Immanuel Kant. A worldview captures the cultural and intellectual movements of a time.

The essence of the world view of modernity that dominated Europe from 1789[1] to 1989 is:

- Linearity of time: Time is an arrow, "chronos" or sequential, clockwise plannable time
- (Historical) determinism leading to the idea of predictability and expectations

Why do I mention this as a departure point of the journey?

The answer is twofold:

With the French Revolution in 1789 a new social order based on the idea of a Nation State emerged in Europe and North America. In parallel

the translation of scientific insight into technology enabled the industrial revolution that dramatically changed the economy. The division of labor and the need for (natural) resources increased rapidly and created new social challenges, which were responded to through two juxtaposing ideologies: democracy and capitalism versus communism/socialism and the planned economy. At the same time, at different paces in different parts of the world, living standards improved and population growth started to accelerate.

In 1989, only a decade before the journey I share here started, humanity witnessed some fundamental disruptions challenging the polarized world organization. In the same year, three major events coincided, setting an end to modernity:

- In March the World Wide Web was invented. Since then—facilitated by digital technologies—human culture, communication, and interaction have changed fundamentally.
- In June the Tiananmen Square protests in China, also called the "89 Democracy Movement," in the aftermath led to a drastic change in the Chinese economic system: The country became the "production center" of the world.
- In November the fall of the Berlin Wall led to the end of the cold war and massively accelerated globalization under the notion of neoliberals' capitalism.

The sociopolitical context to which big multinationals like Philips had to adapt had changed deeply, opening new business opportunities and new threats.

How did the corporate world adjust and respond to them?

1.2   Corporate and Innovation Management

Lean production and quality management surfaced at the end of the 1980s. They led to an expansion of the innovation focus beyond product innovation to also consciously managing process innovation, especially building on the emerging digital technologies. This often led to increased efficiency in production processes accompanied by initially significant cost reduction. Only at the start of the new millennium did

IT start to be consolidated into corporate functions, with the role of establishing and maintaining an integrated IT system for the entire firm.

Since the mid-1990s, a broad literature base has emerged about the link between R&D and corporate strategy, organizational change and transformation processes. Nowadays a broad variety of proven concepts for vision and strategy building and innovation management are discussed in management books and academic papers. Many consultancies develop suggest and facilitate such processes. An increasing "army" of coaches support managers and employees to build effective teams and handle the "emotional side effects" of reorganizations and restructuring processes.

However, pioneering new innovation approaches at the fuzzy front end comes with quite specific challenges related to the "newness" of the theme and the lack of others to share experiences and learn from. All the steps of the journey discussed here asked for such fundamental pioneering work beyond proven concepts. In other words: What from the outside might seem to be a "normal" strategy and organizational change process today was actually an *intuitively mindful* orchestrated long-term disruptive innovation journey.

Now let's get a rough idea about the firm that dared to explore and pioneer.

1.3   Royal Philips, a Dutch Multinational Corporation

Royal Philips NV (Philips) is a global corporation and an internationally recognized brand name. It is a diversified health and well-being company headquartered in the Netherlands. In 2014 it posted sales of EUR 21.4 billion—half of which comes from *Green Product* sales—with an EBITA[i] of 3.8 percent. The company had some 113,600 employees in more than 100 countries.

Philips is one of a relatively small band of firms, which have survived longer than a century. The original company was set up in 1891 by Anton and Gerard Philips as *Philips Gloeilampen Fabrieken N.V.*, and the Eindhoven factory they built produced light bulbs.[2] Today, Philips

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[i] EBITA stands for: earnings before interest, tax, and amortization expenses

is in a major transformation process, disentangling the Lighting and the Healthcare businesses. Since the very beginning, the company's mission has stayed the same: *Improving people's lives through meaningful innovation.*

Philips legacy in innovation

Philips has a proud history of innovation and has been responsible for launching several "new to the world" product categories such as medical X-ray tubes back in 1918, the "Ideezet" radio tube in 1919, rotary heads for shavers in 1939, the compact cassette in 1963, the Ambilight TV in 2004, and through to a cradle-to-cradle inspired vacuum cleaner in 2009. To the development of the compact disc (CD) in 1981, the DVD in 1996, the corporation made major contributions. These successes are linked to Philips' deep understanding of innovation enabled by significant R&D investments.

Philips' innovation legacy dates back to its foundation in 1891. In 1914, Philips Research was established to fuel the company with innovative technologies. It maintains good relationships with a broad global network of technical universities and a long tradition of participating in global standardization committees. Since the mid-1920s, Philips Design has complemented technology with esthetic and human perspectives.

Like many other long-lived corporations, Philips has adjusted its innovation approach several times, anticipating major changes in society. In recent decades this has resulted in the opening of an experience lab in Eindhoven and the recognition of being a leader in Open Innovation. In the late 1990s the closed research laboratories transformed into a vibrant high tech campus, now hosting over 100 business entities, some of which belong to Philips.

Philips legacy in sustainability

Putting people at the center of their business activities, Philips' founding fathers embedded sustainability at the heart of their company since its earliest days. Already early in the 20th century Philips employees benefitted from schools, housing, and pension schemes.

At the beginning of the 1970s, the corporation participated in the Club of Rome's "Limits to Growth" dialogue.[3] This triggered the establishment of the first corporate environmental function in 1971. Initially it had the role of creating transparency on Philips compliance with environmental laws and health and safety regulations. Since the end of the 20th century Philips' sustainability efforts have been accelerating. EcoVision programs were first launched in 1998, setting corporate sustainability-related targets. In 2003, a structured "sustainable supply chain program" was also introduced. In the same year, the Philips Environmental Report (first published in 1999) was extended into a Sustainability Report and in 2009 this was integrated into the Philips Annual Report communicating its financial, environmental and social performance in a single aligned document. This signaled the full embedding of sustainability in Philips' business practices.

Philips' involvement in the World Business Council for Sustainable Development (WBCSD) dates back to 1992, when the Council was set up in the wake of the first Rio Earth Summit. In 2008 to 2010, the company participated in the Vision 2050 project coauthoring the big idea that: *In 2050 some nine billion people live well in the limits of the planet.* Two years later Philips announced its own new vision:

> *At Philips, we strive to* **make the world healthier and more sustainable** *through innovation. Our goal is* **to improve the lives of 3 billion people a year by 2025***. We will be the best place to work for people who share our passion. Together we will deliver superior value for our customers and shareholders.*[4]

This vision expresses a serious commitment to innovation for sustainable development as defined in the Brundtland report.[5]

The sociopolitical context and the state of innovation practice at the end of the 20th century were deeply changing and Philips proactively adjusted to them.

What was the situation from an individual's perspective?

1.4   People in Business

At the end of the 20th century, the use of email was not yet standard in business. Only employees in high tech firms, technology universities, and most R&D departments used this way of communicating while for most of the other functions IT was a means for data collection or machine control. Mobile phones were a status symbol for higher management and fax messages were the state of the art way to quickly share official and informal documents.

Quality management was high on the employee education agenda of process industries. The idea that "what gets measured gets done" was increasingly expressed. It can be seen as an early sign of the emergence of management through key performance indicators (KPIs) and Balanced Business Score Cards (BBSCs).

Innovation was mainly organized along a linear Product Creation Process (PCP). Many multinationals had established (technology) research organizations that translated scientific insights into knowledge relevant for corporate product development. Employees of development departments were engineers who leveraged this expertise to create product concepts with improved technical functionality and mature them for (mass) production. In parallel with the transition to production, product marketing and sales were initiated. This way of working was reflected in R&D employee development mainly focusing on maintaining and improving technical and project management skills.

Innovation management started to open up to multidepartment portfolio management and the need to align R&D-driven technology development with business strategy development. Both required that previously separated functions needed to learn to work together in multidisciplinary teams. This created new team building and communication challenges. Trainings on team dynamics, personal mastery, organizational change, corporate culture, and creativity, including lateral thinking began to emerge.

Career paths were mainly linked to management functions with growth steps related to increasing numbers of staff (market) size, and budget responsibility. Dual-career ladders[6] offering next to management careers also professional growth perspective according to different maturity levels in certain expertise fields were quite unfamiliar.

In Western Europe, numerous big corporations had an "identity-forming" impact on their direct environment and employees: Many employees identified strongly with the corporation they worked for, with several generations in a row being part of the corporate family, for example, Thyssen-Krupp in Essen, Siemens in Munich and other Southern German cities, Philips in Eindhoven, and Novo Nordisk in Denmark. Twenty-five-year work anniversaries and even 40-year company affiliations were celebrated on a regular basis.

1.5   My Personal Departure Point

And finally, what did I personally bring to the journey? What were my departure points?

I had joined Philips mid-1995 as an intern, becoming an employee half a year later.

Why was I not employed immediately?

After the fall of the Berlin Wall, the large, well-educated East German workforce swelled the labor market increasing competition for jobs. Despite two pregnancies I had finished my PhD in Physics—a type of education that was rather unorthodox in Germany for a woman, and even more so a mother—at the age of 31. In addition, there was some unspoken age limit to not employ university graduates over the age of 30 in many firms. This increased the challenge to find a job. However, I enriched my scientific education by becoming a management trainee, part of which was the internship that brought me to the Philips factory for Xenon Light, a gas-discharge headlamp for cars, in Aachen where I lived with my family.

During the initial interview—as so many times before—I was asked how I would organize my children in case of the need for a business trip to the United States. I asked the HR manager and my future boss if they had children and they answered: Yes! So, who cares for your children, when you're on a business trip? I wondered. Both almost simultaneously replied: "the children's mother."

I had been confronted many times in recent years with a very German prejudice: the allegation of being a "Rabenmutter"[ii] and had in the meantime become tired of defending myself. I countered: "Well, my daughters have a father. So, I'll do what you would do. I'll agree with my business partner on a visit date and contents, ask the secretary to book a flight ticket, get my work package organized, go home to get my suitcase with the personal stuff, and drive to the airport." No immediate response. Silence opened some space and I intuitively dared to go into the offensive: "Actually, I think you should employ more mothers!" "Why?" "Because, it seems to me that bringing up children has a lot in common with managing a firm." "In what way?" "Bringing up children in essence means being constantly alert to current reality, being able and willing to take appropriate corrective action with a long-term perspective in the back of one's mind. In other words, being a mother means dealing with complexity. It's all about chaos management. It's only possible with a good interplay between intuition and intellect. Isn't this what running a business is all about as well?" Again some silence. Not too long though, then we got up and I was shown the Xenon Light production, that had been opened just a few months earlier.

A year later my boss told me that the analogy of being a mother and being a manager had been the reason, why I got employed. I was and still am grateful for his remark. It strengthened my confidence to follow my intuition and dare to challenge implicit assumptions.

For 5 years I led a broad variety of innovation projects ranging from organizing a local supplier day through to knowledge management, material improvement to production process optimization, and new product creation. This gave me the opportunity to discover how a highly sophisticated process industry functions, what product creation means both in terms of improving mature products and developing new ones built on a radically new technology platform. I learned to distinguish between an invention and innovation, between research and development, and between marketing and sales.

At the end of 1999 it was time to make a career move.

[ii] Rabenmutter (literally translated: raven mother) is a deeply, in the German culture, embedded metaphor for a bad, noncaring mother, a vituperation for mothers who leave the education of her children to others.

CHAPTER 2

Daring — Group Creativity

At the beginning of the millennium the world witnessed the "dot-com bubble" crisis. Philips was incurring a net loss of EUR 3,206 million in the year 2000. Top management was focused on dissolving the Components business, returning the Semiconductor business to profitability, simplifying the corporate organization, and working on massive cost savings.

For many decades Philips Lighting, the firm's oldest business sector, had been Philips' "cash cow." It operated in a mature, low-growth oligopoly market with two main competitors capitalizing on a set of well-known technologies and managing a highly sophisticated process industry. The innovation process had a value creation angle: product innovation focusing on new light sources, support electronics

	The bigger picture…[1]
1997	C. Christensen: The Innovator's Dilemma; when New Technologies Cause Great Firms to Fail D. Matheson, J.E. Matheson: The Smart Organization; Creating Value Through Strategic R&D *Philips Design: City People Light project engaging city planners, sociologists, etc. exploring a natural 'urban' environment*
1998	Google was found on September 4 with the mission statement: "to organize the world's information and make it universally accessible and useful" *Philips Design: Creating Value by Design*
2000	Launch of the *'UN-Millennium Development Goals'* March 10 dot.com bubble peeked

and luminaires. In addition, this production process innovation increased the production efficiency, highly impacting product cost management. Finding new approaches to realize bottom line growth was the Product Division's (PD) main strategic challenge. The CEO was looking for a growth opportunity of 10 percent of the PD's turnover, which meant about 500 million US$ per year. Light-emitting diode (LED) technology was slowly emerging, present only in small niche markets.
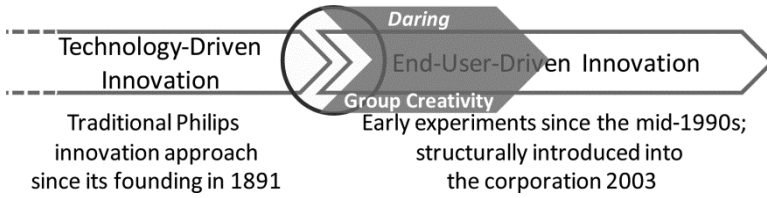
Figure 2.1 Evolution of innovation at Philips

End-user-driven innovation was a new promising innovation approach (Figure 2.1). It involves *lead users*[2] in early product definition and prototype testing: a quite "radical" way of working given the division's history, in which innovation was still mostly technology driven, shaped by R&D. Its implementation required a conscious transformation of a corporate culture where technology had been used as main driver for new product development for over 100 years...

How did this transformation happen? How did it start? What were the challenges to overcome?

2.1   Kindling Stillness — Silence (2000)

It all started at the Central Development Lamps (CDL; earlier Lighting) in Eindhoven. The CDL had a technical staff of around 130 engineers, scientists, and Lighting application experts. Although still running projects for the entire PD Lighting, the CDL manager had a direct reporting line to the Chief Technology Officer (CTO) of the Business Group (BG) Lamps,[i] which accounted for 50 percent of Philips Lighting's turnover. This organizational setting had been the result of an efficiency increasing restructuring process. Now CDL management was re-discussing its organizational identity. It explored what the future core added value of this department would be, that originally had been established to translate radically new technology insights delivered through

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[i] Philips at that time was organized in six Product Divisions: Lighting, Consumer Electronics, Domestic Appliances, Healthcare, Semiconductors, and Components. Philips Lighting served its markets via four Business Groups: Automotive and Special Lighting, Luminaires, Lighting Electronics, and Lamps (which was the biggest business group generating 50% of the Lighting turnover).

Philips Research into product prototypes and guidelines for production processes. In other words, the CDL had played a match-maker role between research- and factory-based development departments.

What kindling stillness means to me…

When the word *kindling* comes to my mind, I see a match just in the split-second when the fire starts to burn. It's this very moment when something really powerful starts. When the word *stillness* comes to my mind, I see a

> **Dictionary Definition**
>
> *Kindling:* starting to burn (a fire); stirring up or arousing interest; bringing into being; causing to glow
>
> *Stillness* is a state of not moving, of lacking motion and activity; freedom from noise or turbulence

deep, very quiet lake in the middle of a forest glade, well protected, with a gentle creek feeding into it and creating a soft, invisible flow safeguarding clarity and healthy living conditions for many species. The fire and the water seem to juxtapose each other, yet at the same time they are intrinsically complementary. And this is what kindling stillness is to me: this unique epiphany of time–space or space–time when something entirely new, intrinsically beautiful and vivid is born, often in situations that seem to be at an impasse.

Why are kindling stillness and silence the essence my twin-path journey in the year 2000?

The year started for me changing my working context. From mid-1995 to the end of 1999, I had been a project manager in the development department for Xenon Light. At the end of 1999 it became clear that it was time to make a career move. My boss suggested that I go to Eindhoven and work at Philips Lighting headquarters. Good thought, yet, somewhat unrealistic, considering my private situation: living in Aachen, a more than 100 km away from the Dutch town with two daughters in their teens well settled in a stable social environment. This situation formed an important backbone for my professional life. In addition the CTO of the BG Lamps, who would become my new boss,

had the reputation of being quite technology oriented and of expecting a high-work commitment both in terms of flexibility and time engagement. This did not seem to be a liveable option.

So, what brought me to work in Eindhoven?

Deep dialog: thoughts having time to emerge and land!

I do not have anything to lose!—I thought and in early October 1999 I drove to Eindhoven for an interview with the CTO. The atmosphere was friendly. The conversation went smoothly and relatively quickly I heard the typical career questions: "What brought you here? What do you want to achieve working at the CTO office? Where do you want to be career-wise in 5 years from now?"

I answered: "I am interested in innovation and for me innovation goes far beyond new technology or new product development. That's why I worked on knowledge management and organized a suppliers' day. I think innovation is all about change. Technological progress is great but it should enable better life for all, not just for a few enthusiasts. I think it is fair for you to know that from the very beginning ... I understand technology, yet I am a people person, so if you look for someone who is deeply passionate about technology: don't bring me on board."—No response. Instead: a scrutiny encouraging me to proceed. "In addition, I am a mother. My kids will always be my number one priority. This means, if there is something going on with them that demands my presence I will go immediately, independently of how urgent the ongoing business meeting might be."

"And how would you see yourself organizing your work? I assume you got some ideas about that." he grinned. "Well, yes. I could imagine organizing my work such that I focus all the paper work, phone calls and so on 2 days a week from an office in Aachen. Emailing will facilitate this. The other 3 days I would come to Eindhoven. Of course I would be flexible in which days I come to Eindhoven. If a CTO office's role is to manage innovation, in my view it should also be the place to embrace new technologies that enable to innovative ways of working. I am happy to test if that works." I was wondering if this was stretching him too far. However, it was the only way I could see me working more than an hour's car drive away from home.

Quietness for a couple of minutes and then a big glance of joy emerged on the CTO's face. He said, "So what about focusing on project portfolio and technology management along with a special assignment on *creativity*. Would you be interested in that?" "Yes," I stammered, "that would be an amazing range of topics to work on." To my surprise the simple response I heard was, "You can have the job!"

From January 2000 onward a whole new world opened up for me: I learned Dutch in order to meet the triple disadvantage I had: being a woman (in a male-dominated culture), looking quite young (danger of not being taken seriously), and having German nationality (I initially thought, that this still had to do with the Second World War; later I discovered that undercurrent resentments between Dutch and Germans are rooted in soccer world championships). I learned that in the automotive industry the main value drivers were "freedom to design" for the car designer and quality throughout the entire supply chain, while the Lamps industry was characterized by managing complexity in terms of application areas, product types, served needs, quality and warranty standards, and market dynamics. My daily work took place in a mix of Dutch, English, and German. Interestingly, this later offered me the opportunity to develop an understanding of how culture is embedded in language.

After the summer holidays and some deep conversations about the difference between creativity of individuals and group creativity, the idea emerged to organize a creativity workshop for the around 25 CDL group managers. It was meant to find ways to increase the innovation effectiveness for Philips' cash cow and collectively make sense of CDL's new positioning.

In early December this 2-day workshop took place. After some warming-up exercise the external facilitator posed a simple question: You say your mission is to be a "concept integrator"; which types of concepts do you integrate?

S I L E N C E

For 5 long minutes.

Minutes, in which I thought: wow, how courageous to allow stillness.

I had been the one to suggest the facilitator. I had been aware of his unfamiliar leadership style, that would—rather than focusing on data,

facts, and the intellect—allow emotions to emerge and then work through and with them. I had experienced it individually and knew how change of perspective and change of behavior starts with feeling differently. I had not yet observed how a group would respond to his interventions. I felt a tension of unrest growing in the team.

I witnessed how a deep insight emerged in my mind: An organization can, maybe should be seen as complex organism like a human being with all his different "sub-organisms" playing together partly consciously, partly sub- or unconsciously aligned... The different departments can be thought of as the different organs, the employees comparable to cells. If that was the case, *then what I know about changing my own behavior, attitude, belief system might also apply to changing collective behavior like corporate culture.* It's just another level of abstraction. Is there logic of self-similarity[3] at work as, for example, demonstrated with Mandelbrot sets in complexity theory?

A deep insight kindled during this stillness. "There should be consistency between one's own individual development path and the impact one tries to make in one's professional life." It felt like a massive wake-up call and had an amazing inner resonance. It did not have words yet—could not be expressed in language. Looking back I followed this intuition for quite some time. By now it has become an inner compass I follow very consciously...

Back to the workshop... Despite growing sounds and a sense of discomfort the room remained quiet as the facilitator allowed the question to sink in. People cleared their throats, shuffled chairs, papers, pens, and pencils—anything to break the oppressive weight of the silence. Eventually, like a thunderstorm bursting from an impossibly close and humid night, the storm broke and a flood of talking followed; at last liberating an outburst of feelings ranging from fury to anger, anxiety and worry to curiosity, excitement, relief, and passion. Some participants wanted to leave the workshop immediately, others demanded continuation.

About half an hour later the facilitator consulted with the CEO of the CDL and me on whether and how to proceed. It was just before lunch time by then, so the workshop participants went off to get some food. The facilitator said he would not send an invoice should the workshop stop right away. Then he briefly sketched out a few sense-making

and team-building exercises for the remainder of the day. They would address questions such as, What do these emotions tell us about the CDL Vision of becoming a concept integrator? How can they be applied in service of future product or concept developments? They would help to channel all the liberated emotional energy into the group process in a constructive way. For the next day then, agenda points could become more traditional and rational again. In addition he mentioned that the entire process would work only if people let go of resistance and truly participated.

Lunch was over. People with different paces and states of emotion reentered the meeting room. The atmosphere was dense when CDL's CEO opened the second part of the workshop with the words: "We will continue! I am not sure what will happen, but we decided to give it a chance. Everyone is welcome to stay. However, anyone who joins should be here with full commitment. If you feel this is a waste of your time, if you cannot trust in the process, feel free to leave and go back to your normal work!"
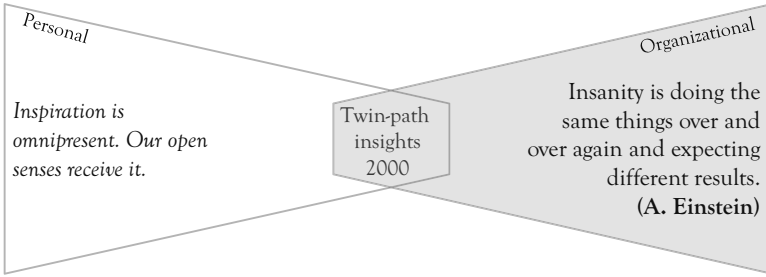
I do not recall if anyone left: maybe one; maybe two colleagues, if at all. For all others the workshop was continued, giving space to the deep messages that were carried by the participants' emotions yet did not have wordings when they surfaced. Finally they concluded that growth would not come from small increments of change: "doing what we do but better." Instead there was a need for a radically new vision, for "doing things fundamentally differently and doing different things."

> ***Tips and tricks*** *for sense making (1)*
>
> *Silence is a very important means to create space for sense making. It offers the possibility to connect with current reality through emotions. If the silence is followed by an open and non-judgemental dialog about these emotions, deep fears, concerns, needs or desires can be uncovered and collectively addressed.*

"Stillness is a sharp knife" was the CTO's comment, when he heard what happened. And with this response he opened the door for more amazing developments to emerge.

Personal		
Inspiration is omnipresent. Our open senses receive it.	Twin-path insights 2000	*Organizational* Insanity is doing the same things over and over again and expecting different results. **(A. Einstein)**

2.2   Courage — Surfacing the Challenge (2001)

or expecting different results means doing things differently and doing different things

The 5 minutes of silence had surfaced a deep insight. Senior management realized that something fundamental had to change. The CTO of Philips Lighting's biggest BG was also the functional head of its development departments. And he had a third role: he represented R&D on the Philips Lighting Executive Committee (PLEC), the PD's top management team. He was the PD's CTO and knew that PD Lighting within Philips faced similar challenges as BG Lamps at PD level: Both were expected to increase their top- and bottom line growth through improving their innovation effectiveness.

2001	The bigger picture…
	Mainstreaming of personal computers with modems, thus accelerating the diffusion of internet use to private households
September 11	Bombing of World Trade Center in New York

What could be done?
By whom?
Where to find promising starting points?

In early 2001 the CTO initiated a set of complementary exploratory activities to catalyze learning opportunities and help shape a platform for a future vision to emerge. I was involved in all of them. This confronted me with a variety of unfamiliar, sometimes scary situations, inviting me to significantly grow beyond my comfort zone...

What courage means to me…

When the word courage comes to my mind, I feel a special kind of pride that is a result of having grown beyond anxiety. This anxiety can have quite diverse roots. It might be caused by situations like a big dog running towards me, bark-

> **Dictionary Definition**
>
> *Courage* is the ability to do something that you know is difficult or dangerous; mental or moral; strength to venture, persevere, and withstand danger, fear, or difficulty

ing loudly awakening the memory of when I was a child and a dog jumped at me and made me fall over. This triggers a memory of me lying on my back, the dog's head with its tongue hanging right over me. It can also be caused by having to cross a deep wild river gap via brittle rope bridge. Or it can be caused by not knowing how to deal with a seemingly unsolvable intellectual problem or how to negotiate a project assignment with unrealistic boundary conditions. In all these situations courage helps me to face the situation, trust life, and live through them. In essence it's the capacity to grow beyond my fears and other negatively felt emotions that could so easily inspire the impulse to escape, avoid, or ignore. Courage is rooted in the experience that personal growth tends to happen at the boundaries of the unknown and uncertain.

Why are courage and surfacing the challenge the essence of my twin-path journey in 2001?

The office and laboratory space of the CDL was located in the same building in Eindhoven as the CTO office. This, in addition to the CTO's and the CDL-CEO's open door philosophy, enabled direct face-to-face communication on multiple hierarchical levels. Since the CDL was a pre-development unit with a mid-term scope, there was more time and space to experiment than in a closed factory product development department. I re-called my special assignment "creativity" and made a suggestion…

Strengthening the intellect by working with emotions and leveraging intuition

It was my conviction that group creativity depends on the personal relationships of the group members, especially the trust between them and

the respect for each other's "otherness."[5] Therefore I initiated a "learning time–space or space–time" for the group managers who had participated in the creativity workshop. Once a month I offered my fellow workshop participants a 2-hour time slot to connect to their intuition, senses, and feelings and witness those of their colleagues using exercises embracing elements from psycho-drama, family constellations, experience design and other sources.

I had experienced most of the exercises myself in a different setting and now customized them to the CDL context.

I had been amazed about how even seemingly small well-facilitated and well thought-out actions had enabled me to deeply observe and change a personal perspective in a way that no theoretical book or verbal communication would have had the power to do. I also had realized through my own experience how quickly I unconsciously projected my interpretation of a situation on somebody else, and how my interpretation depends on my implicit mental models and earlier experiences in life. I assumed that the same mechanism would work on a group level as well. Which implicit mental models did the CDL group managers carry? Which earlier experiences shaped their relationships and interpretations and informed their decision making?

In the beginning the participants were skeptically curious. Some only joined once or twice, yet the majority increasingly looked forward to co-creating a net of deeper personal relationships. For me it was exciting and sometimes challenging to facilitate these group sessions in an environment of dominantly critical rational minds guided only by own experience and the trust in my intuition without proper education...

> ***Tips and tricks*** *for sense making (2)*
> *Shared experiences through well chosen multi-sensorial, interactive exercises are fun and create common understanding of abstract and complex concepts, challenges or opportunities. In addition to this they enable emotional engagement with other participants.*

Self-organization in a highly hierarchical context or "proudly found elsewhere"

A CDL Vision team was initiated. It had the role of scouting for inspiration in Philips' other business sectors, Research and Design, and bringing

new, surprising ideas to the CDL via lectures, workshops, visits, and books. In 2002 this resulted in the start of two "out of the box" innovation projects, one of which led to the invention of Ambilight TV.

The team was composed of two men and two women. I was one of them. Two had participated in the creativity workshop. Two were new to the CDL; two had been employed at the CDL for more than 10 years. This way maximal possible diversity was created in the four-person team, which worked self-organized with no formal structure or leader. We had the vague and unfamiliar nontechnical assignment to "identify for the CDL new and relevant ways of thinking and acting both inside Philips and beyond" and to explore how "diversity increases group creativity."

In the course of the year the group unconsciously lived through the four different stages of group dynamics, including hefty conflicts that almost made it fall apart.[6] All participants came in contact with implicit personal assumptions, the discrepancy between self-perception and perception of others. Finally we succeeded in building a high level of mutual trust through the introduction of an opening ritual at the start of every meeting and 5 minutes reflection time before closing a session. The opening ritual had the dual purpose to

- Arrive at the meeting through sharing what happened content-wise since the last meeting, and to state what we bring to the meeting today in terms of open question, decision need, feeling.
- Agree on a realistic agenda and manage expectations: What do we want to achieve today?

The reflection time was used to

- Consolidate the meeting results in bullet points. We rotated the minute taking. There were no laptops or other mobile devices yet.
- Share our feelings about the progress.

In that time such rituals were perceived very strange, or even esoteric, thus inappropriate for an organization dealing with technology.

In addition we lived a good example of the idea *proudly found elsewhere.* A former CEO of Philips Lighting had coined this term to juxta-

pose the *not invented here* syndrome that was prominently present in a corporate culture that for more than 100 years had emerged around technical inventions with the innovators being the "heroes" of the firm. In times of saturated markets this implicit attitude was counter-productive.

Walking a new path or Learning by doing: a new starting point and different way of working

The CDL Vision project was a true treasure hunt. It was amazing to find all the nuggets of knowledge in Philips and discover what an exciting company it was. One example was Philips Design's "High Design" visioning process embracing weak signals of sociocultural development. It had been used to develop a vision for urban lighting and was described in "creating value through design" in the late 1990s.

The High Design process takes socio-cultural trends as starting point to reveal latent needs of end-users and through them anticipate market-driven growth opportunities. It is a three-step process of

- "Envisioning possible futures" by complementing technology trends with socio-cultural trends,
- "Idea generation" for products and solutions that might be relevant in these futures,
- "Idea development" to visuals or "concept cars" and prioritizing.

The process made a lot of sense to us, yet it was quite different to the traditional technology-driven product creation process. In the CDL Vision team we explored possibilities to deeper understand its potential and challenges.

Quickly we agreed that I should leverage my regular presence at and good relationships with the Aachen factory, and we initiated a project called "Think the Automotive Future." It was a "learning by doing" exercise for the High Design process in a—to me—well-known environment and towards a clearly bounded market. Thus complexity could be kept limited and focus given to the knowledge transfer and capability development. The project was officially managed by Philips Design.

This was important to signal respect and appreciation for the new, alternative innovation process development to an organizational unit, which had so far received only limited acknowledgment for their contribution to Philips' long-term future. Informally we had agreed on shared leadership to avoid the "not invented here" syndrome[7] and prepare for seamless implementation of the expected results, so I became the shadow project manager.

Already very early in the project definition phase it was made explicit that—if the process were to deliver meaningful results—it would suggest a "Think the Lighting Future" (TTLF) process for the more complex lamps business. This perspective greatly increased the seriousness of all participants to contribute and reflect on do's and don'ts.

The project went well and delivered beyond the expected results. Towards the end it became clear that a fourth step "translation to action" needed to be added. The visuals of the new solutions created by Philips Design inspired very constructive out of the box conversations and served as a meaningful communication tools between the marketing, development and production departments, but they did not lead to aligned, department specific action. In order to get there, questions like these needed to be answered:

- By the R&D community: On which technology base can the new concept be implemented? Which new technology knowledge is required? Which time and resources would product development require? Do we need new patents or standardization?
- By the marketing department: Which customer should be the lead user for the new offer? When will the market be ready for the new concept? How will it strengthen our competitive position?

Also, in order to enable seamless implementation, project ownership from the very beginning needed to lie with the business. This challenged the "self-perception" of Philips Design who saw themselves as inventor, owner and exclusive expert of the High Design approach. Some tricky conversations were required to change that view and clear the space for the next step to happen...

*Daring to ask naive questions or understanding the nature of
New Business Creation*

Through the PLEC a team of four senior managers was installed to explore New Business Creation (NBC) mainly focusing on LED technology: Should the cooperation with Lumileds be extended was one of the leading questions. To my surprise, I was invited to join the group with the special role to "pose naive questions" and "uncover blind spots."

That felt scary! Why?

Early on, I realized a deep anxiety of not being able to make meaningful contributions due to my lack of expert knowledge. Expertise can act as an amazing protective shield... and I was asked to come there sort of naked, bringing in my curiosity and common sense?!

In the first meetings I felt quite humbled by the status and power that the four seniors radiated. The idea that they decide about budgets of tens to several hundred million dollars, the closing of departments and even factories, the employment or laying-off of hundreds of employees created a feeling of insignificance and unease. Fortunately the CTO, my boss, was a group member and our relationship had grown such that I dared to express my doubts. He responded with a benign smile: "You're a good observer and dare to question the status quo. That's what we need. Don't worry. See it as a learning opportunity and us as your coaches to introduce you into top management logic." My fear dissolved and I curiously looked forward to the new business sessions.

We started with the idea that new business will be generated at the overlap area of the three dimensions—market—(technology) competence—business model—through an entrepreneurial team. We aimed to define a NBC process, identify first business seeds to be matured and suggest an organizational setup to make it happen. Already early on the NBC philosophy became clear:

- Bring technology to markets that are "ready".
- Start new types of activities and try new business models.
- Initiate smaller projects within a bigger scope.
- Create fast learning loops in market.

- Allow failures, learn from them, and stop projects when needed.
- Get to positive cash (self-financing) quickly

Our crucial questions emerged: What characterizes market readiness? What is Philips' traditional (technology-driven) way to diffuse innovation? What should be done differently?

In 1962 E. Rogers,[8] a professor of communication studies had developed a theory on the diffusion of innovation, seeking to explain how, why, and at what rate new ideas and technology spread through cultures. This theory informed the conversation in the NBC team.

The first graph in Figure 2.2 shows an innovation diffusion graph adjusted to public awareness.[9] The second graph introduces two strategically relevant windows: on the left the time slot when it is useful to build an intellectual property (IP) platform around a certain technology; to the right the time slot when the early majority starts to buy and a growing public request gets expressed. This is the time when innovation leaders set the pace in market development and high margins enable quick returns on earlier made R&D investments.

As shown in the third graph, Philips had the reputation and track record to be brilliant in inventing and developing a strong patent base, thus playing a shaping role in the left maturity slot. Unfortunately its capabilities to translate IP and inventions into profitable innovations
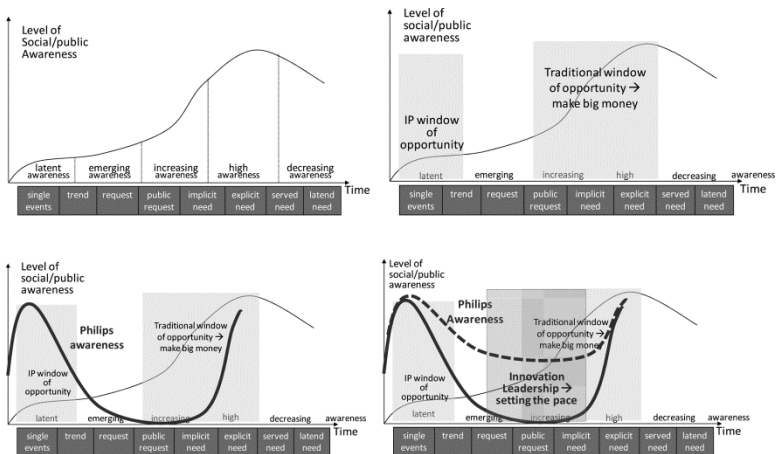

Figure 2.2 Visualizing Philips Lighting's growth challenge in 2001

seemed to be underdeveloped… Even worse, "if Philips sells a new technology—buy it, then the market will start to take off" used to be quite a cynical saying. This reflects how "tuned in" the firm was in technology development, and at the same time how weak its market capitalizing capabilities used to be.

The challenge had surfaced!

It was visualized: opening space for constructive, problem-solving communication!

The fourth graph finally helped to rephrase it into a set of questions:

- How can we ensure *not* to fall into the GAP? What does the dotted line stand for?
- How can we bridge the GAP and set the pace?
- Can an understanding of sociocultural trends and proactive response to latent needs help?
- If yes, how do we need to change our innovation process in order to implement them?

By the end of 2001 a new organizational unit was established, called the NBC group. Its scope had broadened significantly beyond LED technology. A few ideas for new business had been identified in all BGs. These ideas had different sources: Some had their origin in the R&D community, others had been a result of direct customer feedback coming via sales channels, and a third category was rooted in the deep application knowledge of light designers. Most of them were so alien to mainstream PCP practice that they were developed with low priority through their inventors in the decreasing open exploration time or parked on long-term idea lists. They became the basis of a NBC project short list.

Unfortunately these ideas could not be clustered under a clear common denominator and communicated as a shared bigger scope. So another set of questions emerged:

- Which game does Philips Lighting want to play in future?
- With whom and in which market?
- Which latent needs or desires should be served through which types of benefits?

Getting invited to an adventure

In the second half of 2001 Philips Lighting's CEO started to explicitly look for a scope extension with the potential of 10 percent top line growth within the next 7 to 10 years. At that time Philips Lighting had a turnover of more than 5 billion dollars, so the scope extension should be worth a potential of 500 million dollars per year. That was quite a bold goal. Not achievable through incremental innovation activities like product diversifications or range extensions.

Building on the activities described above TTLF was suggested. I was asked if I wanted to be part of that project, playing a role in both its definition and execution.

> What an adventure?
> Of course I wanted to!

A confusing mix of emotions emerged: I felt honored and scared, excited, and humbled. I started to think about the project deliverables and its boundary conditions and identified three quite profound prerequisites for my participation:

1. I wanted to become the project manager—I trusted in my capacity to lead the project. Through participating in the CDL Vision and "Think the Automotive Future" projects I had become very conscious about the radicality and disruptiveness of the work ahead. I felt that what we tried to achieve was possible, yet sometimes might require unorthodox actions. Trust and conscious care for team dynamics would play an important role. I trusted my NBC group members, but did not know who else would be in the team. I was not willing to go into the danger of having endless process debates, since I knew I probably would not always have the proper language or benchmark examples to rationalize and verbalize my intuition.
2. I wanted the PD's CEO to be the project owner and top management to be the steering group—this was required to create visibility and credibility. The project should be set up as strategic *dialogue*
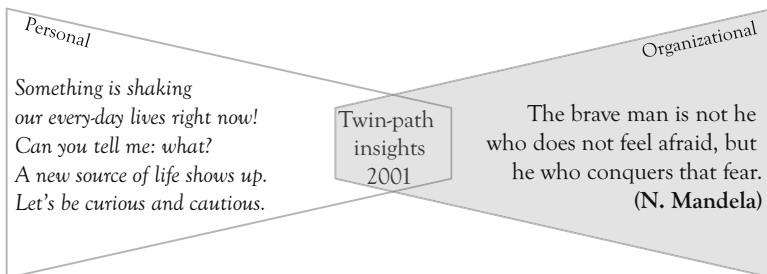
decision process (DDP), thus providing the PLEC a growing in and learning platform.

3. The project team needed to include a representative of each BG of Philips Lighting—this was the prerequisite to avoid the "not invented here syndrome" and prepare for implementation. In addition Philips Design and Philips Research should be represented.

Eventually I took a chance and discussed my views with the PD's Chief Strategy Officer (CSO), who had been a member of the NBC group. He commented "Well, I see your points. I'm afraid though, that the PLEC is a decision making body only." "Sure, yet this project is about doing things differently in order to achieve different results. It's new to all of us. It's about disruptive innovation. We are used to incremental improvements. If they do not join the (learning) journey, they will not understand. They will not know what they decide upon." He nodded and the conversation was finished.

I do not know how he did it, but right before Christmas he told me that budget had been freed for TTLF, and all my wishes were acknowledged. In addition the CEO of Philips Design and a top manager of the Philips Research organization would complement the PLEC as steering team and in January the team members would be announced.

What a Christmas present...

Personal

*Something is shaking
our every-day lives right now!
Can you tell me: what?
A new source of life shows up.
Let's be curious and cautious.*

Twin-path
insights
2001

Organizational

The brave man is not he
who does not feel afraid, but
he who conquers that fear.
(N. Mandela)

2.3   Structure and Creativity — Thinking the Lighting Future (2002)

in addition to short-term and operational also long-term and deeply strategic

At the end of 2001 the very special project—called TTLF—was defined. While previously innovation had been managed on BG level, now a PD-wide ambition emerged: Philips Lighting wanted to increase sustainable profitable growth. It wanted to strengthen its leadership position setting the pace in the Lighting industry. This should happen by identifying new future business opportunities through combining and evaluating

2002	The bigger picture…
January 1	Introduction of the Euro as new currency in Italy, France, Germany, Spain, Portugal, Greece, Austria Luxembourg, Belgium, the Netherlands, Ireland, Finland
September	UN World Summit on Sustainable Development in Johannesburg, South Africa
	Philips Research opened the 'home lab' a facility to test technology with end users

different long-term trends (human = socio cultural and application trends, technology trends, business model and industry trends). Especially unfamiliar was the idea to embrace the human perspective from the very beginning. This should be done through structured attention on the end-user activities: leisure, buying, working, health care, traveling in a set of different physical domains: domestic / home, personal, communal, public, and other.

Three project deliverables were expressed:

Long term[ii]**:** Indication where Philips Lighting has to redirect its scope

Short term: Identification of at least two tangible business project proposals

Sustainability: Definition of an ongoing/repeatable way of working to secure long-term thinking and knowledge sharing, suggesting a cross-BG innovation approach

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[ii] Long term meant 10 years ahead, thus reaching into 2012.

What structure and creativity mean to me…

When the word *structure* comes to my mind, I see a skeleton, the strict rectangular pattern of streets and avenues in many modern cities, an organizational chart, or the schematic description of a process flow. When the word *creativity* comes to my mind, I see my children creating a free dance listening to a piece of pop music, a friend cooking without recipe using what the fridge has to offer, somebody writ-

> **Dictionary Definition**
>
> *Structure* is the action of building; something arranged in a definite pattern of organization; the arrangement of particles or parts in a substance or body (e.g., soil or molecular structure); organization of parts as dominated by the general character of the whole (e.g., economic or personality structure, language structure, Gothic style)
>
> *Creativity* is the ability to make new things or think of new ideas; the quality of being creative.

ing a poem or novel. And I hear the passionate conversation of people stretching their knowledge, using metaphors and symbols to describe things or experiences for which there are not yet shared and appropriate words. *Structured creativity* seems to be contradictory, yet in my view is a framed process of something new emerging. E. de Bono refers to this as "lateral thinking."[10] *Creative structuring* for me is a mainly individual process in which—directed towards a certain goal or theme—a broad, seemingly chaotic variety of "puzzle pieces" is brought into a meaningful and surprisingly new order that has the potential to create a wow-effect. It is a result of the inner dialog between a strong intuition (constantly making unconsciously sense) and a vivid intellect (constantly busy with pattern recognition and linking them to proven knowledge and previous experience). It's all about playing with structure and structuring playfulness ☺

Why are structure and creativity and thinking the lighting future the essence of my twin-path journey in 2002?

The intention to share knowledge between the BGs, Philips Research and Philips Design and combine their perspectives during business idea generation was explicitly expressed in the project assignment. How could this be reflected in the team setup? What would that mean in terms of preparation for implementation?

Appreciating diversity has many angles

After the project start mid-February the core team started to work. We established a regular team room and met once a week for an entire day. During initial team meetings we explored the quality of the assignment and quickly everybody understood that this bold long-term strategic project required an unconventional process and team structure. We combined Philips Design's High Design process with the DDP.[11] We mapped the—for our purposes customized—process out on A1-posters. They stayed visible on the project room wall throughout the entire project. Only in hindsight I realized how useful this had been: Especially in conflict times, when pressures seemed to increase, it was amazingly energizing to appreciate that we together had already covered quite some ground, which none of us alone would have been able to do.

I quickly felt that the PLEC and the core team members were thinking and acting on very different "abstraction levels."[12] When sharing that observation with the PD's CSO the "coaching team" idea emerged. He actually would have loved to be part of the core team, which of course was not possible. This way he still could be closely involved… He suggested two colleagues to join and brought them on board. They opened their doors for us, inspired and challenged our thinking and acting. They helped to create access to important internal knowledge providers and opinion leaders and to make (business-) sense of gained insights. They played a "translator" role into different functional languages, decision making contexts, and preparing for the PLEC meetings. Finally they taught us how to "decode" these meetings afterward. This was critical in terms of managing expectations in multiple directions.

Finally, building on the CDL Vision experiences we agreed to regularly spend some team time on opening and closing rituals. And, in most meetings amazing amounts of chocolate were consumed…

From Business Group to Product Division; from functional to integral

TTLF was a presidential project: The CEO himself took the project owner role giving the project the required visibility, credibility, and urgency. He joined the formal project kickoff meeting and was my direct discussion partner for major issues.
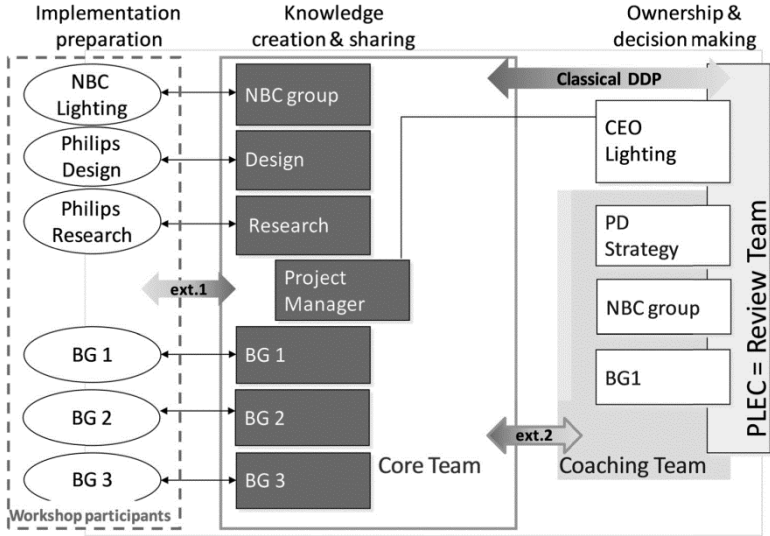
Figure 2.3 TTLF team structure

In order to keep the complexity of the project manageable the project scope was reduced to "general lighting." Special markets, for example, automotive lighting and already addressed niche applications, were consciously excluded. Therefore in the core team three Lighting BGs, Philips Design, and Philips Research were represented. This, next to the 10 years time scope, was an innovation by itself.

As shown in Figure 2.3 special emphasis was placed on creating broad ownership in top management via the classical DDP approach. The "not invented here" syndrome was avoided by involving representatives of all executing functions to share their information and participate in two multifunctional workshops. In addition, the core team members were encouraged to keep their "home organization" informed leveraging the established corporate meeting structure. For example, I used the monthly Technology Manager Meetings (TMM) and twice a year scheduled Global Development Managers Meetings (GDMM) to share insights and gain feedback. Subsequently the DDP was expanded to a "trialog" process aligning the thought processes of the decision team, the

core team and the implementation team as indicated through the arrow showing "ext.1." Another DDP expansion (in the figure "ext.2") was the installation of the top management coaching team, whose role was to inform the project about relevant Philips internal strategic directions and help translate the workshop results into senior management language and context. Since the project had a broad scope the PLEC enriched by the head of Philips Design and a senior manager of Philips Research acted as review and decision team.

The exploration was not restricted to existing competencies, but was meant to strongly leverage them. The emphasis was to establish a vision with a 10-year time horizon and then translate the "+10 year" results back[iii] to short-, mid-, and long-term actions and related impacts. Geographically the focus was put on both developed and developing countries, especially Western Europe, Northern America, and Asia-Pacific; excluding Japan.

As shown in Figure 2.4 the project started on February 13, 2002 and was closed on October 31st. It was executed in four steps aligned with Philips' annual planning cycle.
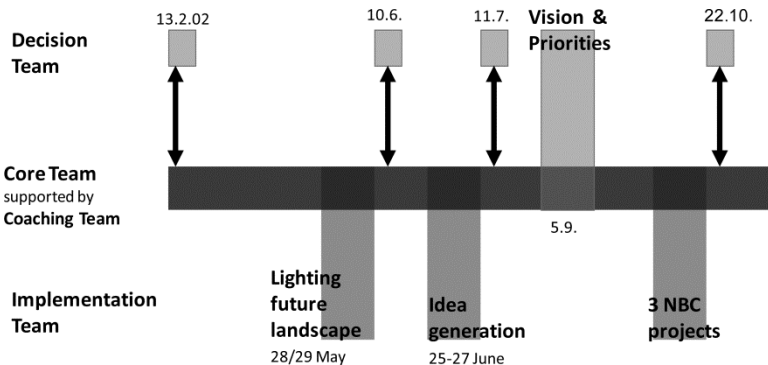

Figure 2.4 TTLF project flow

<hr>

[iii] Much later, in 2008, I found a term for this approach: "back-casting." Originally rooted in "value-based thinking" it is a key element of the Framework for Strategic Sustainable Development as promoted by The Natural Step.

Phase 1: Beyond fragmented (expert) perspectives towards a shared view on our common future

or information collection and sharing

Philips Design's High Design process, as visualized in Figure 2.5—suggests the integration of the three innovation dimensions:

- Technology: understanding technology trends and using existing and emerging technologies to enable relevant product functionality and create end-user benefits.
- People: understanding sociocultural trends and responding to end-users' explicit and emerging implicit needs.
- Business: understanding current market trends and anticipating emerging market dynamics; developing future proof business models.

What did that mean in practice?

We needed to ensure that different expert groups could work together constructively. How? I had gained some experience in bridging communication gaps arising from different functional languages since the days of my master's thesis, but the size of the alignment challenge here was far beyond my expectations.
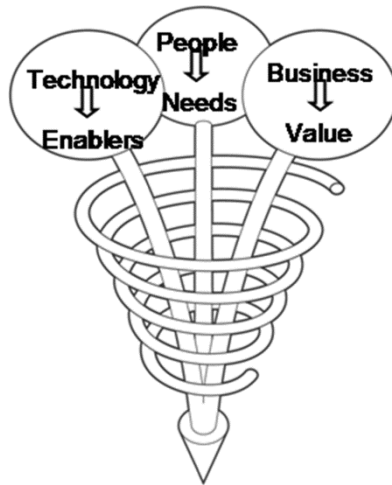

Figure 2.5 Innovation dimensions

What made it so different?

For the first time in my professional life I was confronted with fundamentally different world-views and thinking logics. This is how I can phrase the situation today. In early 2002, when I felt the challenge I was not able to describe it; but I could sense it. I had studied Physics, thus followed a scientific education that had taught me to follow the clear logic: observe—identify pattern—abstract and build a hypothesis or theory—validate the hypothesis in order to create an insight or let go of the idea. This asked for a lot of (self-) discipline and a constructively critical mind. Until the end of 2001 I had worked in environments where this logic (of rationality and reality judged through observing) and way of thinking was at the root of action. I had witnessed some initial examples of "political decisions" or "opportunistic behavior," but it had not really impacted my work. In conflict situations I still could solve emerging challenges in rational argument-driven face-to-face conversations.

In accepting the TTLF project leadership this had changed!

In my—at that moment in time unconscious—world-view all people were content and contribution driven. I was somewhat naive, not realizing that people some "hidden agendas" and tend to play "power games" instead of cooperating. I underestimated initially the identity-shaping role of certain adjectives. These and more challenges were starting to boil under the surface and made me learn very quickly...

What was visible and therefore addressable in the core team meetings?

Already in the core team we had very different ideas about the meaning of words, for example, long-, mid-, short-term time scopes. Different KPIs hindered smooth communication especially between the pragmatic, implementation-oriented BG team members and the colleagues of more strategic and Philips-wide thinking corporate functions Design and Research. Thinking and conceptualizing was seen as core activity by Philips Design and Philips Research while many business representatives constantly demanded "real" action. At one point, this attitude was summed up as: "Good business men produce bulbs and close factories!"

That was quite an important piece of context information!

What could be done with it?
Not so much for the moment.

The observation was parked, while the core team interviewed many internal and some external experts; collected and structured a broad variety of different internal documents containing data about expected future market developments, technology roadmaps, business trends and probable changes in the use of lighting in different spaces such as cities, offices, public buildings, shops, and homes. In addition reports of external consultancies, who suggested new business models enabled through digital technologies, were studied. During this process it became clear that—different to the original planning—it was sensible and necessary to actively engage participants of the idea generation phase in the information collection and sense-making process. This led to the execution of the first workshop 4 weeks prior to the ideation. Some new questions emerged:

- How could we engage the ca. 30 colleagues into information collection and sense making?
- What should they take away from the workshop?
- Which assignment should we give them at the end to prepare themselves for the idea generation?

The workshop flow embraced these questions. We realized that "time, timing, and maturity" were a common attention point that at the same time led to a lot of confusion. Therefore special attention was put on developing a common time-awareness during the workshop. For example, as a getting to know you and team-building exercise we split the workshop group into four teams and invited them to follow a *time journey*, visiting the years 1972, 1992, 2012, and 2032. This created a shared feeling for the "depth of time."[13]

We then framed the different innovation angles in the context of time, leveraging the NBC group's innovation challenge that Philips Lighting wanted to address with the TTLF project (Figure 2.6). In the first graph Roger's innovation maturity (see also Figure 2.2) is used to map the different types of socio-cultural trend information, for example behavioral trends inform about explicit needs, cultural trends carry
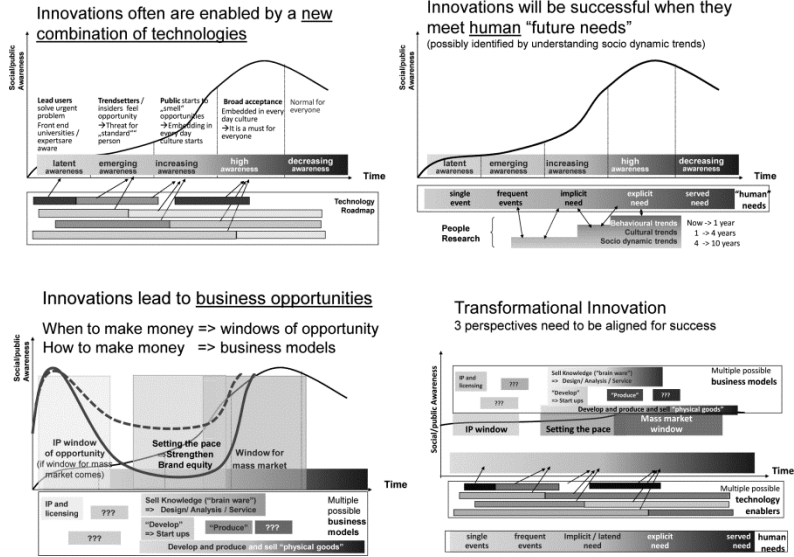
Figure 2.6 Framing TTLF information sharing and enrichment

information about implicit needs, and socio-cultural trends capture the weak signals of probably emerging needs. In the second graph classic technology roadmap is linked to the market maturity curve.

In the third graph different business models are mapped in the three early identified windows of opportunity (see Figure 2.2. 4th graph). In the final visual all three perspectives are brought together in order to motivate what "alignment" means.

> ***Tips and tricks*** *for sense making (3)*
> *In order to align different departments of an organization or build multidisciplinary teams it is useful to define the problem to solve or common goal in a drawing or visual first. This then can serve as shared starting point to* **consistently** *translate the problem in the different expert languages. It is important that the visual is appropriate, as simple as possible and as complex as necessary.*

With this introduction participants were grouped into three multidisciplinary teams to enable constructively critical information sharing dialogues and to deepen the team building. We had prepared three "innovation trend rooms," one for each innovation angle. In each room

two core team members guided the participants through the information already available, they collected feedback and noted down additional attention points. Each group had three 2-hour time slots to familiarize themselves with the different trends that were likely to impact the future lighting business.

Then something strange happened.

During lunch a passionately played out competition surfaced: Some designers vehemently claimed that they were the "creatives" within Philips, while researchers and some marketers took the same position. It became clear that we had a serious language issue: Each colleague was reasoning his or her argument from an individual creativity perspective, rooted in their experience world. From that perspective all were right: Creativity in design has a lot to do with visual expressions; (scientific) discovery is rooted in the researcher's curiosity and his creativity in finding ways to capture the new phenomenon. Technology development is the creative process of applying scientific insight to problem solving. In business development a lot of creativity is required to develop new business models or to effectively position a product in a saturated market.

I made an intervention and we explored the issue openly in a plenary session. Fortunately the overall workshop climate was so future oriented and optimistic, that the group could grow beyond this dissonance, start to appreciate each other for their complementarities, and acknowledge that common language and aligned thinking logic are essential for multidisciplinary innovation processes. This was an important prerequisite for co-creating business idea seeds in the second workshop—it helped bringing the groups out of their dominant "design," "technology," or "business" orientation and into generating concepts ("business ideas") which were built *across* their functional areas. In the workshop follow-up socio-cultural trends were mapped onto roadmaps and linked to latent, implicit, and explicit needs. For the first time at Philips marketing information had been translated into R&D logic. Also technology roadmaps were enriched through possible benefits they might enable, bridging technology into marketing logic.

Finally, everybody agreed that it made sense to align language and define some key words:

Innovation: An innovation is something that is experienced as new by a paying customer. The perceived "newness" can be rooted in multiple drivers: technology (e.g., LED instead of halogen bulb), a positioning (yogurt as drink), and a business model (leasing instead of buying for ownership).

Future landscape: A future landscape is an overview of what we expect to happen in the future (lighting) market influenced through people, technology, or business trends.

Trend: A trend is a general development/change in a situation or in people's behavior.

Transformational change[14]: It happens if the maturity of all three innovation dimensions is aligned.

Creativity: Finding new relations between existing "elements" (=> very personal process).

Business idea: A product/market/service proposition that solves needs with technology enablers and creates value responding to a specific market dynamics.

Phase 2: Leveraging group creativity
or co-creating business seeds and suggesting innovation clusters

A month later all trend information including their sources and additional insights had been captured in a book-like document called "Future Landscape." To make the information accessible for the idea generation step major trends had been translated into lateral thinking tools like what-if triggers and quartet cards. To facilitate the complex workshop flow and ensure high-quality output, the core team had distributed work over three different roles: I was the workshop facilitator. We had three content owners: They were responsible for "trend rooms" and prepared to help access the rich information for each of the innovation angles. Four group facilitators guided the ideation teams through the creative sessions. All of us deeply felt that the "future" we envisaged was both: the corporation's and our personal.

In contrast to the first workshop, the structuring angle was now space. The ideation teams were grouped around different geographical contexts and needs: Europe, North America, China, and India. The workshop started with a solid reconnect to the trends information which was available through the entire process in "trend rooms."

Idea generation took place in two steps: The first step was about quantity and speed. Brain-writing was used to capture low hanging fruits. Then the lateral thinking tools were used to bring the teams' out of the box thinking. After lunch the teams selected the most promising ideas and enriched them. The business ideas were captured in specifically designed templates that leveraged de Bono's six thinking hats[15] to ensure high-quality output. Since all ideas needed to incorporate the three dimensions of people, technology, and business, many "rudimentary idea spots" were dismissed during the team process. This also increased the team spirit and mutual trust between the different disciplines and created an understanding for the complementarities of skills and competencies. Finally the evening was used to share the group's top idea in a small sketch, which concluded the day with a lot of fun and laughter.

Why do I share this? Isn't this too much detail?

Isn't this what always happens in ideation workshops?

I am not sure. I have run many ideation and creativity workshops since 2002. The more I reflect on this one, the more I realize that it was the first time that I witnessed group creativity: participants worked together as fellow humans; department affiliation or organizational role had no relevance. Everybody worked towards a common goal, there was a lot of trust, joy, and mutual respect.

The last workshop day was focused on cluster/theme definition. Common denominators between several ideas were identified and described. The workshop ended after a sharing plenary and an outlook session. Mid-July the workshop results were shared with the review team.

Another set of important terms had been identified and defined:

Scenario: A business idea in context; for whom, where, how does it serve people's lives?

> **Cluster:** A set of ideas with a common denominator (denominator dimensions need to be defined)
>
> **Strategic (business) direction:** Describes in a simple sentence the envelope of strategies used to cope with the challenges faced by the business.

Beyond reporting back towards engaging

Corporations are organized along certain roles, responsibilities, processes, and meeting schedules to manage operations. Standard business practice runs on well-established routines, implicit behaviors and according to often strict annual calendars. Decisions are taken in management team or board meetings. Proven concepts are appreciated. In times of quickly increasing complexity and accelerating expectations from stock markets there was little affinity for experimentation and risk taking. In this context it was quite amazing that we had time slots in four PLEC meetings to update senior management on TTLF project progress.

How could we use these precious time slots to inspire their desire to try something new?

We wanted to offer them a joyful "growing-in" opportunity. We wanted to let them experience that "good business men" can also be "inspiring leaders." We wanted to let them experience what the meaning of "good leaders set the pace and create the future" might be.

How did we do that?

We changed the rules of the "corporate reporting-back game." At that time it would have been standard to prepare a fact-heavy powerpoint presentation and share all the rational data summarized in some conclusions and suggestions for decisions. This is not what we did!

Instead, we opened the first review meeting with a video clip of Kylie Minogue singing a pop song. PLEC members had just sat down with their lunches when without any warning the first tones of music emerged. No hello, no opening word of the session—just the music in a volume that interrupted the review team's conversations. The video clip visible on the screen that normally was used to discuss excel sheet. After 2 minutes we stopped it.

What does this have to do with Philips Lighting?

I asked. No response. Initially. Then, "can you show it again? I didn't get it exactly."—Laughter.

"No, sorry!" I replied—hearing my heart beat quite loudly. There was no way back. We needed to continue what we had started... "Well, there was Lighting everywhere: Light colored her white dress. She walked on a lit floor. Lighting created the background."—Pause— "Good afternoon and thank you for having us here for the first review of the TTLF project ..."

Then in the second step in a traditional presentation mode the workshop flow, major outcomes and next steps were shared. Finally the decision makers were split into three teams and briefly guided through the innovation perspectives re-using the original workshop material. After a rather short period of surprise, management was very apprecia-tive of this unconventional format and active engagement became a reg-ular element of TTLF reviews.

Phase 3: Expanding the scope
or from business idea to business potential, from idea cluster towards strategic direction

Over the summer a lot of "sense making" took place. We developed globally relevant strategic business directions leveraging the different pieces of information that were captured in the Future Landscape doc-ument and the outcome of the ideation workshop: the four regional "context maps," the 176 business ideas, and four region-specific clusters including their structuring dimensions. All ideas were mapped on both the needs and the technology roadmaps that had been developed after the first workshop. Value-chain and business model requirements were analyzed. Core strengths and lagging capabilities became visible through this exercise.

This analysis formed the basis for an intensive interview round with 20 senior managers: the TTLF review team and another 10 leaders of Philips corporate functions such as Corporate Strategy, Brand Manage-ment, and Corporate F&A. The interviews were set up to inform senior

managers of Philips Lighting and Philips Corporate about the process, get buy-in, and motivate the decision making workshop. In addition they were an effective way to receive ideas for future business directions—especially regarding possible cooperations between different Philips business sectors—to reveal relevant assessment criteria and inspire new competence development. Special attention was put into understanding today's and future (10 years ahead) "company fit"[iv] and "market attractiveness."[v]

Finally a set of 11 possible new business directions were identified, described, and assessed. Five clusters were interesting due to the size of the opportunity, two already had some links with the existing Lighting scope and one was too unripe to evaluate. So there were two possible scope extensions to be discussed during the third workshop beginning of September.

We had some doubts about the true business potential in Asia. Some of the interviews had strengthened our unease. We had the impression that we might be biased with a dominantly European or western world perspective due to the limited presence of Asians in the process so far. Wouldn't it be useful to deepen our insights about the Asian markets through performing an additional workshop in China or India or both? But, such a process step would require extra budget and delay the project. So, what was to do?

I made an appointment with my project owner. I also wanted to use it to pre-discuss the September workshop. I had built a good relationship with him...

Although a lot of work at Philips Lighting was done via projects and there was an elaborate formalism and education stream on project management, the CEO of Philips Lighting was not really familiar with how that worked on the ground. He was taken somewhat by surprise when a few weeks after the start-up meeting I asked for a 15-minute time slot to sign the project start-up document.

[iv] brand fit, competence availability, portfolio fit, market access/distribution, channels.
[v] maturity of needs, value potential, competition dynamic.

Shortly after the start of our conversation I realized that he had not read the entire document, therefore guided him through it focusing on risks and decision priorities. "If you ask me to rank priorities, here's my choice: speed, quality, completeness." He had said and I adjusted the document accordingly. A few days later after signing the *contract*—the project decision document—I said: "Great and with this you have now bought a 3D TV! It will be delivered in a decade from now." He was surprised..., looked up quite seriously and then started to laugh. I had heard that he had a good British humor. Back to seriousness, he asked me about my expectations of him and I said that I would not bother him as long as everything was under control. Only in case of required course correction I would appreciate a face-to-face time slot, yet then it also would be urgent. He agreed.
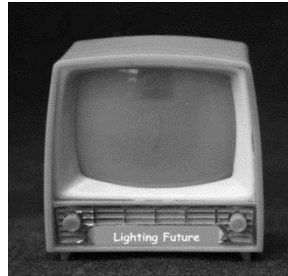
We only met twice this way during the entire project. Quickly as promised I got a date to ask my questions. "Which new business directions have you identified?" he asked and I handed him a small toy TV. "Please, have a look!" In the core team we had replaced the original photos with symbols for the five sizable themes... Now the project owner and I briefly discussed them. He concluded that it was useful to stick with the original priority setting, going for speed rather than completeness and acknowledged the usefulness of a project decision document.

A few weeks later, in September a 5-hour workshop took place with the entire steering group. After about 90 minutes the CEO interrupted the session and we had a brief conversation where he invited me to speed up the process and show more leadership. I felt confused. "How can I do that here and now? We are on a big tanker! And you are the captain on this tanker. I do not know how to steer such a big ship."—"But you led us to this point. Show us the way!"—"It's true. I brought you here. And yes, I am a captain as well, but I am the captain on a speedboat. That's a different game. I have explored with my speedboat some potentially interesting

new harbors for your tanker. I have taken the role of being your path-finder. You are the captain here: Isn't that the game we play???" He nodded, went back to the meeting, and steered his tanker into a new direction...

"Atmosphere Provider" (AP) was selected by senior management to become the scope extension for the coming years. The decision was in line with the (at that time) Philips corporate scope discussion around Healthcare, Lifestyle, and Technology. It also was judged to have the potential to deliver the desired 10 percent top line growth. For the first time in its more than 100-year history, Philips Lighting had decided upon a fully user and application-driven innovation theme.

Phase 4: Translating to action
or beyond making sense of trends towards creating meaningful (implementation) action

In the fourth and last TTLF project phase a deeper understanding of the AP innovation space was developed and captured in a "theme map." It provided the selection criteria for the three NBC projects that formed a basis of the AP program. Projects were deliberately selected such that they answered different new questions:

> **Flexible ambience in shops:** How to create light settings that influence people's moods?
> **Light embedded in furniture:** How to develop embedded lighting solutions with a partner?
> **Light and fragrance:** How to create a consumables value proposition?

At the end of 2002, TTLF was concluded and regarded as a successful exploration and visioning project (Figure 2.7). AP, which was about "empowering people to become their own lighting designer" had been identified as a new innovation and growth direction for the entire Lighting organization.[16] Three NBC projects had been defined, a long list of additional NBC ideas delivered and an ongoing way of working suggested.

Figure 2.7 Core visual consistently used to share project progress

Some weeks after the final review my project owner and I met to fi-ne-tune the follow-up. He asked me if I was willing to lead the AP pro-gram under the umbrella of the newly established NBC group. Intui-tively I said: "Yes, but we might need another leader for the NBC group."—"Why?"—"The current one is a brilliant manager, yet does not have his own vision. His purpose is to maximize profits. In my view, however, this is not the way to develop new business. New business grows through doing different things; it's about creation rather than management. It's about dealing with the unknown, about an inner and outer dialog between intuition and facts. It requires leadership through *meaning and purpose* rather than management by *command and control*." I got a little frightened when I realized what I had said. It was not planned. I could not control it. It was just coming from somewhere very deep.

A few minutes later the conversation was ended. Slightly embarrassed I walked to the CSO, who had become a trusted coach over the year and shared what had happened. Not very long and the CEO passed by as well, smiling at me when he asked my dialog partner to join him...

CHAPTER 3

Pioneering — New Business Creation

Responding to the massively changing market conditions due to the dramatic political disruptions in 1989, Philips Design's had developed its High Design process in the 1990s, a powerful process to embrace socio-cultural trends. It had been applied in all PDs—mostly under Philips Design project leadership—and had prepared the ground for a significant organizational development step at the corporate level.

As on January 1st, 2003 Philips—for the first time in its history—established the role of a Chief Marketing Officer (CMO). He had two main assignments:

2003	The bigger picture…[1]
January 1	*New corporate role: CMO established*
March 19	Start of second Iraq war
April 14	Human genome project completed
	The book: The New Everyday was published by Philips Research & Philips Design sketching out an "Ambient Intelligent" future

1. The corporate-wide introduction of an end-user-driven innovation process.[2]
2. Strengthening of the Philips brand through the introduction of a new brand promise as starting point to increase the effectiveness and impact of Philips corporate communication.

Product Divisions (PD) followed suit, upgrading their marketing functions and establishing CMO roles at the PD level. The new PD CMOs prepared themselves to play an active role in the development of the brand promise. They began taking steps to align communications across the PDs and to become more strategic in order to deepen their involvement in innovation activities.

At the same time, management at Philips Research was in regular dialog with their colleagues at Philips Design. The management team realized that digital technologies could enable such a broad variety of new functionality that they would challenge existing usage patterns and that product acceptance in the mass market would highly depend on an intuitive user interface. Based on this realization, Philips Research had opened a Home Lab in 2002, a laboratory where "normal people" were invited to test prototypes and share their views on how to use new kinds of products. It was clear that such products would require new business models (Figure 3.1). It was not clear in the beginning 2003, which department or function would take care for that...
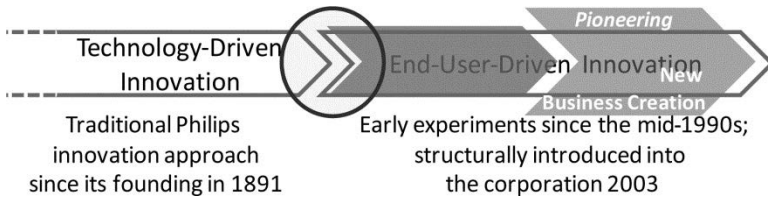
Figure 3.1 Evolution of innovation at Philips (2)

3.1   Stamina — Understand and Imagine Atmosphere (2003)

or navigating complexity or humanizing lighting

The year 2002 had been very intense and successful: A new innovation approach had been tested, the first market-driven business direction—Atmosphere Provider (AP)—for Philips' eldest PD had been identified and three projects defined that were to be started in the New Business Creation (NBC) group as a move into implementation...

What stamina means to me...

When the word *stamina* comes to my mind, I see a long trail through a wild mountain range that needs to be walked in order

> **Dictionary Definition**
>
> *Stamina* is great physical or mental strength that allows you to continue doing something for a long time.

to reach the desired destination. Walking it asks for a lot of commitment,

investment of time and energy, focus and dedication, patience, and probably some sacrifice. Walking it will be a lonely journey. When lucky, one will find a companion or two. It's risky and a successful outcome is not guaranteed, but some deep inner voice keeps me going despite possible setbacks.

Why are stamina and understand and imagine atmosphere the essence of my twin-path journey in 2003?

In early January came the announcement that the NBC group would be re-framed focusing solely on new business ideas leveraging light-emitting diode (LED) technology. That was bad news for us, since this technology was quite embryonic and it would require a lot of time to develop products towards market maturity. Moreover, the AP program needed a new home—a home, however, that had a PD perspective and was not focused on one special technology.

At the same time, marketing needed to follow up on Think the Lighting Future (TTLF) with a shift from "static space thinking" towards "dynamic activities in spaces" as its first move away from a purely operational focus on positioning products in different spaces such as office, home, shops, public outdoor, and public indoor. Deep understanding of end-user's behavior and insights in possible ways how lighting could enhance peoples' different activities[3] would be required in addition to the traditional know-how of lighting effects in architecture.

Soon after the NBC announcement it became clear that Philips Lighting's CEO would leave the company by April. Having been the TTLF project owner and having led the Philips Lighting Executive Committee (PLEC) decision making he was one of the key supporters of the AP innovation direction. I went to my confidant, the CSO and learned this meant that nothing would happen until the new CEO had arrived and set his priorities. Sharing this view with my boss, I wondered aloud:

How could an innovation "baby" like AP survive in such a corporate context?

He was not sure. It was new to all of us. Fortunately, the CTO believed in the TTLF result and the necessity for change. And he trusted me. Meanwhile, I—and a colleague who had also been a TTLF core team member who had expressed an interest in becoming project leader of the "Flexible Ambience in Shops" project—was assigned to "hold and incubate the new business theme." It was strange to witness how in our closest environment traditional R&D work became increasingly short-term focused and efficiency-oriented while we—having a big passion to get started—were forced to wait. This felt quite counter-intuitive. Staying patient was hard—a lot of change was going on around us, with a high probability to affect our future work, yet we were not structurally involved.

The new CEO arrived in April. Understandably the long-term AP program was not his highest priority. It was perceived to be important, but not urgent. Finally the newly established Global Lighting Marketing organization was identified as "home" for the NBC program and AP became the first Lighting-wide *non*-technology-driven innovation theme.
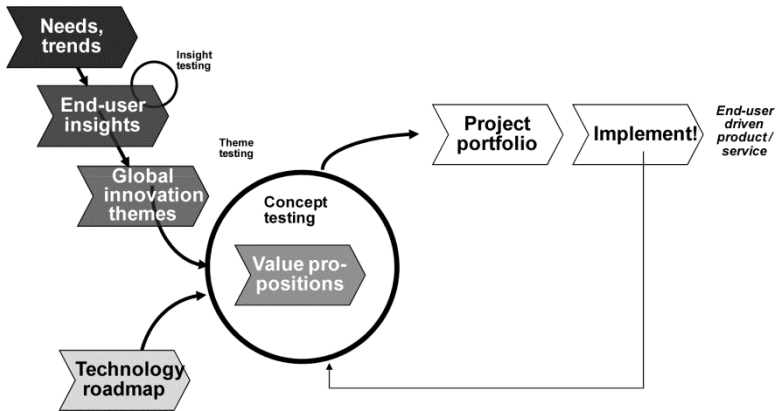
Figure 3.2 End-user-driven innovation process

In addition, the market developments explored in TTLF led to organizational changes. The technology-driven "innovation to market" and BG Lamps marketing organizations were transformed into three departments: "global strategic marketing" (GSM), "global technology development" (GTD), and a "global organization for applications in Lighting" (GOAL) bridging the gap between technological possibilities

and end-user's needs. All three together were tasked with implementing the "end-user-driven innovation process" (EUDI process, see Figure 3.2) in the Lighting organization and the corresponding changes in the execution of innovation projects.

In other words, almost simultaneously four separate fundamental organizational changes and one major business process transformation were initiated at PD level:

- The marketing function that had been organized on BG level was "upgraded" and brought up to PD level.
- An organizational unit focused on the business development of LED technology was established.
- A corporate program with the assignment to explore AP as a PD growth area pioneering NBC was set up.
- Two existing organizational units were transformed into three new ones.
- The traditional technology-driven innovation process was extended into an end-user-driven innovation process.

It took 6 months of "holding," almost 9 months since it had been confirmed by the PLEC before the AP program was implemented. Although not intended, in hindsight these 6 months proved to have been an important "incubation time." Two TTLF core team members were assigned to keep the new business theme alive. They helped to share main TTLF process insights with the GSM, GTD, and GOAL organizations and embed it in the EUDI process.

> ***Tips and tricks*** *for sense making (4)*
>
> *It is useful to distinguish different "time logics". While managed business activity has a repeatable character and therefore can be planned – following the "Chronos logic"- disruptive innovation does not follow standardized procedures. It asks for leadership built on a high intuition about "right timing", thus in addition also following the "Kairos logic".*

We were invited to share the TTLF results and AP ambition in a broad variety of strategic and operational innovation meetings both in Philips Lighting and with relevant corporate functions. Increased

collaboration between parts of the organization was a consequence of this: with CDL and Research colleagues we started to jointly develop an IP platform and—together with some Design colleagues—to translate the socio-cultural trends into AP-specific "need" roadmaps. In addition we explored the concept of "end-user-driven" through identifying the scattered pockets of knowledge in other PDs that were already applying this new way of working.

It was also during this 6-month period that AP became more deeply rooted in a core network of colleagues at different levels and functions of the organization. Some questions continuously came back: What is the essence of transformational change or radical innovation beyond incremental product improvements? What is the "quality" of the AP innovation opportunity?

Corporate culture surfaced as key factor for success (Table 3.1). And what did that mean?

Table 3.1 Corporate culture implications of the AP business direction

In addition to		Also
Technology-driven		End-user-, activity-, and application-driven
Unambiguous, standardized functionality		Ambiguous, context-specific light effect
Hardware: light sources, ballasts, luminaires	*...Building on strength*	Software; intuitive user interface; connected systems
Clear specification	*Creating the future...*	Option thinking
Fact-driven, rational culture		Experience-driven, emotional culture
Excellence in **FUNCTIONAL** lighting		Excellence in **HUMANIZED** lighting

In early July budgets were confirmed and we got the o.k. to go ahead and recruit two more project managers. Philips Lighting's senior management, the PLEC, continued to take the review team role. At this point, we received the following assignment:

- **Short-term:** Identification of value propositions, building of prototypes, concept testing of:
  - o Light and fragrance

- o   Light embedded in furniture
- o   Flexible ambience (in shops)

Identification of potential partners required to implement the business opportunities.

- **Long-term:** Creation of a continuous flow of new AP business ideas; business growth coming from existing business ideas within the AP theme; development of an application-product-technology roadmap
- **Sustainability:** The development of AP "foundation documents" (understand/imagine atmosphere, talk atmosphere, build atmosphere, sell atmosphere); establish an AP patent generation approach
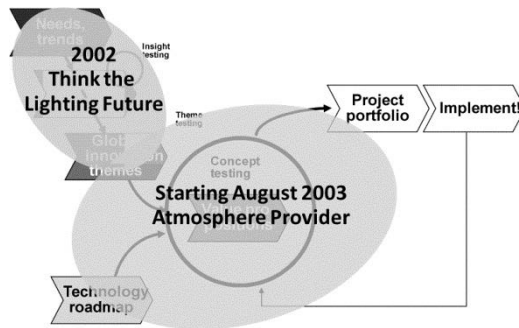
Figure 3.3 AP program mapped on EUDI

Also, the AP team was positioned as "pilot" testing EUDI and feeding back "dos and don'ts" into the global EUDI process roll-out (Figure 3.3).

In addition to specific NBC also general theme development

My colleague in the meantime had begun to structure the work for his AP project on "flexible ambience in shops". Quite early on he realized that a deeper understanding of people's atmosphere-related needs would be an essential starting point for all AP projects. It would also be helpful to develop a more specific idea of the role lighting plays when creating an atmosphere.

We discussed this with our Philips Design colleagues and together concluded that a "foundation document" might be the appropriate way to consolidate such information for future, consistent corporate-wide sharing. General insights emerging from business-idea developments would be captured in such a document. Their purpose would be to create a platform for a common global understanding of the new Lighting innovation theme, and to introduce a clear common language, metaphors, and visuals as the basis for developing effective and consistent communication tools for colleagues from different functions, locations, and hierarchical levels. It should be a tool to align thinking and acting that over time could be used throughout the entire Philips Lighting business and beyond.
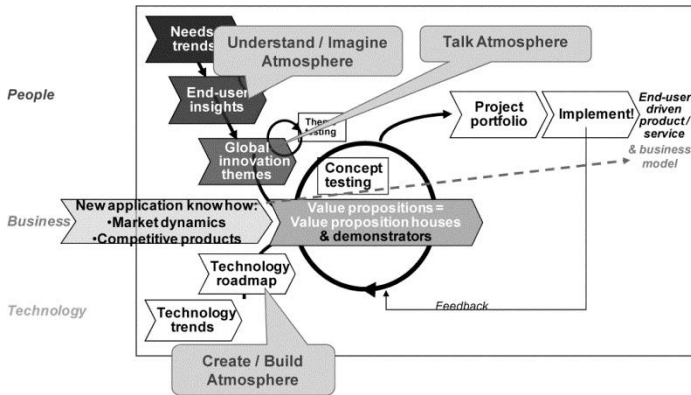
Figure 3.4 "Foundation documents" mapped on EUDI

By the end of the year, the first foundation document entitled "Understand and Imagine Atmosphere" was available (Figure 3.4), and shared at the first AP review meeting at the PLEC in November. It captured the "people-perspective," decoding the deeper meaning of the word "atmosphere" as it relates both to physical space and to end-users' emotional states of mind. It introduced a framework to map people's atmosphere needs across the application areas: home, workplace, commerce, and outdoors. The socio-cultural trend research carried out for TTLF formed the basis to analyze and qualify people's readiness to buy lighting solutions to fulfill their atmosphere-related needs and how this

willingness might change over 10 years. "Imagine Atmosphere" pointed to 21 cutting-edge examples of where light was being used as a form of AP to inspire imagination within Philips and create confidence that this new form of innovation could meet future needs. This was important to deal with the "right-timing challenge," and to increase the likeliness that AP solutions would be introduced to the market, once it has reached the maturity of "early adopters" and can benefit from the quick growth curve dynamic (see Figure 2.6).

The AP program architecture ensured cross-fertilization between the business theme development via the foundation documents and the three NBC projects (Figure 3.5). General observations derived from the theme exploration were fed back into NBC projects.

Figure 3.5 Atmosphere Provider "twin-path" program structure

Beyond efficient product creation also effective pioneering

Four business pioneers, nowadays one might call them intrapreneurs, formed the AP core team: the program manager who had led the TTLF project and three NBC project managers. One had been a TTLF core team member; the other two were new to Philips Lighting. Over time, a small support team became involved: a lighting designer, an experienced market researcher, a marketing specialist, and several colleagues from Philips Design.

An important element in choosing candidates for the AP team was their openness to learn and their pioneering attitude. I explicitly asked if they were able to cope with risks, what drove them in their lives, and how important a "quick and straight career path" was to them. It was made explicit from the very start that this was an "out of the box" assignment...

The team was small and flexible; additional skills and capacity were brought in on an as-needed basis, which in turn required good commu-nication skills on all sides and the commitment from senior management

to ensure the necessary resources were made available when required. The AP work attracted people with a special attitude: resilience towards dealing with the unknown, pragmatism, a passion for discovery, and the will to work in the service of a bigger goal were as essential as complementarities in skills and perspective. Conscious investment was put in developing a constructive conflict culture, and dialog skills. We were pioneering a new type of "corporate culture."

First steps into new terrain

What were our first pioneering steps? The team was highly motivated to deliver results quickly. The short-term assignment was the identification of value propositions for the three NBC projects... By this time "value proposition" was becoming a buzz word at Philips Lighting. What it really meant and how it was developed was not that clear to us. Philips Consumer Electronics—already a few years ago—had faced some major challenges in selling their latest technology in the increasingly saturated TV and audio markets. They had performed a benchmark study [of what? Their marketing, their innovation] and found the "value proposition house" (VPH) at Unilever (Figure 3.6). The VPH is a tool to facilitate multidisciplinary information collection and structuring, for example, insights are typically developed in the marketing organization, benefits are often linked to technology, and reasons to believe might be linked to the brand, product delivery and accessibility, after-sales service, or other customer touch points.

The AP team used both the VPH and the EUDI process flow to structure their work and to communicate effectively in review meetings and sharing sessions with the colleagues who were implementing the EUDI process globally.

In early September we invited a few colleagues from Philips Lighting, Philips Design, and Philips Research to share their views on how to effectively start NBC projects. It became clear that the communalities of the projects were innovation process aspects such as using the same tools, testing new lighting parameters, and starting from an end-user need. Differences lay in the specifics of the new application.
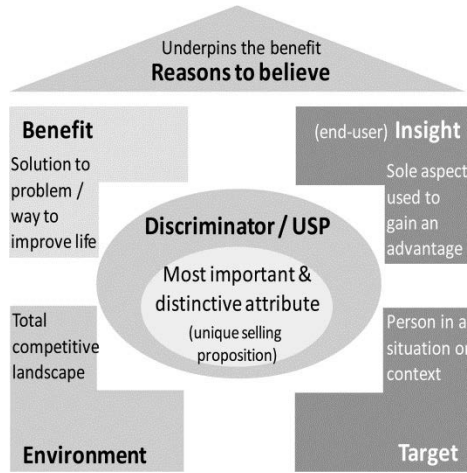
Figure 3.6 Value proposition house

In mid-November the first review team meeting took place. The VPH for the "flexible ambience in shops" project had already been developed during the incubation period. This had been a relatively straight forward effort, since this project had only one dimension of newness: the transition beyond homogeneous white light to dynamic colored light scenes, with the well-established application area of shops as the initial market. This choice was rooted in Philips' deep application know-how and established customer base. Therefore the project manager focused his efforts on the development of a user-interface strategy and a "whole-room demonstrator"; to slightly modify a well-known saying: "an experience tells me 1000 words..."

For the other two projects, exploring the new application, understanding its market readiness along the three innovation perspectives and developing a competitive landscape was fundamental pioneering work. This led to the extension of the EUDI framework through the step of "new application know-how: market dynamics, competitive products" (see Figures 3.4 and 3.7) prior to constructing/developing the VPH.

In the "light embedded in furniture" project two newness dimensions were explored: a new application space (furniture) leading to new lighting functionality and a new business model: partnering with a furniture manufacturer. Therefore the step "new business dynamics" was required prior to the VPH development. The initial market analysis led to the suggestion to focus on whole-room application and start to take a deeper look into kitchens and bathrooms.
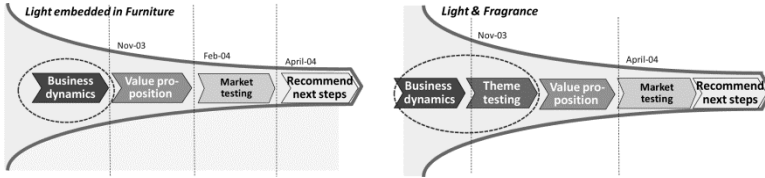
Figure 3.7 Additional process steps required to explore more
"newness" dimensions

"Light and fragrance" had three newness dimensions: the combination of two senses, to be applied in the most mature application area, leading to new product functionality. Business dynamics analysis revealed that the use of fragrances to create an atmosphere is growing quickly in a dynamic market with a lot of potential. Various technologies were available to enable this. Some home fragrance solutions were mapped on the market maturity curve (see Figures 2.2 and 2.6) and a theme landscape (comparable to Figure 2.7, phase 3) for light and fragrance was created. Here, it was necessary to perform a theme test to develop the information required to enable a meaningful decision for the initial target audience as input to develop a specific VPH,[4] which could be used as starting point for product development.

Everybody should have been happy and proud of what we had achieved in the year, especially in the last few months. In only a little over a months we had managed to:

- Recruit and build the entire team
- Publish the first foundation document
- Pioneer the three new business ideas such, that useful learning insights could be presented and clear next steps envisaged
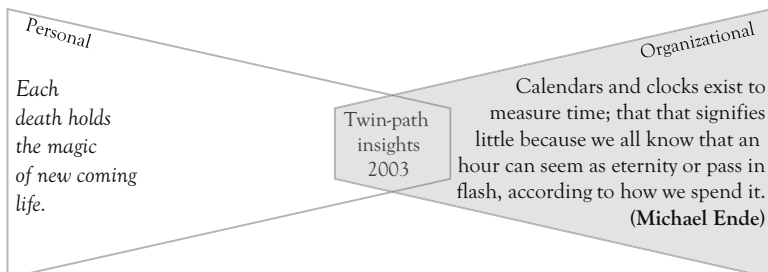- Establish a dialog structure into our highly dynamic internal innovation context.

Strangely enough this was not the case! I sensed a lot of impatience and disappointment during the PLEC. It was not expressed explicitly which complicated the situation. Unfortunately I had not yet managed to build a deeply trustful relationship of trust with my new boss, the CMO. And I knew, he had been doubtful at the outset, whether the CMO office was the right landing point for the AP program. He had pointed to the fact that his core expertise and interest was Brand Management and Corporate Communications rather than innovation...

We discussed the situation in the core team. "How did this coaching team approach work during TTLF?," one of the new project managers asked. "Wouldn't it make sense to establish one for the AP program as well?"—"I don't know, if that's possible. How can we suggest this to the CMO without undermining his authority?"

A few days later I happened to meet the CMO in the corridor. "How did you perceive the review meeting?," I asked. "I guess it did not go so well," he responded. "That's what I sensed as well. Can you imagine why? Or do you know what disappointed them?"—"The Business Group (BG) managers think it's still too abstract, too intangible."—"But isn't the document: Understand and Imagine Atmosphere real? And tangible? You can hold it in your hand!"—"Tangible is a product on sales! They don't understand why we should invest in increasing brand value either. That's also not tangible, even if we can show the effect on our share value."—"So we're dealing with the same problem." I responded. "In a way: yes."—"What about re-establishing a coaching team for the AP group as we had established for TTLF. That brings at least some of them closer to us."—"How did that work?" I explained to him, how a year ago three senior managers had taken the role to coach the TTLF team and translate team results into top management language. The CMO listened carefully. "Let me think about it."

Only after I left Philips did I develop the "inner distance" to realize how difficult and heavy the rational corporate culture was for non-technical and non-"hard science" colleagues, regardless of their hierarchical levels. I did not realize the implicit credibility I gained through my PhD in Physics. That title made me "part of the implicit culture" offering quite some space to maneuver.

Shortly after the CMO agreed to the suggestion and conversations started as to who would be appropriate "god-fathers" for the three projects...

Personal	Twin-path insights 2003	Organizational
Each death holds the magic of new coming life.		Calendars and clocks exist to measure time; that that signifies little because we all know that an hour can seem as eternity or pass in flash, according to how we spend it. **(Michael Ende)**

3.2   Coherence — Talk Atmosphere (2004)

or in addition to rational expert language also metaphors, experiences, and dialog confronting ambiguity

"We come from a history of functional task-lighting based on homogeneous white light." This is how I had summarized the essence of Philips General Lighting activities in mid-2003. "AP is all about humanized lighting.

2004	The bigger picture…[5]
February 4	Facebook was founded
	The Fortune at the Bottom of the Pyramid by Prahalad
October	*Launch of new brand promise: Sense & Simplicity*
	Technology Incubator @ Philips Research

It's about people's emotions enhanced through dynamic, colored whole-room light effects." Great words, but what do they mean practically? We had shared with the PLEC many facts on how we proceeded: the amount of patents written, the number of deployment sessions held, the way we had aligned processes, new optimization criteria, new possible selling arguments, photos of situations when light was used to create an atmosphere. They did not experience this as tangible results. There was a deeper, currently unspoken, and invisible challenge to be faced. What was it?

What coherence means to me…

When the word coherence comes to my mind, I hear the final accord of a symphony or a piece of jazz music, this moment when all the different tones and voices that walked different—partly disharmonious—ways while the

Dictionary Definition

Coherence is the quality or state of cohering: a systematic or logical connection or consistency or integration of diverse elements, relationships, or values; the property of being coherent; a balanced, pleasing, or suitable arrangement of parts

music was unfolding finally come together in an amazingly harmonious, all embracing way.

Why are coherence and talk atmosphere the essence of my twin-path journey in the year 2004?

The "Flexible Ambience in the Shops" value proposition development had uncovered a set of implicit assumptions in the R&D and marketing community: Good products create homogeneous white light. Lighting is static. Minimization and cost are the main innovation drivers. All this was true through the lens of "total cost of ownership" with facility management as decision maker for buying decisions. The entire BG Lamps organization was set up for this approach: its KPIs, its product improvement criteria, and its innovation roadmaps. Light as tool for atmosphere creation, however, leverages other benefits and is relevant for other departments at the customer side, for example, the marketing department. Consequently a different language for talking about AP lighting solutions was required: a language and tools to communicate about the emotional and aesthetic qualities of light. This insight underpinned the second foundation document, "Talk Atmosphere" created by experts from Philips Design and internal lighting designers. It was published in August 2004 and included three sections: qualities of light, experiencing light and atmosphere, and dialog on light.

Deep dialog is a root of a highly effective team

From the very beginning I had paid special attention to building a "highly effective team." I had learned in previous years how important diversity is for disruptive innovation. The disadvantage of diverse, multidisciplinary teams though is the very high conflict potential due to different use of language, personalities, working approaches, worldviews, strengths, and weaknesses. In order to develop good team resilience I organized weekly group dialogues with semi-open agendas. We created our own team rules including a set of rituals and we discussed in depth the relationship between the way we work and the kind of products we would develop.

In addition each project manager was a coeditor of one of the foundation documents. This way we installed an ongoing dialog about the difference of project specific insights and general, broadly applicable AP theme

knowledge. Slowly but steadily the conviction grew that "a good atmosphere in the team (team spirit) would be built into our business concepts and later somehow be radiated through our products." Initially we did not dare to talk about this outside of the team. We were afraid of being called "esoteric." Only after the program was closed did I share this view with my former boss, the CTO and the CSO. They recognized the thought and could understand why we had not made it public.

Culture clashes

Within Philips Lighting, senior management was used to the quick decision making that is typical of managing operations and incremental innovation. They were not aware of the duration of the different process steps involved in radical or transformational innovation. Fortunately, considerable goodwill had developed in recent years. Especially those senior managers who had shared the positive experience of TTLF and its promising results judged the timely availability of the first AP foundation document as a continuation of the shared journey of discovery started in 2002. But not every current PLEC member shared those memories. Many new stakeholders in the BGs had heard about it, but could not relate to it. They had not yet discussed how priority setting should be geared towards aligning the maturity of the different business perspectives (see Figure 2.6). They had not been invited to "think out of the box." They were "locked-in" the implicit corporate culture of technology-driven innovation mainly directed towards quality improvement and cost efficiency.

In February, the AP team had its second review meeting. Contrary to the original planning, the "shop demonstrator" was not yet functional, so that only conceptual results could be shared.

- The "flexible ambience in shops" team had started to develop a user-interface roadmap consolidating the broad, yet fragmented information from the entire Philips Corporation into in a single document. Although colleagues had been very cooperative and willing to share their insights, this integration process had required more time than originally anticipated.

- The project manager of the "light embedded in furniture" project had concluded that a new corporate partnership-based business model would be required to realize his business idea. Therefore he had started to cooperate with the recently created "Corporate Alliances" department. There a proven alliance process was being adjusted to the Philips culture.
- The "light and fragrance" project manager could report on the theme testing results and had identified possible innovation partners in the fragrance industry.

Parts of the review team appreciated the progress—others more clearly than in the November meeting—expressed their doubts about the likeliness of possible success and their feeling that they did not want to waste their precious time in "fuzzy dreaming."

Pioneer dilemma: How to talk about things that don't exist?

It became more and more clear to me that one of the key challenges in implementing radically new innovation in a mature, stable organization is the unconscious role of corporate culture. I started to wonder, what is culture in general and corporate culture specifically?

Suddenly my wake-up epiphany of the "five minutes silence revealing the potential self-similarity between my own development and innovation provided by a firm" came into my mind. I thought: Maybe corporate culture is to a company what the (often unconscious) world-view and value system is to an individual? If that was so, then cultural change in an organization could be compared to a change of my own values? How does that happen? It is important to become conscious of one's own implicit assumptions; observe one's own behavior and reflect on it. Language is important, the changing meaning of individual words in different contexts.

Interestingly, we had just started to work on Talk Atmosphere. It was meant to introduce some key terminology supported by corresponding photos visualizing the meaning of the words. We had learned a lot from our colleagues at Philips Design and our associated light designer about the use of visuals and photos to inspire and facilitate effective

communication about "ambiguous or fuzzy" topics. Mood boards suggest certain feelings and atmospheres and allow conversations about emotions in a descriptive, non-personal way. Discussing the appropriate photos to visualize the "Talk Atmosphere" key words provided us with a great learning experience in doing exactly that.

Indeed, while working on the second foundation document we became conscious of a fundamental communication challenge that I like to call the *pioneer dilemma*: You *cannot* appropriately describe something fundamentally new using familiar words ... and at the same time, if you describe the new thing with a new, probably appropriate language, nobody will understand you.

What could we do about this?
How could we work around this dilemma?

I recalled all the conversations I had over the last 2 years with different managers. "Good business men produce bulbs ..." This was it! ...and they transport them as efficiently as possible from A to B... Operational excellence is about efficiency increase: doing more of what we do, but better, cheaper, quicker. ... "I am your pathfinder." I had said to the TTLF project owner. And pathfinders move through unknown territory, for example, jungles ... There it was a meaningful metaphor communicating our dilemma (Figure 3.8).

How to manage these cultures under 1 roof?

It's about **Efficiency Increase**
It's about **Optimization**
It's about **Control**

It's about **Discovery**
It's about **Adaptability**
It's about **Trust**
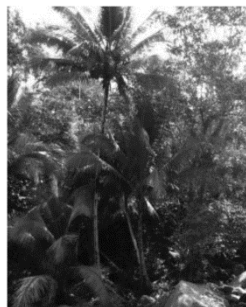
Figure 3.8 Truck-jungle metaphor

I tested it with a few colleagues in the CDL; then I shared it in the next review meeting to manage expectations with respect to the realistic speed of radical innovation and NBC. It worked well. After the meeting several PLEC members even mentioned that it might be much more fun to be on a "jungle tour" than to trying to accelerate on a heavily used high-way…

> ***Tips and tricks*** *for sense making (5)*
>
> *Metaphors expressed in visuals and photos can help to communicate new ideas, insights, or dilemmas → truck-jungle metaphor. There are, however, situations where so many different dimensions of "newness" are involved, that a 2-D visual is no longer sufficient to open a meaningful dialog. In such situations it can be useful to create a shared experience through a 3-D prototype or a video → flexible ambience in shops demonstrator.*

Experience activates human senses and triggers intuition

Finally in early May, right before the third review meeting, the "flexible ambience in shops" demonstrator was ready. It was the prototype of a women's fashion shop, for which one of the rooms in the Lighting Application Center had been made available. There were two novelties implemented in this demo:

- Two different types of user interface—one object-based, one screen-based—provided an invitation to explore what "intuitiveness" might mean.
- By switching just one button, the entire room lighting changed—completely different to the past, when each individual light source needed to be addressed individually.

Up to now, the new CEO—who had only participated in the first phase of the TTLF project—had remained skeptical. This changed dramatically after experiencing the demo. Conversations in the demo room had been so vivid, that time had run out. Eventually he called for discipline and urged his colleagues to get back to business, leaving the room first. To our surprise after walking about 20 m in the direction of the meeting room, he turned around, came back to me with a big smile on his face and shook my hand. "Thank you for showing us! Now I understand! It makes perfect sense!" he said.

And he was not the only one: it was only when senior management walked into the full-scale, room-sized "Flexible Ambience in Shops" demonstrator that I saw the pennies dropping. All of a sudden words like: We need to learn how to build intuitive user interfaces… made perfect sense. Imagination was inspired, trust in the opportunity increased, doubts dissolved.

Inspiring excitement or towards co-creating

Each year in May Philips Research used to organize a big internal "technology fair." For an entire week they shared their latest insights with the entire Philips R&D community, both in the form of posters explaining new functionality principles and through product prototypes.

In 2004 we actively participated in this exhibition, deepening our user interface understanding and expanding our network. We also started to share our experiences and learning in the emerging Philips marketing community and established strong relationships with Corporate Alliances and Corporate Strategy.

Beyond hardware products and selling tangibles to multilayered solutions and value creation out of intangibles

Part of the VPH development was the identification of potential "benefits, discriminators, and reasons to believe." Leveraging Philips' strengths in technology and embracing the end-user perspective it became clear that AP solutions would be quite different from traditional hardware products. In addition, the work on the shop demonstrator had made the general structure of an AP offer visible to us. Value would be created through a reliable piece of hardware, the business sector's traditional core business. By tapping into Philips Design's "humanities know-how" and Lighting's application expertise, the core end-user benefit would be context-appropriate lighting experiences such as warm, romantic light settings for a candle light dinner, or colored accents for to beautify public spaces. As indicated in Figure 3.9 digital technologies would be used to connect the two.
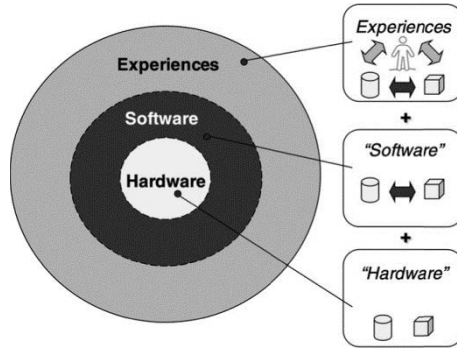
Figure 3.9 Multilayered AP solution

But how could the vast amount of "intangibles" and the easy-to-copy "tangibles" be designed into profitable business and support the Philips brand positioning?

Towards business plans beyond product level

During the second half of the year the AP team explored a broad variety of business model–related questions. They engaged a Professor from the Bocconi School of Management to expand their thinking from value chains to value nets.[6] Theme and concept tests were executed, an intellectual property (IP) strategy developed and its implementation initiated, and a bathroom lighting demonstrator was specified in the context of the "light and furniture" project.

Finally the team developed a "business theme architecture" to contextualize the scope of the individual project-related business plans and at the same time to show knowledge reuse opportunities (Figure 3.10).

This was also a tool that helped to manage expectations and facilitate the corporate culture shift, since traditionally in steady-state operations it is appropriate to work with product-related plans only (in Figure 3.10 second lowest level indicated through: *Philips makes this*), trusting that the upper levels of the theme architecture are implicit corporate knowledge, thus "intuitively logical" for every employee.
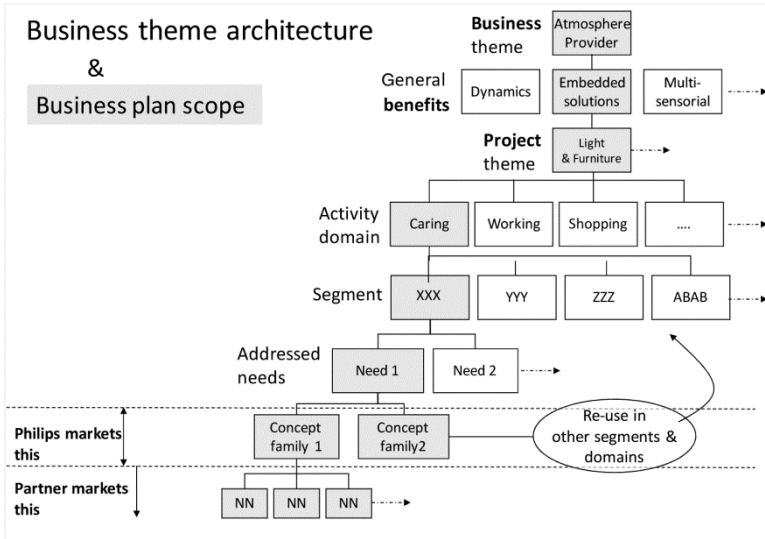
Figure 3.10 Business theme architecture positioning business plan development

Change is the only constant in life

We were well on our way, making good progress. We had established a resilient network and well-oiled communication structure with our colleagues who worked on building the new organizations and implementing the EUDI globally. We could finally successfully communicate the special challenges of our assignment with the review team and they supported our work. "God-fathers" (or executive coaches) had ... started to engage in the projects. We had also truly landed in the Marketing department. It seemed that we had managed to navigate through the hefty storms of the start-up phase and were finally in calmer waters, when in early autumn we heard that our boss, the CMO of PD Lighting was ill and needed to stay at home.

This was not good news. It left the department without a leader in a still unsettled situation with massive changes going on. Political games started to emerge: I sensed them, yet could not point them. The players and their intentions stayed invisible until it was too late...

Personal

It is all about
*making sense out of what goes
on around you now.*

Twin-path
insights
2004

Organizational

The meaning of life is contained
in every single expression of
life. It is present in the infinity
of forms and phenomena that
exist in all of creation
(Michael Jackson)
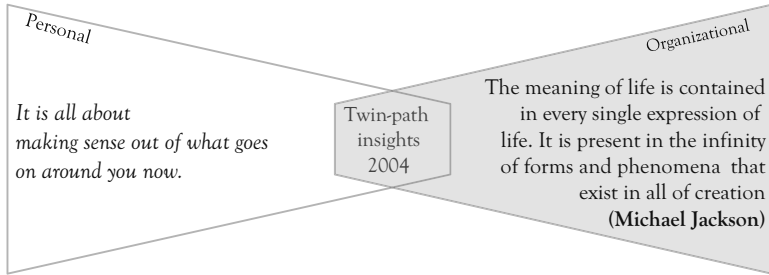
3.3   Integrity — Create and Build Atmosphere (2005)

or from pioneering to mainstreaming

Starting in fall 2004, there was an increasing confusion over all the new organizational units, processes, strategies, and responsibilities, which

2005	The bigger picture...[7]
February 14	YouTube, the most popular video sharing website, is founded
September	Book: Blue Ocean Strategy by W. Chan Kim & R. Mauborgne Book: Capitalism at the Crossroads by Stuart Hart

emerged in the broadened Lighting innovation community. The CMO's absence weakened the corporate culture shift from technology-driven innovation towards end-user-driven innovation. However, every threat is also an opportunity... Leveraging the still extant AP coaching team, at the end 2004/beginning 2005 a small team of passionate innovators representing the different organizational units suggested the establishment of a Lighting EUDI-board orchestrating the increasing variety of "fuzzy front-end" innovation activities. At the start of 2005 it became clear that the CMO would not come back to the company. A few months after the arrival of the new CMO, a General Lighting EUDI board was established.

What Integrity means to me…

When the word *integrity* comes to my mind, I see a captain in a hurricane holding course. The wind lashes his face, a rain-storm soaks his clothes, and he is wet to the bone. Still he stays strong, safely maneuvering his ship into calmer

Dictionary Definition

Integrity is a conduct that conforms to an accepted standard of right and wrong, the devotion to telling the truth, faithfulness to high moral standards

waters. Doing the same in times of psychologically and politically stormy weather is at least as has hard, sometimes even tougher, since the challenge might not be felt by others (the crew). Psychological trouble often arrives via invisible pathways, not reaching or felt by the entire crew simultaneously. Still sticking to the common goal and holding course can then be a quite personal and lonely challenge.

Why are integrity and create and build atmosphere the essence of my twin-path journey in 2005?

Parallel to our pioneering work in the AP team, Philips Lighting's innovation process was transformed. Organizational units were re-organized, people were assigned new roles and responsibilities, and a new IT infrastructure was implemented. This unstable situation was accompanied by a high level of fear and insecurity for many employees and provided space for power plays for those who were highly politically clever and tactical. Having had quite good experiences with the coaching team and my direct bosses since I joined Philips, I completely underestimated possible the potential for egoistical behavior. Due to my relatively low hierarchical position and the newness of our activity I was one of the last employees in the marketing department to whom the new CMO talked. I did not know how others had positioned their and our work. I honestly shared my perspective. I did not know how it all fit together, yet the very fact that something was going completely in the wrong direction surfaced during with my performance appraisal, where for the first time in years I was scored "average." The new CMO could not explain this score, only stating this was the feedback of my peers—of course without creating transparency about the sources. Unfortunately I let myself be put in a defensive position, increasing the scope for the political games. I was tired. The years had been exciting and rewarding, yet also heavy both in my professional and private life with two daughters, who in the meantime had reached puberty. I was at the limits of my capacity. I had a quite serious car accident. I could have taken that as a sign to take a break; to take a breather. I did not! Something shook me out of the flow. It felt like losing my inner compass...

Beyond product-specific technical specifications towards AP theme functionality

At the end of 2004, Philips had launched a new brand positioning: *Sense and Simplicity.* The VPH methodology suggests that such a positioning should serve as high-level filter for any product development. This was very useful for the AP team. The concrete project work had identified a set of six new AP theme-related general benefits:

- Beyond homogeneous white light also *colored* light effects
- Beyond static light effects also *dynamic* lighting scenes
- Towards *intuitive user interfaces*
- Beyond lighting components to *connected* lighting solutions
- Beyond visual to *multisensorial* experiences
- Towards *built-in expert* knowledge

A third foundation document, published in May 2005, mapped out how these could be translated into technical functionality to guide IP development, technology road-mapping and product specification. It also provided an insight into the different steps that people could take to enhance the atmosphere of their environments with light. It expressed the vision was as "be enabled to be your own lighting designer."

From business plan to business development

By July 2005, all the projects were at a stage where business cases could be written up. The second whole-room demonstrator, a bathroom had been built and was shown to Philips' CEO when he visited the PD. He got quite excited and acknowledged that here the new brand promise was being brought to life. A local car showroom was equipped with "dynamic light scenes" forming a market pilot for "flexible ambience in shops." The first "light and fragrance prototype" was built in preparation for an extended concept test.

Alongside this work, the team developed an argument as to why strategic alliances were necessary prepared and presented it to the management. Successful meetings were held with industry leaders followed by a series of workshops.

Reconnecting to myself

Fortunately in 2005, my family and I had a long summer holiday in Australia. We picked up our elder daughter who had lived there for a year on a student exchange. It gave me the space to reconnect with myself while discovering the beauty of "emptiness" when we were crossing the grassy steppe of the Northern Territories and driving from Darwin via Tennet Creek to Cairns. I started to sense the intensity of our innovation endeavor, and to let go of self-blame.

Back home I was welcomed with the announcement that the complexity of the current situation needed to be simplified. As a result, the AP group would be closed by the end of the year. I was asked to come up with a plan on how to integrate promising running activities into other organizational units and ask my team to start looking for new assignments.

Wow! What a welcome.

I had sensed it earlier. It did not come as a big surprise... and I was happy that my intuition and my intellect were back in dialogue. Moreover, we had already identified the probable "landing points" for the projects in anticipation of such a possibility months earlier. We prepared transition meetings with the "god-fathers" and agreed on hand-over procedures. It was decided that "light and fragrance" would be put on hold. Too many open questions still needed to be resolved. The other two projects would be transferred by the end of the year. The project manager of "light embedded in furniture" would move with his project to the Business Unit Solid State Lighting. The project manager of "Flexible Ambience in Shops" quickly found a new role in the CDL. The third project manager left the company at the end of the year.

No end without a proper closing

It was challenging to receive a time slot on the PLEC agenda to formally close the AP program. Finally I got 5 minutes speaking time on November 18th to officially close the program. I presented three slides with the titles: objectives, results, and learnings. In addition I shared an eight-page closing document, summarizing key facts and outcomes of the 2.5-year-long program. The key message was that the AP theme had been brought to life and all objectives were met:

- **Short-term:** Business plans delivered for all three projects
  - Light and Fragrance: NoGo → no fit with general Light-ing strategy
  - Light embedded in Furniture[8]: transferred
  - Flexible Ambience (in shops): transferred, first product launch on Light & Building 2006.
- **Long-term:** Patent portfolio development initiated and executed, process insights shared and embedded in EUDI
- **Sustainability:** Three foundation documents published, more than 1,000 documents distributed; broad communication about new business theme and way of working; more than 1,800 people "touched" in Philips. Thinking in themes provides access to different "pockets of money" in existing and new markets; for example, traditionally energy-efficient homogeneous white light was sold to facility management in shops and elsewhere. In the context of atmosphere creation lighting also started to become a marketing tool in shops, hotels, and other domains, thus creating access to marketing budgets that are often allocated differently to general building costs.

A set of insights and open questions were also captured along the three top management priorities:

- GROWTH: sizeable business potential can be captured through innovation themes that go beyond product level. How are we going to communicate innovation themes rather than product benefits?
- GROWTH: Theme development across BGs or functions circumvents the limitations of single-product thinking and acting. The full business potential of an innovation theme will be exploited only when developing systems beyond components. How are we going to make sure that new potential—carried by innovation themes—will be maximally exploited and idea generation will stay focused within selected theme boundaries?

- TALENT: "imagining the future" and "translating it into actionable opportunities" is a new skill with new terminology. How are we going to attract and value people with these unfamiliar skills? How are we going to build "performing" teams?
- (SENSE &) SIMPLICITY: working in multidisciplinary projects enables quick decision making, as all the necessary perspectives are represented. They also provide the "organizational elasticity" for achieving results in risky and dynamic contexts. How are we going to avoid current mental models and organizational structures killing new potential? How are we going to develop a consistent, integral innovation strategy within an organization that is currently optimized along functional lines?

I sensed that the senior managers were surprised to receive this carefully and graphically attractive reader. Some took a deep breath when they glanced over the first page, where the budget and other resources that went into the AP program were made explicit.

> ***Tips and tricks*** *for sense making (6)*
> *Communication effectiveness can be increased through the translation of one's own thoughts into a message and language that passes decision makers' "urgency and importance filters". Core priorities as set in (management) agendas, balanced business score cards or bonus targets can be seen as such filters. They help professionals to distinguish meaningful from irrelevant data in the rapidly increasing abundance of information. Observations or insights re-phrased in questions can open the "mind space" for collective sense creating dialogs.*

Final surprises

Half a year later, right before my departure from Philips Lighting, someone disclosed that there had been confusions, mixing the EUDI and the AP efforts into one budget. From that perspective it was understandable, that the outcome was experienced as unsatisfactory. Only the AP-closing document had created transparency. All of a sudden all the
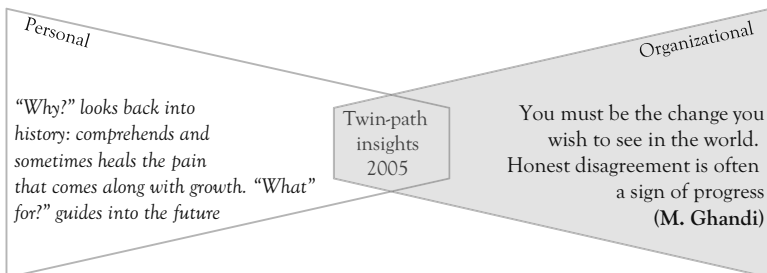
curious expectations, that I had felt and been unable to interpret, made sense to me. I promised to myself to better trust my feelings in future. Proactively and respectfully I would voice them in cases of doubt. However, better late but then never it was acknowledged that we had used our resources sensibly and delivered great results.

The last weeks of the year were characterized by capturing and transferring knowledge, preparing the project moves and looking for new job assignments. Office space was also reallocated and it became clear at the end of October that our team room would in future host two different marketing roles and would therefore be split in due time. To our surprise, shortly after the final PLEC meeting, at the end of November construction workers came into our office and started to build a WALL. We were sitting there and working. Nobody had informed us about the timing. Our request to stop it was dismissed with the comment "this is the only time we have before end of Q1 2006…"

Strange!

First we felt fury and anger. Being a German and having lived in a country with a wall—yet also having witnessed its fall in 1989—this was a very awkward experience! The wall was built in 2 days, making the ending of the AP program inexorably visible. But nobody could stop our passion for our work, our pride in our achievements, and our team loyalty. Realizing that, the fury turned into laughter, the anger provided some extra energy. We continued to work until the end of the year with deep commitment for our common goal.

The spirit of (good) *atmosphere* providing could not be broken or displaced ☺

Personal	Twin-path insights 2005	Organizational
"Why?" looks back into history: comprehends and sometimes heals the pain that comes along with growth. "What" for?" guides into the future		You must be the change you wish to see in the world. Honest disagreement is often a sign of progress **(M. Ghandi)**

In-between times

or beyond (business) Sustainability towards Sustainable Development

What was I going to do next?

Leading radical or disruptive innovation, the last 5 years had been an amazing opportunity for me to enrich my professional skills set and concurrently learn a lot about myself. I had discovered that what made work meaningful for me was the combination of:

- Envisaging on a *long-term* goal and
- Bringing it to life through meaningful *short-term* action, which
- Ensured *sustainable* impact.

I also realized that with the identification and pioneering of AP as an innovation direction we had made a significant contribution to the (economic) sustainability of Philips Lighting. However, the deeper I understood the theme, the more it became clear to me that we were on a path to developing new—aesthetically very appealing—lighting solutions for people who already lived very good lives. In other words, we were busy with creating new wants and desires for affluent people. Of course there is nothing wrong with that and especially the work with the lighting designers strongly resonated with my passion for arts and esthetics.

The search for a new assignment reconnected me to another strong inner voice: The desire to understand what a good life is all about and based on that understanding to help life flourish. How could I use my recent experiences in order to help improve the living conditions of (all) people? How does a corporation like Philips do that? What is the key word or concept that captures this type of work in the business world?

I shared these questions with some colleagues and to my surprise from two sides—Philips Research and Philips Design—I consistently heard the same answer: What you are talking about is *sustainability*. Obviously they had a broader perspective than Philips Lighting management…

I explored the term deeper and discovered:

Sustainable Development

The word "sustainable" emerged in the European forestry in the 17th and 18th century characterizing a form of forest management that would not deplete resources in the long-term, but would instead allow the renewable resources to regenerate, thus ensuring long-term exploitation.

In 1987 the term was combined with the word "development" in the Brundtland report, in this definition: *Sustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development; and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations* (chapter 2, paragraph 15).

CHAPTER 4

Exploring — Corporate Scope Extension

To begin with, let's look at the company structure of Philips in 2006.

Business results were realized in the five business sectors: Lighting, Medical Systems (PMS), Consumer Electronics (CE), Domestic Appliances (DAP), and Semiconductors, which was in the process of becoming the independent company NXP. Philips' mission had been quite stable in recent decades, combining the two angles: improving people's lives and meaningful innovation. The corporation was building its brand promise *sense and simplicity* along its strategic directions: healthcare, lifestyle, and technology.

How was Philips set up to contribute to sustainable development?

In 2006, the chair of the Philips Sustainability Board (SB) was held by the Head of Corporate Purchasing, who was a member of the Philips Board. Thus, the topic of sustainability was discussed regularly by top management with the main focus on risk and reputation covering topics such as compliance to

There were significant concerns being expressed across the global business community about sustainable development issues since the early 1970s.

	The bigger picture: sustainable development and business
1962	Book: *Silent Spring* by Rachel Carson
1970	*Philips participates in the Club of Rome workgroup on guidelines for environmental performance, and in a follow-up the first environmental function is established in 1971*
1972	The Club of Rome publishes *The Limits of Growth*
1973	*Small Is Beautiful* by Ernst Schumacher
1987	The Brundtland commission defines *sustainable development* as *meeting the needs of current generations without compromising the ability of future generations to meet their needs* Philips first global environmental policy

environmental law, health and safety regulations, supply chain auditing, and stakeholder dialogue. The SB brought together PD repre-sentatives, the biggest country organiza-tions, and operations-related corporate functions such as HR, legal, and the reporting arm of Corporate Commu-

	The bigger picture: sustainable development and business
1992	First Rio conference around sustainability and, with the *triple P: planet, people, profit—notion,* business is invited to take co-responsibility for sustainable development
1993	*Philips becomes a member of the World Business Council for Sustainable Development (WBCSD), which was initiated as response of the business community to the first Rio conference in 1992*
1998	*Launch of first corporate 4-year EcoVision program*
2000	Launch of the *UN-Millennium Development Goals*
Since 2002	*First "solution for the poor" experiments in different parts of the Philips innovation community. Examples of product prototypes include woodstove, solar-powered water purification, and off-grid lighting*
2005	The United Nations declares 2005 the International Year of Microcredit

nications. This reflected the positioning of sustainability to drive operational excellence.

The philosophy of embedding was expressed. It meant that "sustain-ability" was under-stood to be a topic relevant for the entire business.

Consequently it was seen as an implicit part of Philips' culture. Since 1998 via the EcoVision programs, explicit corporate sustainability tar-gets were used to improve operational environmental performance. Also some philanthropy projects dealt with societal challenges, from the early 2000s with increasing attention on the "poor" at *bottom of the pyramid* (BoP). A plan to systematically explore sustainable develop-ment as starting point for innovation did *not* exist. Nevertheless, Philips' Chief Technology Officer (CTO)—following his personal conviction—was an associated SB member. He built an important bridge between the corporate sustainability network including the SB, Philips Research, and the broader Philips' in-novation organization.

In different innovation-related organizational units, especially Philips Research, Philips Design, Corporate Strategy, Lighting, and Healthcare, employees used the freedom the Philips culture provided to their staff to suggest an increasing company engagement in sustainabil-ity-related topics such as renewable energy, water purification, and low-cost healthcare solutions.

What did *sustainability* mean at Philips and for the Philips innovation community in particular (Figure 4.1)?
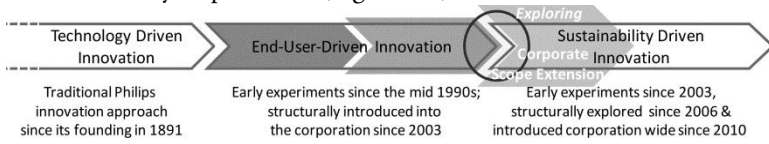

Figure 4.1 Evolution of innovation at Philips (3)

4.1   Trust — Stones and Clarifying the Definition (2006)

or beyond sustainability driving operational excellence to sustainability also driving innovation

The year 2006 was the year that brought climate change (CC) onto the global agenda.

It became clear very quickly that the CTO had quite a broad perspective on sustainability as an innovation driver, far beyond innovating for the poor. For him this was only one, maybe the most challenging angle. During one of the early scope conversations, he raised the following: "If we can't provide environmentally sound and socially relevant products and services here in Europe or the US, where we know our customers, why should we be successful in markets we don't understand?"

2006	The bigger picture…[1]
May	Al Gore's film *An Inconvenient Truth* creates broad public awareness for the CC challenge
July	Launch of Twitter
October	Nicholas Stern's report *The Economics of Climate Change* creates bridge between environmental/scientific and economic community
December	*"Green" Conference in Brussels: Philips Lighting's CEO announces that Philips will start to eliminate incandescent lighting in Europe, the switch over could happen within 10 years*

This meant, the new role was supposed to look into sustainability as innovation driver in its broadest sense: both from the environmental and social perspective and across all existing markets and beyond, thus globally. A key part of the challenge was that there was no precedent for such a role in Philips and so there was no reference or model to learn from.

What trust means to me…

When the word *trust* comes to my mind, I immediately see my little 1-year-old daughter standing on a wall wanting to copy her 2 and a half years older sister to balance on it. She has this winning bright smile expressing unconditional joy

> **Dictionary Definition**
>
> *Trust* is the firm belief in the integrity, ability, effectiveness, or genuineness of someone or something; responsibility for the safety and well-being of someone or something; a number of businesses or enterprises united for commercial advantage.

in life while putting her little hand in my direction wordlessly asking for assistance. I encourage her to try it herself, trust that she is able to do it... and she starts walking.

Why are Trust, Stones, and Clarifying the Definition the essence of my twin-path journey in 2006?

I started to stay in my Aachen office more often, using the time to reflect and take stock. One day—I think it was mid-January—I arrived at the factory parking and the gate was closed. It was freezing cold. Oil barrels filled with wood were burning, providing some warmth to the strikers and creating an atmosphere of resistance. A sizable group of workers had installed a barricade blocking the entrance to the production site that hosted three Philips production units: Automotive Lighting, Halogen Lamp production (the unit where I had my office), and the Display Glass factory, a highly sophisticated glass process unit that used to manufacture large glass screen for big TVs. A few years earlier, Philips had sold the majority of their "display business" to LG and with this also the Aachen production. Now LG had decided to close the Aachen production in order to reduce the overcapacity that was emerging in the more and more saturated standard TV market, and responding to the increasing takeoff of flat screen TV technologies. The display employees were furious. They, in previous years, agreed to considerable reductions in wages and social benefits in order to stay highly profitable and protect their jobs. Yet this was a strategic decision. It did not have anything to do with the economic performance of the production site. What did that mean for our future as a community in a middle-sized

town such as Aachen, as a society? Would my children be able to earn their money in the country in which they were born? Will they be able to build a family in a stable environment or will their future be to become work-nomads, following work to wherever it might be?

The blockage went on for more than a week. And it was a very powerful argument to negotiate with the Philips Corporation. Why? As mentioned already, the factory site hosted production lines for three different Philips business units. One of them was the Xenon Light production, a part of Automotive Lighting with some Japanese car manufacturers as main customers. What was so special about Japanese car manufacturers? Toyota had invented the principle of "lean production" in the 1990s and implemented it consistently across their entire supply chain.

One of the consequences for a second tier supplier such as Automotive Lighting in Aachen was the necessity to organize "just in time" delivery., This meant that there should be a continuous flow of light sources to the Japanese car manufacturing sites, so that the cost and space of holding stocks at the customer's site were minimized. Even the rumor of a potential disturbance of this well-aligned logistical chain would have caused the Asian customer to change supplier. Of course Philips did not want to run the risk of losing a strategically important client. The strikers knew that and they "negotiated" heavily about every truck with Automotive headlamps that wanted to leave the factory site was and also every truck supplying for raw material into the site. I realized the seriousness of the crisis for Philips participating in the almost daily "morning updates" in the canteen. All of a sudden I had the impression of starting to understand what globalization really means: a massive -normally invisible - net spun between nations, industry sectors, and firms, connecting the lives and fortunes of people without them knowing it and which in ordinary everyday they cannot influence. It became clear to me how unstable this situation was. I saw what Chaos Theory's "Butterfly Effect"[2] means in practical life: A group of people blocking a factory gate with a hand full of oil barrels in Aachen can put the car production in Japan on hold.

That was scary!

What type of world are we living in? What does that mean for what I'm going to do next? Where can I make a meaningful contribution leveraging my experience? What was it that the previous years had qualified me for?

At the same time I felt very tired. All the "absorbed" pressures of recent months started to surface, all the swallowed, not yet handled emotions came back asking for attention, appreciation, and conscious letting go. And the expectation to find a new assignment—thus leaving the marketing department and giving some space to its budget—grew day by day.

A senior manager of Philips Research had offered me a group manager role shortly before Christmas, which I was still thinking about. I could have worked on new technology to enable dynamic lighting, creating nice atmospheres in different spaces. It would have been an obvious move leveraging my passion for aesthetics and beauty and all the work the Atmosphere Provider (AP) group had done during the last 3 years. However, this somehow did not feel right. I could not express why. It would have meant to produce new technologically advanced nice things to serve currently not existing needs and desires of people—like me—who already have very high living standards. Was this a way to use my scarce resources: lifetime and personal energy? Was this a way to take responsibility for creating a good future for my kids? Was that my purpose of life?

No!
And what else?

The oil-barrel blockade made it clear to me. I wanted to find a way to help keep good, rewarding work.[3] I wanted to work on meaningful products that can be repaired and run on minimal energy. I wanted to work on finding ways to enable a good life with less and good lives for all. It became clear to me that I wanted to work on SUSTAINABILITY. I called my mentor at Philips Research and shared my thoughts. A few weeks later he had connected me to the Philips' CTO with whom I had a deep and serious conversation. One more meeting and ... I left with the assignment *to explore and embed sustainability as innovation driver for Philips, starting at Philips Research.*

I was happy and confused and anxious. Parts of me were doubtful as well. Wasn't this an as risky task as leading the AP group and bringing the first end-user-driven innovation (EUDI) theme to life—probably even more dangerous? Could I trust senior management? Could I trust Philips?

I decided to do so, and swore myself to be more alert and, if required, more tactical in dealing with politics.

A new beginning

My new role started on April 1st. It was clear from the very beginning that this was a massive job: one that had a long-term scope, probably asking for some significant shifts in the decision making about innovation directions, the design of the innovation process, and key performance indicators (KPIs) across the entire company. It was an assignment to stimulate a fundamental organizational transformation, though it was not officially and explicitly expressed as such.

During my introduction round, a colleague from the Research Communications department challenged me, not to waste any time and to use the upcoming Corporate Research Exhibition (CRE) in early May to position the new innovation driver. I was not sure about that. I did not know a lot about sustainable development yet. I had moved into an environment where a "critical mind" was part of the profession. How could I make a credible contribution in such context? I shared my doubts. A few days later we met again coincidentally inthe car park. "You do not need to have any answers at this moment of time," he said. "You could offer a space to explore: Invite colleagues from all over Philips to share their insights in sustainability and ask what they would like to see happening. Use it as way to uncover 'end-user needs' with your colleagues being the end-users..."

This suggestion eased my mind and by engaging the existing Philips Research sustainability network within less than 6 weeks a first half-day "sustainable innovation" workshop was organized. Despite the short notice, it attracted more than 40 participants. (Interestingly more than 50 percent of them were women. This is quite remarkable for an organization in which the employee base was highly male dominated.)

One week later, during my first review meeting with the Research Management Team (RMT), I received encouraging feedback. Before the word was handed to me, the chairman expressed his appreciation for the fact that the theme "sustainability driving innovation" had already been launched leveraging the CRE. Trust in my colleague's intuition had paid out well.

I had a personal agenda with my new assignment: still memorizing the building of the wall, seeing the sad eyes of the strikers in Aachen, and having their furious words in my ears, I was passionate to "bring back soul to the workplace." I also wanted the new innovation driver to stick, to become a shared responsibility from the very beginning. I therefore decided to use my first review meeting somewhat unconventionally...

The stone(s)

In the mid of May 2006 "sustainability" was the first agenda point of the RMT meeting. During this meeting the journey really started. Following both the corporate requirements and my personal agenda I designed it holistically.

- In a first step, the "establishment (the birth) of the new role" was acknowledged by handing out small stones with the words: *respect*, *commitment*, and *dialog* to the three managers who had made this happen, the "midwifes" of the new role. It was interesting to witness, how the three stone holders felt acknowledged. Beyond my expectations the small symbols allowed to build emotional connections both with respect to the personal relationships between them and me and the new innovation driver sustainable development. This represented the dimension "soul/heart".
- Then I shared the results of the current state analysis and introduced a work plan for the second half of 2006 via posters on the wall. The CRE event had helped a lot to create an overview about the broad variety of scattered and fragmented activities that waited to be consolidated into an impactful and aligned program. RMT members were

encouraged to leave their seats and come together in order to share the information. While at the beginning they stayed distant from each other, with the progressing conversation they moved closer, finally building a circle shoulder to shoulder with me and the poster in the center. Leveraging my experiences with the CDL group managers five years earlier, I made them aware of this group-behavior… This part of the session represented the "mind."

- In a third step, I expressed to everybody an invitation to join the "sustainable innovation journey." On the table, I put a large stone with the word sustainability written on one side and the Brundtland definition on the other to capture the nature of the challenge (Figure 4.2 photo 1 and 2). The managers were asked to turn this big stone upside down with currently available tools such as screwdrivers, forks, spoons, and pens. This was meant to make them experience that the assignment to explore sustainable development as innovation driver required shared leadership. Awareness for the level of newness - thus risk - related to the theme was created; in other words: a sense was given that we were together on this exploration journey.

Finally, every RMT member was invited to take an individual small stone with his or her personal contribution to the journey expressed in words such as *balance*, *focus*, and *togetherness* (Figure 4.2 photo 3) This represented the "body."
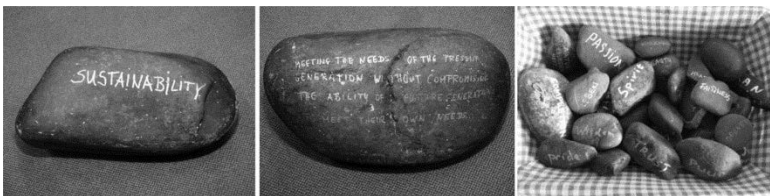
Figure 4.2 Stones as symbol for sustainability driving a long-term shared innovation and leadership journey

Many hundred stones were handed out in the coming years. The big "sustainability stone" was located in my office. It traveled to all major events

in the Eindhoven region in coming years and was brought to overseas meetings in form of a photo accompanied by little personal stones. Both together were powerful tools for community building. People felt proud to be "stone holders," and they inspired and facilitated many dialogues about the often unspoken emotional and cultural side of change and innovation. My first stone carried the word *trust*.

> ***Tips and tricks*** *for sense making (7)*
>
> *In cases when the new topic is an abstract concept in an open system, it is useful to make it tangible; to "materialize it" and locate it. Such a symbol should credibly "transport" two different meanings: a cultural or collective aspect of the new theme (here: stones are an intuitively understood globally accepted symbol for longevity) and a bridge to personal values or experiences creating an emotional connection (here: the words written on the stones).*

The green-washing dilemma

Numerous conversations with colleagues had revealed widespread cynicisms and doubts about the top management's seriousness regarding innovation in service of sustainable development in the R&D community. The word green-washing was often used; the desire to do something real often expressed, yet immediately judged to be idealistic and unrealistic. Why?

Modern quality management along with environmental, labor, and customer protection legislation has educated most western companies to implement sustainability-related business instruments such as product life cycle assessment procedures, ethics commissions, and health and safety standards. Because of increasing energy and material cost, incremental innovation projects often aim to optimize energy and resource efficiency, thus creating a double-financial, and environmental-win. Sometimes these types of innovations are "retro-fit" and taken as concrete examples to explain sustainable innovation or resulting products are communicated as "green products." This happens since most people need something "tangible" to understand and believe in an abstract concept such as sustainable innovation. On the other hand, many sustainability-conscious employees and external stakeholders are skeptical

when small incremental changes are communicated as contribution to sustainable development. They see it as "green-washing" normal business practice. An important role of innovation and sustainability management is to balance the deeply conflicting needs of the "sustainability newcomers," for whom the topic is new and needs a lot of concrete explanation and time to grow into the topic, and those of the sustainability conscious who often demand radical changes immediately and push for speed of implementation. It can be very useful to ask the second group to come up with creative ideas to speed up the growing learning process of the first.

Many R&D employees belong to the second group. For them, meaningful innovation truly serving people had originally been a reason to join Philips and Research specifically. Unfortunately, they increasingly felt that the only purpose of business was to maximize profits and serve shareholder needs. What giant of "intrinsic motivation" was sleeping there? It was waiting to be woken up and come into play...

Revealing key challenges

My assignment was global and I was expected to suggest how to structurally embrace the needs of the "poor," especially in the so-called emerging economies or BRIC countries. After visiting Bangalore in South India, Shanghai, and Boston within a few months it became clear to me: There is not *the* sustainability challenge that calls for a standardized solution. Proper understanding of both geographical and cultural context would be the starting point for meaningful innovation leading to sustainable development, thus truly serving the people while at the same time maintaining our supporting ecosystem: the planet earth. It also became clear to me that sustainability does not have anything to do with the survival of the planet itself, rather to humanity's survival as a species on it. And the survival of mankind depends on the world-view we have and further develop in relation to our fellow men, other species, the earth as a whole; it depends on the way we acknowledge and apply the "laws" of nature and life. Thus, it's by far and foremost a human culture question of wisdom beyond knowledge, attitude prior to action, value next to cost.

I consolidated my experiences in a set of attention points for the work ahead:

1. **Disruptive innovation will be required, especially leveraging digital technologies to develop new business models:** Using both the social and the environmental lens of the sustainability "glasses" towards innovation very quickly demands service business models, scope extensions into new geographic areas with limited market infrastructure, unknown user needs, and usage behavior. Incremental product improvement, traditional product diversification, or line extension could be a good starting point, but would not be a pathway to success.

2. **Beyond EUDI, sustainability introduces new levels of ambiguity and complexity:** There were as many definitions of what sustainability meant for business as people I asked. There was not *the one* "sustainability challenge." Instead many interconnected global and local different problems were mentioned: CC, water, hazardous materials, poverty, unfair work conditions, access to health and education, and so on. It became very clear to me: There will not be the one, highly appreciated standardized solution but a demand for fundamental context relevant system innovations. The essence here is not *simplicity*. It's all about making *sense*.

3. **Dealing with emotions and shifting perceptions would be a prerequisite for any meaningful action:** Especially in the innovation community I was confronted with considerable skepticism about senior management's honesty and seriousness with respect to innovating for sustainable development. The assumption "this is only green-washing" was widely expressed.

4. **A common language might be a core enabler to developing a broad common view about the threats and translating them into business opportunities:** Sustainability was mostly seen as equal to *green/environmental,* often linked to operational efficiency increases through decreased energy or material use. The social dimension was rarely on the radar; at best it was associated with *solutions for the poor.* Next to this the most used words (e.g., crises, inconvenient

truth, challenge) have "negative connotations" presenting a "doom and gloom scenario" with little hope. It was accompanied by blame and guilt assignments putting key players on the defensive.

Sensing a way forward

Realizing all this, I felt quite intimidated. Fortunately I did not have too much time to think. Many unexpected doors had opened in recent years on the TTLF and AP journey. I sent my doubts to the desert and proceeded with the work. I announced I would organize a "strategy workshop" mid-December to align the broad variety of sustainability activities executed in all the different Philips businesses and staff functions. Comparable to the "Future Landscape" workshop of TTLF (see Section 2.3 in Chapter 2) the idea was to bring together all the different corporate and business functions who worked on sustainability, share the broad variety of different starting points and activities, and define a common goal for the coming year.

Many conversations during my first months in the new assignments had initially left me with quite some confusion. Little of what I had heard had anything to do with innovation. Colleagues had talked about health and safety regulations for employees and fighting child labor in the entire supply chain. I learned that Philips established worker's councils in its Asian sites, partly in opposition to the employees' desire. This was necessary to meet the public attacks of "shark NGOs" such as Greenpeace. On the environmental perspective, actions happened around minimizing the use of hazardous materials, decreased use of water, energy, and paper, introduction of an eco-design process, and so forth.

I was deeply happy when I found the sustainable value framework in Stuart Hart's book *Capitalism at the Cross-Roads*. A time line (today–tomorrow) was mapped against the context of action (internal–external), thus opening a strategic framework with four quadrants. The first graph of Figure 4.3 introduces a framework for sustainable development value creation inspired by Hart's thinking. Embracing my personal experiences I adjusted the descriptors of the quadrants.
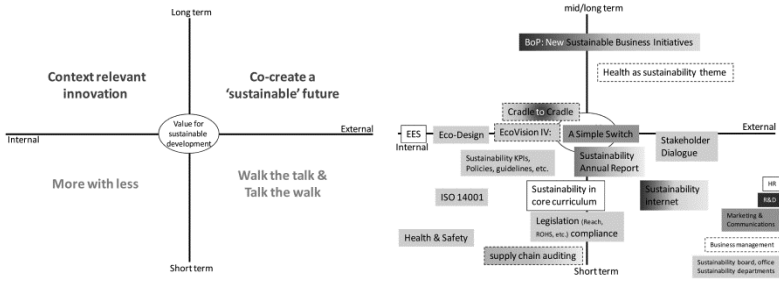
Figure 4.3 Value for sustainable development framework inspired by S. Hart

I used this framework to map all the different activities at Philips and it became very clear: 95 percent of the running activities had to do with operational excellence, with responsible production and distribution of products Figure 4.3 second graph).[4]

The bridge between sustainable development and innovation had not really been built yet. Innovation had been mainly technology driven. Traditionally it was hardly ever considered upfront, which social and environmental impact a new technology might have (Figure 4.4).

Only a few years ago, Philips had started to structurally embrace end-user needs as a starting point for innovation. I realized: embedding sustainability as innovation driver would require a significant broadening of the end-user approach. Two additional categories of needs were to be served: social/societal needs and environmental needs/planetary boundaries.
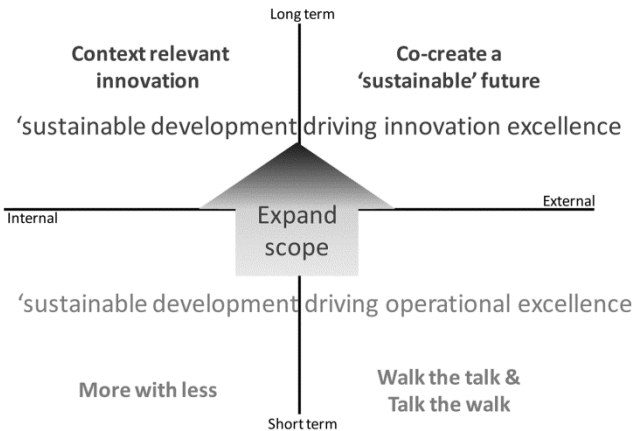
Figure 4.4 Scope extension visualized

Was it realistic to expand Philips' deep cultural transformation through two more dimensions at this stage of deployment? Which were possible leverage points?

The AP program had been one of the core activities to pioneering EUDI at Philips Lighting. Other business units had chosen other approaches to explore it. The still young corporate marketing function was consolidating all these activities into a corporate change program and was about to start the global rollout of this new way of working.

Working on Create and Build Atmosphere had taught me how to translate an abstract concept, such as Philips' new brand positioning "sense and simplicity" into a language that can be understood by R&D. I had shown that a whole "ladder" of translation steps is required to make sense out of an abstract concept such as AP or a corporate "buzz term" such as "EUDI." Respectful open dialog is required to perform this translation work consistently. I was not conscious about that in 2006. The ability to describe it in words—as done in this text—grew much later, in recent years only. What made me proceed was an intuition for the way forward…

A first step or from "either…or" to "…and…"

It was clear to me that a "bridge" between the R(&D) and the Philips sustainability community was to be built. Feeling the different community characteristics reminded me of the cultural clashes between Philips Research, Design, and Lighting at the start of the TTLF project, when all three units claimed: We are the most *creative* of the corporation. In that project, mutual respect grew through working together, discovering each other's complementarities and so growing beyond competition. I shared this experience with both the head of the Corporate Sustainability Office and my boss at Philips Research and all concluded that a "sustainability strategy workshop" would provide space and open the opportunity to bring the innovation and the sustainability community together, align terminology, and set a common goal.

Sustainability had not been a "sexy" topic. It was mostly associated with "boring" data collection required to validate compliance to environmental law and regulation and filling in checklists for ISO 14000 and

other extended quality metrics. In consequence, most people engaged with the topic were highly intrinsically motivated. They felt privileged to finally be on the radar of some senior management, having the opportunity to share their experiences and voice their concerns and ideas.

Right before the end-of-year break 2006, the workshop was held. A facilitator team guided some 80 colleagues from a broad variety of sustainability, corporate, and business-specific innovation departments through the two and a halfday event that was set up to:

- Get to know each other, the different and common goals, perspectives, ways of working;
- Develop a shared understanding of "sustainability as innovation driver";
- Discuss the three Philips sustainability focus areas: energy, access to care, and education for both developed and developing markets. The theme discussions were enriched by external experts bringing in NGO views and firsthand experience, especially about the needs and context situations of the poor; and
- Derive starting points for a common sustainable innovation agenda.

Two members of the Philips Board 2006, the head of the SB and the CTO, emphasized during the opening the importance of the topic for Philips' future business success. This was an important sign of the relevance of the event and the corporation's seriousness about the theme. At the end of the meeting it was concluded that Philips wanted to live the example of and be recognized as an "sustainable entrepreneur." The starting point for all its sustainability activities was rooted in the 1987 published UN-Brundtland report:

> *Sustainability* is defined as *meeting the needs of the present generation, without compromising the ability of future generations to meet their needs.*
>
> *Sustainable development*—which is considered the path to Sustainability—is the *simultaneous pursuit of economic prosperity, environmental quality, and social equity. Companies that pursue this path are known as sustainable entrepreneurs.*

In addition to this, it was decided that a Sustainable Innovation Day would be organized in May 2007, inviting key sustainability stakeholders to the annual research fair CRE.

Next Besides working on "strategy" also putting attention on "organizational culture"

The workshop was designed "holistically," putting special attention on beginning to liberate the "sleeping giant" of the participants' intrinsic motivations and give space for emotions of all kinds to emerge and be worked with. For example, on the first day, a world café[5] dialog was organized to engage in a deep dialog about the opening statements from the heads of the CTO and SB.

The second day was closed with a drum-jam-session: the "sound of sustainability." Can you imagine the energy that flows when more than 80 workshop participants express an aligned rhythm with a broad, well-orchestrated variety of percussion instruments? Can you imagine the joy that emerges, the feeling of security to be part of this co-creation group, the sense of connectedness?

As a result of this, on the final day many (partly invisible) department boundaries had fallen and colleagues met just as fellow humans caring for their children's future and wanting to use the "space" their professional role and expertise offered, to contribute to a better world. I felt them start to share my dream: everybody in his or her own way.

The workshop was concluded through collectively building a wish tree. We wrote our deepest sustainability desire on a white 5 x 80 cm^2 cloth, which then was fixed to a big birch branch. Can you imagine: 80 corporate professionals—at least half of them technology experts—scribbling down their wishes and then moving to the ground to fix them.

My confidence in the possibility of success for this outrageous adventure grew.

Main Transition Step in 2006: The organization moved from contradiction and conflict expressed by an "either...or" logic: it's either sustainable or financially sound; to "peaceful coexistence" expressed in an "as well...as" logic: there is innovation potential that can be both financially attractive and supporting sustainable development.
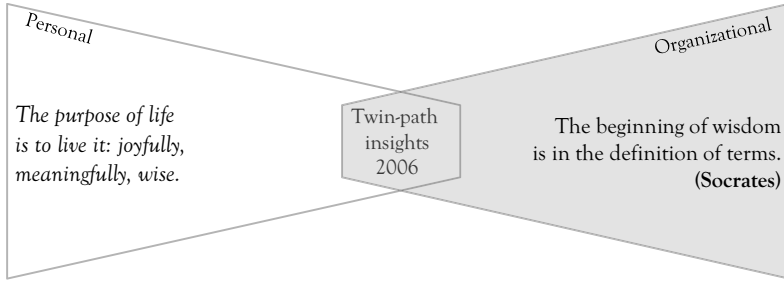
4.2   Respect — Expanding the Scope (2007)

or beyond fragmented activities towards an aligned, self-reinforcing movement

The year 2007 was the year in which global society responded to the CC challenge.

Over Christmas the wish tree stayed in Aachen, waiting to find its final destination. When coming back to work in early January, especially the head of the Corporate Sustainability Office (CSO) was still very enthusiastic about the workshop and its atmosphere and results. For over 15 years already he had nurtured the development of sustainability think-

2007	The bigger picture…
Summer	*Globally growing awareness for climate change, for example, by Live Earth 24-hour concerts in nine major cities; Launch of A Simple Switch website; sponsoring Live Earth concerts*
April 30 to June 2	Serious game: "world without oil" sketches out the overarching conditions of a realistic oil shock; then calls upon players to imagine and document their lives under those conditions.
May	*First Philips Sustainable Innovation Day*
June 29	Launch 1st generation I-Phone accelerating the smart phone diffusion and new ways of communication
September	*Launch of Vision 2010 and EcoVision 4 program*
	First indications of the global economic crisis, for example, global stock markets plummet after China and Europe release less-than-expected growth reports

ing and acting. He gave me some deeper insights into the history and current challenges of sustainability at Philips. He did not have a professional background in innovation, but deeply believed that in the next step the SB needed to structurally engage in corporate strategy and innovation.

What respect means to me…

When the word *respect* comes to my mind I sense the strange, almost paradoxical combination of emotional distance and closeness. I feel a deep admiration for someone's achievement, behavior, the attitude he or she shows through communication and action, and the beauty or otherness of some-

> **Dictionary Definition**
>
> *Respect* is a feeling of admiring someone or something that is good, valuable, important, etc.; a feeling or understanding that someone or something is important, serious, etc., and should be treated in an appropriate way; a relation or reference to a particular thing or situation; an act of giving particular consideration

thing. This is creating distance. At the same time—witnessing a deep personal desire—to be able to follow the lived example creates an amazing closeness, almost an intimacy that is hardly to express, and often a sense of future action not yet explicit enough to be revealed at the very moment when it appears.

Why are respect and expanding the scope the essence
of my twin-path journey in 2007?

One SB specialty was its "integral perspective". All Product Divisions were represented and also all functions (legal, HR, R&D, quality, procurement, marketing, etc.). This was unique. It offered the amazing possibility to align activities and spread news coherently if translated well towards the different functions via realistic, department relevant goals and KPIs. This way of working was called the "philosophy of embedding". A general corporate sustainability goal was set, translated into meaningful actions per function level, and implemented through a well-aligned, constantly growing network of practitioners on the ground, who hierarchically reported to their department heads. Often unconsciously having similar motivations and struggling with comparable resource and recognition limitations, the sustainability community had developed quite an amazing co-creation culture that was loosely facilitated by the CSO through monthly alignment calls and an "open door practice."[6]

I was impressed. Initially I did not fully grasp how powerful this approach was in terms of leading change. It was not built on hierarchical power. The CSO was a very small team, with limited status—playing sort of an underdog role—but it had an amazing influence. And the SB chair—whose main assignment was to manage corporate procurement—was truly passionate about sustainable development and wanted to bring it to the next level in Philips.

I recalled that I had heard all that before in my introductory conversations. Honestly, six months earlier, I just caught words. I did not realize what they meant. Having experienced the strategy workshop and given—through the holiday season—"time for sinking in and reflection," it became very clear to me that the wish tree, this metaphor of our shared ambition, should be with the CSO, or even more symbolically with the SB chair.

I went back to the head of the CSO, shared my thoughts and some concerns. The SB chair had not participated in the wish-tree ritual. She had been present at the opening of the workshop, helping to set the stage. She was a tough manager with the reputation for being very strict and rational. Would I lose my credibility if I brought something "soft" such as a wish tree? Would she still take me seriously?

However, not asking is a NO right from the start. To my pleasant surprise, the idea of putting the wish tree in the SB room was well received. When I brought it there I had the opportunity to share the "story of the stones at Philips Research" with the two senior managers. They liked it and an amazing exchange about the power of emotions, stories, and symbols emerged. "Sustainability is the pathway to *sense*, giving direction to *simplicity*." This is how we could anchor it one of them said. That was exciting. I had thought that as well. It was wonderful to hear these words voiced by a key decision maker. A few days later they got their stones and the "sustainability stone holder circle" grew.

Authenticity and credibility: Where does that come from?

At the same time I discovered something very interesting. In the R&D community, I was trustworthy because of my PhD in Physics (I was one of them) and because of the new business creation work I had done

pioneering AP. In the sustainability community, my credibility was related to my factory work in the early years of employment, thus my colleagues' assumption that I knew how to get things done in "real life."

I also learned that respect can be expressed by the language that is used and the openness to engage in a dialog.[7] Therefore, I consciously started to pay increased attention on living the six dialog skills, *listening*, *observing*, *holding*, *voicing*, *releasing*, and *suspending*, which had been introduced to the AP core team by an external team coach a few years ago. In a consequence, my sensitivity towards language grew significantly, both in word and metaphor choice and finding the right tone.

Expanding the external sustainability stakeholder network

The "Sustainable Innovation Day" already envisaged in the sustainability strategy workshop was a next step to expand the corporate sustainability agenda into the area of innovation excellence. It took place in late spring 2007 as part of the CRE. Sixteen different sustainability stakeholders representing NGOs, for example, the Red Cross, Plan International, International Union for Nature Conservation (IUCN), Terre des Hommes, political institutions such as the European Commission and the Dutch Ministry of Foreign Affairs, foundations such as Light up The World or others such as the Global Reporting Initiative (GRI), SAM (an organization setting the standards for the Dow Jones Sustainability Index), KPMG, and the World Business Council for Sustainable Development (WBCSD) visited the High Tech Campus in Eindhoven to share perspectives on innovation for sustainable development. The main discussion and the visits to carefully chosen prototypes focused on the two Philips sustainability themes: *energy* and *affordable healthcare for all*.

Preparing the event I just had learned that sustainability reporting serves a double role: creating transparency about the firm's environmental and social goals and performance to the external world and creating a pull mechanism for change towards sustainability-related action internally. Therefore, it was a big surprise for me to discover that neither organizations setting the reporting standards (like the GRI) nor those selecting "best in industry" sustainable entrepreneurs (like SAM) had yet thought

about setting *leading*[i] performance indicators stimulating corporations to invest in disruptive or transformational sustainability-driven innovation. There was limited—if any—understanding about the nature of innovation in the sustainability (stakeholder) community. However, the thinking process around such an external "pull" effect was initiated at this event.

Dealing with implicit assumptions

I realized, the opposite was true for me. Being an experienced innovation practitioner, I was quite immature in terms of sustainability expertise. Therefore, I started to look for sustainable innovation education. There was hardly anything available. I finally found LEAD International[8] and became a lead fellow in 2007. The training was split in 4 workshop weeks that took place in three different countries in Europe and a concluding international session in Indonesia. This session offered an amazing learning opportunity to me.

Until now it is the only time of my life I found myself in a group of people sort of representing the world population with a little less than 20 percent of the participants coming from the "rich North" (Europe, North America, Japan) and 80 percent of the participants coming from the "emerging and poor South." Building up over a few days I sensed a strange undercurrent of being the "double bad guy": coming from the North and representing big business. I felt envy, assignments of blame and strange, unrealistic expectations towards taking responsibility and problem solving. Strangely enough these prejudices were not explicitly expressed. When I raised them a few days before the end of the session, the well-known dynamic of change occurred: first denial, then openness to face the challenge then fear about which first step to take, and then openness to start to go.... Fortunately, we had enough time and emotional safety among the participants that some crucial conversations could happen. We could agree that often conversation between the "North and the South" starts with describing the bright side of the north (e.g., fancy, materially rich lifestyle with a lot of parties and happy

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[i] In reporting lagging and leading indicators are distinguished; see glossary.

families) and dark side of the south (e.g., economic poverty, starving children, corruption, environmental degradation). Then an enormous gap between the two parts of the world becomes visible.

What if we would also talk about the dark side of the north (lonely and abandoned elderly, futureless or addicted youth, broken families) and the bright side of the south (still existing solidarity, eagerness to learn, nature consciousness)? Wouldn't then the gap be bridgeable? What if we would start to truthfully respect each other? We might be able to learn from or even help each other... ☺

Beyond scattered action towards corporate-wide aligned sustainability goals

Responding to the global climate change debate and in a direct follow-up to both the sustainability strategy workshop and the Sustainable Innovation Day, a significant scope extension of the corporate sustainability agenda was announced with the launch of the EcoVision 4 program and Vision 2010 in September 2007 (Table 4.1).

Table 4.1 EcoVision 4 and Vision 2010

EcoVision 4: Targets for 2012	Vision 2010: Outlined in four Key Priorities
Double total revenues from green products to 30%	Build a portfolio of businesses that stands to grow on the back of key global trends
Double investment in green innovation to EUR 1 billion cumulative	Simplify Philips to optimally tap into market opportunities
Improve our operational energy efficiency by 25% and reduce CO_2 emissions by 25%	Continue to invest where it matters to fuel the future
	Lower our costs structurally and increase profitability

Doubling the revenues of green products to 30 percent was not yet a step towards "sustainability-driven growth" providing extra income to the company, yet an important top-line goal and a major step in "mainstreaming" the sustainability agenda into the organization. It was all about "truly greening" the product portfolio. EcoDesign played an important role in this effort.

For the first time in Philips history, an explicit corporate target on "green innovation" was set. It was not yet demanding disruptive innovation monitored through a "leading KPI", but it clearly communicated the SB's commitment to expand the corporate sustainability agenda. The target needed to be translated into a one-Philips consistent metric to enable audit-proof progress monitoring and reporting. Building on the green key focal areas—energy efficiency, packaging, hazardous substances, weight, recycling and disposal, and lifetime reliability—that had been used to qualify green products since 2004, a green innovation qualification system was developed and calibrated in cooperation with KPMG, the organization that also validates the Philips sustainability reporting.

The third target on operational energy efficiency and CO_2 emissions was inspired by *The Stern Review of the Economics of Climate Change.* There different CO_2 reduction paths sufficient to stabilize the climate are introduced. To stabilize atmospheric CO_2 levels at 450 ppm, according to Stern, we need to reduce emissions of CO_2 equivalents by roughly two-thirds by 2030. This requires every individual, industry, and machine to reduce energy consumption by more than 60 percent from current (2007) levels. Hence, a target of 25 percent by 2012 was a necessary - yet only first step - on that pathway.

Philips reached this goal in 2012 following the "Carbon Cost Curve approach" of the Carbon Disclosure project. This was recognized through multiple awards and prizes. It was an aligned and common effort of all operational excellence functions: procurement, logistics, manufacturing, HR, site management, and so forth.

Expanding the Philips sustainability community

During the year several regular annual meetings were leveraged to build the bridge between the sustainability and the innovation community. Some multidisciplinary innovation teams were further strengthened by sustainability experts. In the business sectors, other functions such as marketing, product and business development, and market research started to get involved in the sustainability activities. For example, Philips Lighting expanded its PD Sustainability Board with representatives from

development and marketing and the CTO of Philips was nominated to be a regular member of the corporate SB. I became a member of the global and multifunctional sustainability network that—facilitated through the CSO—worked together informally

- to collect and align issues and ideas that were used as "bottom-up" information for the corporate sustainability action plan;
- to monitor its implementation; and
- to effectively—quickly and consistently—diffuse information.

The EcoVision 4 program in particular was a credible reason to establish a "Research sustainability champion network." Both the sustainability strategy workshop and the CRE Sustainable Innovation Day had increased expectations of "tangible action" in the sustainability community. Also new innovation directions inspiring fresh ideas for the research program planning in the innovation community were desired. It was impossible to meet these expectations as a "solo-player." I had addressed the increasing "expectation-resource gap" in several bilateral conversations with my boss already. He had acknowledged my observation. The "green innovation target" asked for implementation and this was a credible argument for an expansion of an organizational structure—my role—that had only been established a year ago and had not yet delivered new research topics.

The truck-jungle metaphor came back into my mind. Was I confronted with the same phenomenon, yet just on another abstraction level? Could it be that a "research topic" for the Philips Research was comparable to what a "tangible product: a light source" was for Philips Lighting?

The champions' network was as unique for Research as the already existing sustainability network was for Philips. It was a "one Research" working group. All technology areas and all geographical sites were represented. For me, it formed an urgently needed platform: colleagues translating sustainability-related concepts, targets, and insights into Research group–specific language and identifying existing concrete activities that, though not initiated as such, already contributed to EcoVision 4 program. For example, many healthcare projects were highly relevant in terms of

social sustainability, having the potential to help decrease the healthcare system cost, thus meeting a social system challenge in almost all developed economies. Also a lot of technology development could be beneficial enabling energy efficient solutions, thus directly responding to the global CC challenge.

Again skepticism and "green-washing blame" emerged. I gave it space and reflected it back, consciously working on a participatory, diversity-embracing conflict culture in the network. All champions became "stone holders" during the kickoff meeting.

> ***Tips and tricks*** *for sense making (8)*
> *People are not resistant to change but to being changed, so if fundamental change is required an important first step is the creation of a bridge into the personal life, the creation of personal relevance and the possibility to act. A network of change champions can help to find the appropriate language and examples to create this relevance and suggest meaningful action.*

Sustainable development is more than "green"
or the icebreaker sheet

The positive atmosphere and inspiring feedback of the first Sustainable Innovation Day had significantly strengthened the commitment to embed sustainability deeply in innovation activities within Philips. Consequently, there was a need for a clear and actionable sustainable innovation strategy and supporting corporate program. Although in September 2007 the EcoVision IV program had set a corporate target on green innovation, it was clear to the SB members that a broader perspective on sustainable innovation was required. The social dimension was to be embraced explicitly.

In parallel at Philips Research—especially in the champions group—intensive desk research took place on global sustainability trends and related innovation opportunities. A deeper understanding of notions such as *green innovation* and *clean tech, social innovation* and *human well-being* was developed. The complexity of the findings quickly became overwhelming.
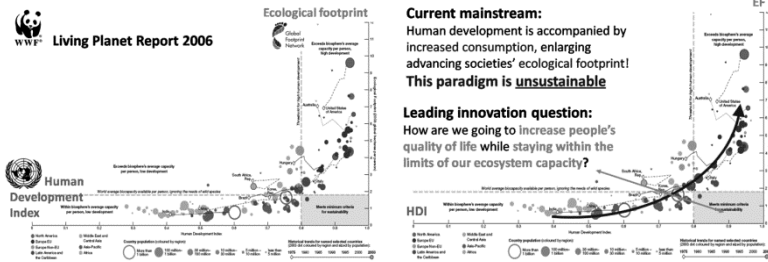
Figure 4.5 Icebreaker or "L-sheet" including current "progress" logic

This changed when we found the "Icebreaker" diagram in the WWF Living Planet report 2006[9] (Figure 4.5 first graph).

WWF had mapped each Nation's Human Development Index (HDI)—a metric characterizing the development level of an average citizen via life expectancy, education level, and purchasing power—against their environmental footprint (EF)[10]—capturing the average resource consumption of renewable material and the local environment's capacity to reabsorb waste.

This visual is a very powerful communication tool, as it offers a way to describe the global sustainability dilemma along both the environmental and social axis in just one sheet. I used it to visualize the mainstream economic progress logic (dark curved arrow in Figure 4.5 second graph). It is characterized through the direct correlation between an increasing HDI and the concurrently increasing environmental footprint. I used it to makes clear that there is not the one solution that fits all, and that context relevance will be a key success factor. At Philips it became known as the "L-sheet" ore "icebreaker sheet". In the coming years, it catalyzed many amazing conversations enabling consistent communication across all geographies, functions, and hierarchical levels of the entire organization.

> *Main Transition Step in 2007: The organization moved from "peaceful coexistence to alignment" of economic business goals and ecological goals. The EcoVision 4 program set clear boundary conditions embracing the global Climate Change, hot debate of 2006/2007, and defining the desired solution space for Philips offerings.*

Personal

Anticipation is the little sister of intuition. Both together invite us to imagine the world anew.

Twin-path insights 2007

Organizational

If you want to move fast, move alone. If you want to move far, move together **(African Saying)**
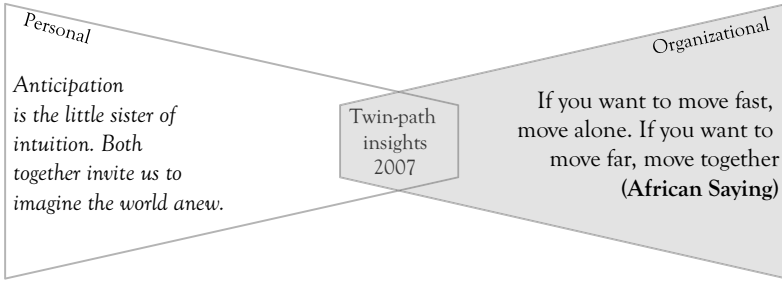
4.3   Response-Ability — Developing a Perspective (2008)

or next to focus on the environment also embracing the social dimension

In September 2008, the bankruptcy of Lehmann Brothers was leading to a massive economic turmoil in the coming months...

The "L-sheet" helped to talk about the "big picture" and fundamental pattern for "unsustainability" without getting lost in the amazing complexity of detail. Tough, controversial, multi-disciplinary, cross-business conversations—inspired by this graph—started to sharpen the thinking that increasingly formed the basis for the overall Philips ap-

2008	The bigger picture…
June	*Philips signs partnership contract with IUCN incl. Green Lighting pilot at IUCN headquarters, at that time the most energy efficient building in the world*
August	Olympics in Beijing
September	*CEO of Philips Lighting appointed to be Chair of the Corporate Sustainability Board*
September 15	U.S./global financial crises became widely visible with the Lehman Brothers bankruptcy. A broad variety of media started to talk about "Casino-Capitalism"
October	IUCN conference in Barcelona
December	New "green deal" and emerging public dialog on an alternative economic system, the "green" economy

proach regarding sustainability and innovation. However, Philips was organized along a clear hierarchical structure and I began to sense expectations that with the existing resources and my personal knowledge maturity were impossible to meet. From the corporate immune system perspective I had opened a Pandora box…

What responsibility and response-ability mean to me…

When the word *responsibility* comes to my mind, I see myself sitting at the lunch table as a kid, my five siblings next to me, and my mother telling us that we are accountable for our actions and

> **Dictionary Definition**
>
> *Responsibility* is about having the job or duty of dealing with or taking care of something or someone; being able to be trusted to do what is right or to do the things that are expected or required.

even thoughts. She would explain that responsibility grows with age and experience and is related to skills and knowledge. She often made us aware of how a specific action would impact our sisters and brothers, inviting us to put ourselves in the other's shoes. For example, when we were arguing that we did not want to do the dish washing or other household duties she would ask what the consequence was. She would need to do all the work herself, therefore not having the time to play, sing with us, or read us a book. This way she taught us to always and intuitively connect to the "bigger picture" and to do our share in simultaneously benefitting ourselves and the family, and the situation at hand. She seeded the understanding that often it is not useful to distinguish between the benefits for all and the benefits for oneself. She embodied the capacity to respond to a given situation constructively, the ability to find meaningful answers: response-ability.

Why are response-ability and developing a perspective the essence of my twin-path journey in 2008?

One of the first highlights at the beginning of 2008 was a speech held by Michael Braungart introducing the Cradle to Cradle philosophy. Unlike all previous sustainability-related thinking I had heard so far he suggested that humanity should *celebrate life*! He introduced the possibility of doing *truly good* far beyond *less bad* and this idea resonated so well, that some colleagues started a pilot project, exploring the approach. For me this was a validation of the insight that desirable possibility can liberate amazing creativity and innovation power and strengthened my ambition to position sustainability as an opportunity rather continuing to spread doom

and gloom messages. And I deeply felt that I needed to make it personal to key decision makers, to create emotional commitment. How could this be done in a rational, scientific environment?

Engaging with people beyond their professional roles

At the end of February, I took two weeks off and went to Trinidad and Tobago for holiday. A local guide introduced us to the beauty of Caribbean nature and we visited some villages in which people cohabitate so peacefully and seamlessly that they even share their church among three different beliefs. Coming back to work I dared to share some photos and accompanying self-written "essence" poetry[12] with by boss. His amazingly appreciative response encouraged me to schedule bilateral "emotional buy-in" sessions with every RMT member. I used some of their "stone words" as titles for the poems (Figure 4.6).

Figure 4.6 Photos accompanied by poems enable emotional connections

It was wonderful to experience, how easily each of them was willing to open up emotionally. Some were very surprised that I remembered their stance. They shared their personal views about the world: How it is and how it should be, and what they want for their children; they also shared the paradoxes and dilemmas they need to balance in everyday corporate life. I felt my resistance to superficial prejudgments of business being the "bad guy" strengthened. I felt confirmed in my Indonesia experience and started to realize that one pathway to deep change might be unconditional dialog about the beauty of life...

Building on this experience I also used photos to position a few fundamental questions (Figure 4.7; see also fifth sense making tip).
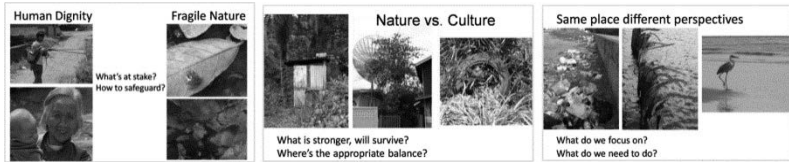
Figure 4.7 Invitation to explore fundamental questions

And, this was only the start. Almost two years after handing out the first "sustainability stones" to the RMT members, the CTO of Philips on the final evening of a big international Philips innovation event came back to them. By chance this group of managers had gathered in the hotel lobby. I was one of them, coincidentally sitting quite close to the CTO. After sending me a big smile with a twinkle of his eye—for me out of the blue—he started to ask his team about their stones: What did the words written on your stone do to you? How did you work with them? Did you?

SILENCE–SURPRISE–CONFUSION

Not as long as I had experienced earlier. And, not accompanied with this tense, frightening undercurrent. Obviously these people knew each other, were connected on some deeper levels, and were willing to play.... Quickly a truly vivid dialog started about personal dreams of how the world might develop and how Philips innovations could contribute. Eyes started to sparkle, imagination flowed ... the stones at work! What an unexpected present ☺ initiated by the holder of ROOT stone. I felt very energized and encouraged to dare to go a next step further. Initially this step looked quite scary.

Connecting to "group spirit"

That scary step was to introduce the highly fuzzy, quite emotionally loaded topic "sustainability as innovation driver" to the entire Research community through a presentation in the weekly "studium generale colloquium." A group of more than 350 critical, detail loving scientists in Eindhoven and even more abroad (via video conference) were my audience. I was speaking right before the CEO, thus preparing the

ground for him: He knew my story line. He knew that I wanted to use the poems and holiday photos and encouraged me to do so. I did not know exactly what he would talk about, except for the fact that—since it was his annual address—he would speak about Research performance 2007, priorities of today, and an outlook into the future.

It was very clear to me that there were several colleagues in the audience more knowledgeable than me on sustainability challenges and related innovation problems,. So I could never successfully position myself as expert. How could I, in such a situation, credibly live the informal leadership role that I was assigned to? What was the mechanism to set a new research topic on the agenda? What did leadership mean in this situation?

Besides expressing quite some self-irony, I used my emerging response mechanism to complex challenges: structuring the talk along the three angles of "body, mind, soul" with the EcoVision 4 deployment and the icebreaker sheet (Figure 4.5) speaking to the mind; photo impressions from nature and Chinese villages (Figure 4.7) speaking to the soul; and an Einstein quote taken from the wall opposite to the Auditorium—the very building we were all sitting in—representing the body (Figure 4.8). Also, at the end of the talk everyone was invited to find me in my office, for a deeper conversation, and to pick up a contribution stone.

And it worked amazingly well. An important element certainly was the fact that the CEO in his talk referred back to mine several times with a big smile of acknowledgment and joy on his face. After the talk I received the feedback that people liked the rhetorical trick that I showed several sheets presenting scientific facts without commenting on them to demonstrate that I was aware of them. Summarizing them with the icebreaker sheet for many created "overview, orientation, response-ability = desire and ability to move into the action/contribution mode."

Albert Einstein
"Logic will get you from A to B. Imagination will take you everywhere."

Figure 4.8 Einstein quote as placed on a wall at High Tech Campus Eindhoven

Structuring the innovation space

Exploring the different global challenges and translating them into innovation priorities relevant for different communities and regions, the Research sustainability champions network had distinguished three broad directions towards "one-planet living at a high HDI," the desired target area in the bottom right corner of the graph:

- **Replace by Clean Tech:** Enable choices towards sustainable lifestyles, thus improving people's quality of life and maintaining HDI by reducing environmental footprint (aiming to replace unsustainable solutions by sustainable).
- **Leapfrog with Clean Tech:** Enable sustainable lifestyle development and increase HDI by introducing low footprint solutions enabled by the currently available most environmental friendly "clean" technology (aiming to build with sustainable solutions).
- **Develop with Cheap Clean Tech:** Enable an improvement in people's quality of life and HDI while maintaining a low ecological footprint by "buying from the poor" (aiming to fight poverty by creating work, thus enabling economic development and breaking the vicious circle of poverty).

Finally I had mapped existing innovation activities from all over Philips onto these three innovation directions (Figure 4.9). This strengthened or created a lot of confidence that innovation for sustainable development was indeed possible at Philips.
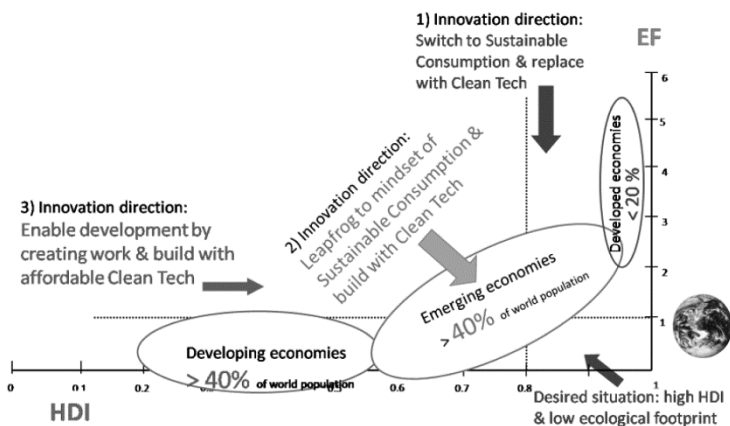
Figure 4.9 Three innovation directions mapped on L-sheet

It was encouraging to hear from some of the skeptics that further doubt was dissolved by addressing some "corporate culture–related challenges."

- **Long-term as well as short-term:** For example, besides improving the traditional, unfortunately declining business of light sources also expanding the business scope towards intelligent energy management… What if we would use our research to "rejuvenate life" rather than "die slower"?
- **Relative and absolute:** For example, "green" TV and design for reuse, upgradability, and well-being… What if all our products were the most environmentally friendly of their category in the market?
- **Beyond complexity enable simplicity:** For example, beyond a standard remote control, also enable intuitive usage… What if we would deeply understand complexity and provide eco-effective solutions to simplify our life?

Directly after the colloquium and in the coming weeks many passionate "coffee conversations" about "green" and social innovation happened and numerous people came to pick up a stone. Two burning questions started to emerge:

- What does sustainable innovation mean for healthcare? Isn't it already covered with the care cycle[ii] approach? I did not have the answer yet but started to collect relevant information on societal, thus healthcare system level.
- If the current human development dynamic needs to be radically changed (the macro-economic progress logic sort of turned upside down), what exactly does that mean? How should we appropriately segment socioeconomic groups? What does that mean, especially for existing markets in developed economies and the rapidly growing markets in emerging economies?

[ii] See glossary.

At that stage it was clear to me that radical or disruptive or break-through innovation was required to change the human development paradigm towards sustainable development. I had read G. Moore's book "Crossing the Chasm." Building on his ideas and further inspired through discussion with colleagues at Philips Design, whom I knew from my previous work, and through the launch of Josephine Green's thought leadership piece on "Democratizing the Future."[13] I initiated the development of a "sustainable innovation framework." It was meant to become a tool to create awareness for disruptions likely to happen on the different levels of influence. It was also meant to show how these disruptions are interconnected, thus stimulating discussions about effective levers for change on system level. I deeply believed in the necessity of such a tool to effectively structure the dialog on innovation priorities and related decision making. It was meant to complement the standard Philips portfolio management tool used in the innovation board and the CTO supported this view. The tool linked the icebreaker sheet to health and well-being, stating that the firm would contribute to "sustainable health and well-being" on three levels:

- Personal health and well-being, for example, good working conditions, meaningful consumer products
- Social and societal health and well-being, for example, access to affordable care
- Environmental health and well-being, for example, energy efficiency, responsible use of materials

Beyond overlapping circles to a nested model of
sustainable development

More and more organizational units bought into the sustainability challenge and started to see it as both innovation space and business opportunity. However, what could be done to move in this direction? The demand for more specific guidance with respect to the three sustainability innovation directions grew quickly. A deeper perspective was required. What is the link between "one-planet living" and Philips' mission to deliver "meaningful

innovation in the area of health and well-being?" What does health and well-being mean in terms of the 3Ps: planet–people–profit?
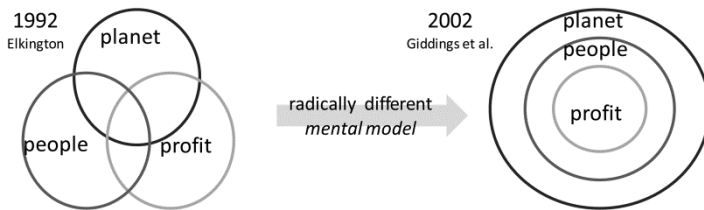
Figure 4.10 From overlapping circles to nested model for sustainability

I took a closer look at the triple bottom line (TBL)[14] and its visual (Figure 4.10 left side)—the model of the overlapping circles[15] and discussed it with my CSO colleagues. Somehow this did not feel right any more, acknowledging all the interdependencies between the global challenges and the "equality" between the environmental and the social axis suggested through the "L-sheet." Via desk research the nested model (Figure 4.10 right side) was found and immediately embraced.

Back to the earlier question: what does health and well-being mean in term of the 3Ps - planet, people, profit? Were these really the 3Ps? Since the beginning of the millennium, Philips had spent a lot of effort putting the end-user, an individual and his or her needs at the center of its product delivery. It was strange that the *individual person* did not show up at all in the sustainable development discourse. People were considered, as group, community, or shaper of social systems, never as a individual. This realization first created quite some tension that finally was dissolved through simply adding a fourth "P," the person in the center of the nested model (see Figure 5.11). However, there was quite some way to walk until that happened.

From health and well-being to sustainable health and well-being

Assuming that profitability would be a result of sustainability-sound products and solutions, the three levels of the nested sustainability model were described in terms of health and well-being (Figure 4.11).
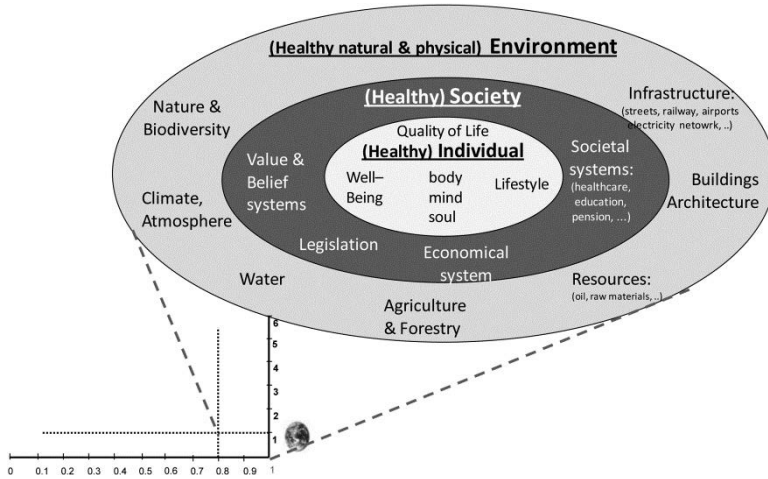
Figure 4.11 One-planet living expressed in terms of health and well-being

Complementary to the visual, the following definitions were derived building on a broad literature and desk research on health and well-being definitions, especially in relation to sustainability:

- **Healthy individual:** A *healthy body* and *mind* being enabled to *live well* in dignity and freedom, maintain intact human relationships, be a responsible citizen, enjoy spare time, and develop skills…
- **Healthy society:** People fairly sharing the load of providing its citizens with a *resilient healthcare system*, access to education, a reliable pension system, legislative and economic structure, and so forth in the context of its specific values and belief systems, embracing the human rights…
- **Healthy environment:** A space orchestrated from physical, chemical, and biological factors providing a healthy and pleasant living context—both indoors and outdoors—to individuals: access to clean air and water, shelter, (energy efficient) light, and safe food…

Towards an innovation framework for sustainable innovation

In recent decades it had become common practice to support corporate strategy and innovation planning processes with strategic frameworks that often consist of four quadrants. Crucial for the effectiveness of such a strategic framework is the choice of meaningful axes spanning different activity scenarios. In essence these frameworks are tools to visualize highly abstract concepts helping to align views and create a shared picture in the minds of the different decision makers.

As described earlier, Philips understood itself as a "people-centric company." With the corporate-wide implementation of EUDI, it had become common practice to anchor each innovation activity in at least one, sometimes multiple unsolved end-user needs. What are the unsolved needs for sustainable health and well-being? How can the collective environmental and social needs—expressed as local, regional, national, or global challenges—and end-users' sustainability needs be mapped such that meaningful solutions development are inspired? Which needs are we unconsciously already addressing through our running innovation activities?

During mid-2008, a project was initiated to develop an "innovation (needs) framework for sustainable development." The multidisciplinary core team brought together colleagues from Philips Design, the Corporate Sustainability Office, representatives of all business sectors and Research. More than 100 colleagues globally were involved in information gathering and framework testing. Regular progress updates were organized through the sustainability and innovation networks. The starting point was the assumption that "sustainable development will be *the* main *innovation force*" for the coming years shaping the innovation and growth agenda in the market area of *health and well-being.* In this case the leading innovation drivers are those given in Table 4.2.

After a few months in mid-September the team consolidated its work in a framework, capturing the "future landscape" for sustainable development. Initially it was a 2 x 2 matrix, with "ecosystem change" on the horizontal axis and the dimension of "quality of influence" on the vertical axis.

Table 4.2 Innovation drivers for sustainable health and well-being

Economic Drivers	Societal Drivers	Environmental Drivers
• Increasing healthcare cost and demand • Increasing resource prices and demand (e.g., materials, energy, well-educated employees) • New financial mechanisms (e.g., carbon credits, green venture money, microfinance, micro-insurance, out-of-pocket healthcare)	• Aging/exploding population • New/emerging technologies and skills • Increasing inequalities: rich–poor, access–no access,…(both global and local)	• Resource depletion/monocultures/decreasing biodiversity • Climate change • Increasing waste and pollution (e.g., air, water, food safety, toxics)

The intersection of the two axes marks the point where on the vertical axis there is a balance between an organization's/a group's/my ability to act and the external forces that are restricting this freedom. The horizontal line is split by the "disruption[16] boarder." This represents the fundamental transformation of the global current unsustainable socioeconomic system—that so impressively is introduced by the L-sheet—towards one-planet living or sustainable health and well-being (Figure 4.10).

The development team was convinced. The innovation framework was applicable on different levels of abstraction and could be used to consistently map needs, products, trends, solutions, providing a useful mental model to co-create meaningful innovation (Figure 4.12). Two new questions emerged:
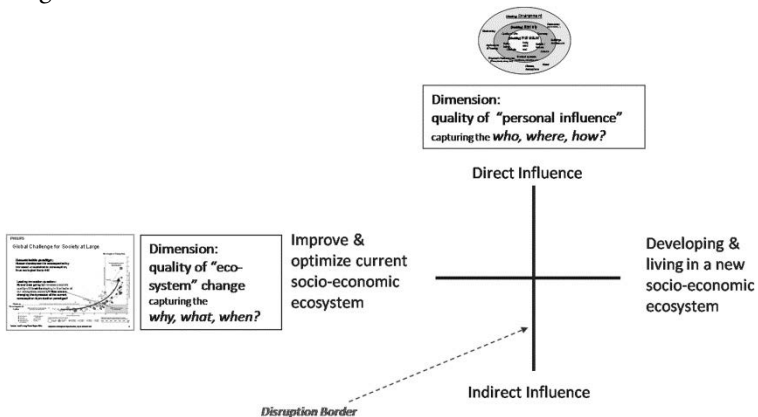
Figure 4.12 First version of innovation framework for sustainable development

What is the "nature" of this disruption border? How can it be crossed?

Beyond sustainability as function towards sustainability as core of business

While this extensive co-creation process was going on, it was communicated that the SB chair would leave the company. That was quite a loss for me, since slowly but steadily over the last few years I had built a resilient relationship with her, one in which an ongoing open and honest controversial dialog about opportunities, challenges, tactics for the best way forward had emerged. Under her leadership a cutting edge sustainable supply chain approach had been implemented and with the launch of EcoVision 4 the corporate sustainability scope was stretched beyond risk and reputation management to strategy and innovation.

This was further institutionalized when the CEO of Philips Lighting accepted her succession and became the chair of the SB. Being one of the three most powerful business managers at Philips he had both bottom- and top-line responsibility and brought credibility with respect to growth and innovation, opportunity thinking, and value creation into the SB. This decision cast a positive light on top management's seriousness with respect to sustainability-driven innovation and had a major impact. It signaled to all Philips' employees that sustainability was now seen as important business driver.

He initiated a corresponding extension of the SB, inviting Corporate Strategy, Corporate Technologies, and Marketing to be regular members. This also triggered the extension or establishment of SBs in all Philips Business Groups. All were challenged to organize themselves around both: *compliance*—the traditional and well-established sustainability work–and *opportunity*–using the sustainability lens to identify new starting points for innovation and business creation.

In addition to this, two new roles were created in the CSO team. Their assignments were to:

1. focus on the coordination of the sustainability-related business development and innovation programs;

2. to strengthen the external stakeholder dialog with global policy making bodies and coordinate the operational excellence programs internally.

For me the nomination of the new SB chair was a fortunate coincidence. He already knew about my role and the fundamental mental models I was using. He acknowledged the L-sheet. I had introduced it in a Lighting New Business Creation Board meeting that he had chaired several months earlier and he had enthusiastically embraced it. And I knew a lot about the Lighting business, his area of responsibility. All this together enabled a smooth establishment of a new resilient work relationship.

> ***Tips and tricks*** *for sense making (9)*
>
> *People pursue different pathways when engaging with complex challenges. In my experience the majority likes to follow the "zoom-out" logic: sketching a challenge or opportunity via specific problems they have experienced personally along with concrete solutions and from there generalizing. Others think and talk using "zoom-in" logic: starting with the big picture (the systems view) and from there zooming in details. The innovation framework allowed both approaches…*

Towards a "transition" map

Finally the usefulness of the framework was tested. Lighting innovations were mapped on it and then it was shared with the new SB chair and CEO of Philips Lighting. He was impressed about the simplicity of usage and recognized that new innovation priorities for both sides, left and right of the disruption border, could be identified.

Through mapping products on it, it becomes a "solution map" (Figure 4.13). A lot can be gained through incremental innovations mainly improving environmental parameters such as energy or water consumption during production, phasing out hazardous materials, and miniaturization. For decades, a lot had already been done in this field, applying a classic eco-design process. These activities were mapped on the left side of the framework and can be summarized under the notion "efficiency increase." To really transform, this would not be enough.

Radical, disruptive, or transformative innovation is required–possibly enabled by new technology, infrastructures, and legal frameworks–to facilitate the fundamental changes at the disruption border. Through making the required changes explicit, the solution map becomes a "transition map" for system change.

Some fundamental changes at the disruption border

* beyond fossil-fuel based →	renewable energy
* beyond products & solutions →	ecosystem design
* beyond "linear" value chain →	closed loop value net
* beyond open innovation →	co-creation

Me in my private life **Home** (B2C)

Me in my profess. life **Profess. Spaces** (B2B)

Me as citizen **Public spaces** (B2Soc./Gov.)

Me as part of nature **Light & health, agriculture, etc.**

Direct Influence

Beyond *efficiency* increase: (within existing paradigm)

From conventional light sources to *energy efficient lighting*

From component & product to *functionality, service & solutions*

From technology push to *End-user driven*

Indirect Influence

To a new *effectiveness*: (develop new paradigm)

From CO_2-efficient to *CO_2-free lighting* **closed loop** *lighting solutions*

From lighting solutions to *integrated building systems*

From end user driven to *context relevant co-creation* (*enabling sustainable development*)

Transform to & care for a new socio-economic ecosystem

Figure 4.13 Sustainable innovation framework can lead to a transition map (e.g. for Lighting)

After the successful framework test the SB chair encouraged me to discuss it with all board members individually. We found out that the 4Ps: planet, people, "profit," and *person* (individual, end-user) offered a useful way to structure the vertical axis.

During the following months the framework was intensively used to deeper understand the expected paradigm shift, map sustainability-related needs for the different business sectors, identify knowledge and capability gaps, and so on. Early ideas for possible pathways to cross the disruption boarder emerged and it became clear that more people needed to be engaged to do that. An innovation movement was needed...

The puzzle dilemma

Nowadays, in times of over-full schedules and too many priorities, when bringing together multiple stakeholders required for disruptive innovation, corporate culture transformation, or system building, it is helpful to be able

to speak to them in all their different (expert) languages, to envision for each of them the "what's in it for me." Often it is one visionary individual or a handful of "passionate idealists" who go for a "broad (systems) vision," which in the beginning is hard to express. In numerous conversations a broad variety of "puzzle pieces" all belonging to the same "system characterization," yet being in the hands of different stakeholders, are collected and connected. Specific pattern recognition is an important skill for success. The ability to abstract from concrete situations and then re-apply the insights into a different context is essential to identify how the different "pieces fit in the big picture." This work is time consuming. It is a type of barely visible detective work. And it becomes valuable only at the moment when a majority of the stakeholders involved can relate to it like to an elevator pitch. Unfortunately people who have never done it, cannot value what it takes to put the puzzle together, so many system definitions are not created due to a lack of understanding, resources, and appreciation, and due to a lack of trust. System building projects are then in the danger of building on inappropriate assumptions, and thus designed to fail.

With the development of the sustainable innovation framework we had been able to solve the puzzle dilemma, formulate the elevator pitch for sustainability-driven innovation, and envisage meaningful new innovation directions (Figure 4.13). Interestingly, this was also the moment when ego-politics started to enter the game.

Democratic priority setting

Colleagues of Philips Lighting brought me into contact with the IUCN.[17] They had specific questions that they wanted to put to the global environmental expert network. These related to lighting solutions that could be beneficial for agriculture. They were also seeking to better understand the effects of "light-pollution" on biodiversity, a problem that had become prominently visible on oil platforms and coast lines. The work on the innovation framework led to more general questions. Did the IUCN have a clear vision on how to safeguard the future of the planet?

During a face-to-face meeting in summer I met Sally Jeanrenaud. She had just finished the work on "Transition to Sustainability: Towards a Humane and Diverse World,"[18] which was to be launched at the global IUCN conference a few months later. She told me that the global environmental priorities are suggested every 4 years at this conference. From 2005 to 2008 the IUCN had orchestrated a democratic opinion-forming process engaging experts and stakeholders from more than 70 countries. The results would be shared and discussed during the upcoming event. The title acknowledged the deep connection between the environmental challenges and human prosperity agenda. In other words, the environmental community had opened its scope to the social challenges. A few months later I witnessed another remarkable scope extension...

Collective change in perspective

I learned a big lesson in response-ability at the global IUCN conference in Barcelona. Over 8,000 representatives of different environmental and social rights focused NGOs, corporations, universities, policy bodies, governments, and so forth, came together to set the world conservation agenda for the coming 4 years. Having held my "sustainability role" at Philips for about two and a half years, I was used to being put in the role of the bad guy very quickly, since I was representing business. Following the Lehman Brothers bankruptcy on September 15, notions like casino capitalism were circulating widely. Surprisingly, the NGO representatives started to distinguish between "good businesses" and the financial sector, being the real "bad guys". They also acknowledged that business is quite skilled and effective when it comes to implementing wide-scale changes. Thus I witnessed the mindset shift from "business is the ultimate root cause of the sustainability challenges" to "leveraging business implementation excellence is an essential part of the solution." A hand for collaboration was offered, responding to the fundamental multidimensional crises that were becoming more and more obvious.

I also had the privilege of meeting Janine Benyus. In her book *Biomimicry*,[19] she suggests to using biological knowledge in a similar way to

knowledge of physics and chemistry to develop "life-compliant" technology. In a nutshell she invites her audience to shift from seeing nature as resource towards treating nature as a school. I learned that nature has an appropriate answer to any human problem that can be expressed. What if we were able to formulate a set of the 10 to 15 most burning questions that needed to be solved in order to shift to a path of sustainable development? I felt inspired by her conviction that the answers to all these questions were already there and could be found through asking nature. I realized that one of our major challenges is the "art to ask meaningful questions".

This made me think hard. In traditional innovation processes only very limited effort is put into formulating crucial questions. We are very good problem solvers, yet how can even the best solution to an unimportant or inappropriate question lead to meaningful innovation? Isn't our ability to respond well to sustainability challenges dependent on our ability to pose the right questions?

I felt that my intuition had been confirmed. The essence of "sustainable innovation" is the development of new behavioral patterns, cooperation skills, and mindsets that enable us to deal appropriately with complex challenges both individually and collectively, locally and globally, and on both product level and in terms of corporate purpose. We need 21st-century answers to eternal, fundamental human questions.

Main Transition Step in 2008: The organization manifested its expanded "sustainability playground" in its organizational role definition. It hereby made a further step in the alignment process, after having aligned the sustainability and business goals with EcoVision 4, now roles and responsibilities in the corporate- and business-specific SBs were adjusted.

Personal

When harvesting thoughts
be disciplined to bring them
to their essence, since
then their beauty will arise.
Spoken truth touches our hearts.

Twin-path
insights
2008

Organizational

Change will not come if we
wait for other persons or some
other time. We are the ones
we have been waiting for.
(B. Obama)
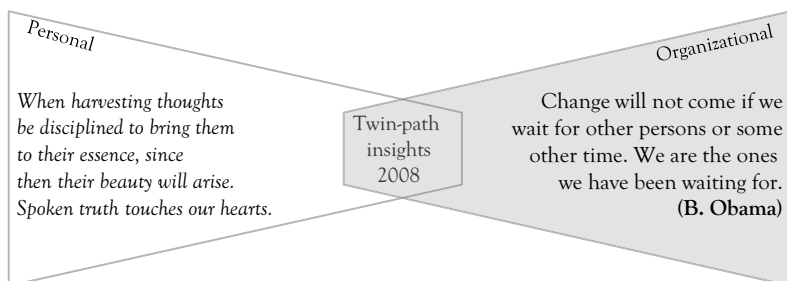
CHAPTER 5

Embodying — Corporate Vision

Or beyond internal change to also participating in the bigger movement externally

In a response to the global Climate Change debate mid-2008, Shell produced a report introducing two energy scenarios for 2050: Crumble and Blueprint.[1]

The development of long-term future scenarios as starting point for corporate sustainability agenda setting had been a familiar approach for the World Business Council for Sustainable Development (WBCSD) since its founding in 1993. However, the impact of these scenarios[2] in changing towards more sustainable business seemed to be limited. Therefore, in mid-2008, the WBCSD initiated a different type of project. The core idea behind *Vision 2050* was the establishment of *the one* common goal for (preferably all) WBCSD members—or at least all participating multinational corporations (MNCs). In addition to this initial pathway, steps towards implementing the vision should be worked out. The project was rooted in WWF's "L-sheet."

Philips joined the WBCSD project early in 2009, mainly because the corporation had drawn the same conclusions as the Vision 2050 team during its first workshop at the end of 2008. For the remainder of the project Philips accepted leadership of the "health and well-being" work stream.

In March 2009, parallel to the work facilitated by the WBCSD, and as follow-up to the global IUCN conference that took place in Barcelona in fall 2008, IUCN and IIED founded a global multi-stakeholder network called the Green Economy Coalition (GEC).[3] Responding to the financial crises it was set up to align forces and become a strong voice for
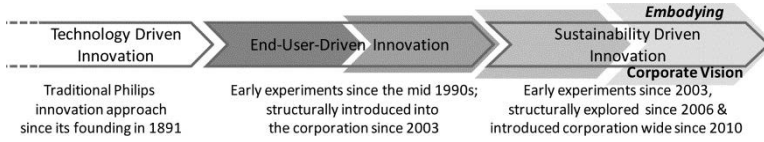
Figure 5.1 Evolution of innovation at Philips (4)

an alternative global economic system: *An economy that provides a better quality of life for all within the ecological limits of the planet.* Philips was a founding member of the GEC.

In how far was the participation in such "external" activities essential for "internal" progress (Figure 5.1)?

5.1   Love and Care — Deepening the Understanding (2009)

or despite cost challenges still investing in a better future

The year 2009 was dominated by the global debate on the failure of capitalism and the Copenhagen Climate Conference. It was also the *European year of creativity and innovation.*

In difficult times, in times of crises we get to know the authentic nature of people. Some people first care for themselves; others always balance self-interest with the common good, and a few prioritize the common good. Which priorities are set and which decisions are taken in stormy times depend very much on individual experiences, attitudes, value and belief systems, and social norms in the peer group.

2009	The bigger picture…[4]
February	Barack Obama becomes president of the United States
February	*Philips launches it first integrated sustainability and annual report*
March	*Launch of Green Economy Coalition (GEC); Philips participates in GEC and joins WBCSD Vision 2050 project*
October	Tim Jackson's "Prosperity without Growth" is published
December	Copenhagen Climate Change Conference

Many MNCs reacted to the global financial crises with a set of efficiency increasing and operational cost-reducing activities. Philips pursued this path. Tough decisions were taken on the continuation of incremental innovation activities for quite a broad range of mature

products. The integration of two big Research units into the "mother lab" at High Tech Campus Eindhoven was announced. On the other hand, already in 2008, a remarkable set of new sustainability approaches was being explored in different business units and innovation functions in Philips. In 2009, initial promising results helped to keep this long-term effort alive despite the increasing pressures to save cost and focus on short-term value maximization.

What love and care mean to me…

I have thought about the concept of love a lot. Finally I reached my personal definition: *Love* is the will and capacity to witness and appreciate reality the way it is and deal with it constructively in the service of life. What, however, is reality? How can I witness it? For me "my reality" is what I can perceive using my body senses and my mental senses. I am aware of the fact that my reality differs

> **Dictionary Definition**
>
> *Love* is a feeling of strong or constant regard for and dedication to someone; a person with whom one is in love; positive regard for something
>
> *Care* is strict attentiveness to what one is doing; attention accompanied by protectiveness and responsibility; a close attentiveness to avoiding danger; the duty or function of watching or guarding for the sake of proper direction or control; the act or activity of looking after and making decisions about something

from anyone else's reality due to my mental models, life experiences, and so on. If the word *care* comes to my mind I see myself put in a difficult situation: a conflict between my kids and their father or the struggle a colleague has with our boss, a situation where the easy way out would be to look away, focus on my own priorities, and leave the others to find their way. Love and care comes into play through staying in and with the situation without entering the drama triangle.[5]

Why are love and care and deepening the understanding the essence of my twin-path journey in 2009?

Parallel to the global financial crises, my working conditions got disrupted due to a series of major transformations of the Research organization. The first was the shift from a line organization into a ma-

trix structure. With this transition the effectiveness of the champion network evaporated and most of the positive free energy that, for a few months, was spent in exploring the link between sustainability and health and well-being on a deeper level now got bound in fear and protective behavior. The RMT had a tough time to balance standard work with the extra efforts that every reorganization asks for. The CRE and other regular meetings on the annual innovation agenda, which I had leveraged in previous years to continue the internal and external dialog on sustainability-driven innovation, were put on hold.

How else could the nature of the disruption border be explored to engage more people? How could the emerging sustainability-driven innovation movement be expanded in such a situation? How could the precious resource – time – be used effectively? How could the embryonic topic survive despite of or even benefit from the crises?

For me—again building on my AP experience—it was clear that now—that we had understood the essence of the sustainability challenge and developed a framework that helped to map sustainable health and well-being innovation opportunities. It would be useful to develop a series of foundation documents based on this. These were meant to consolidate and later enable coherent work with relevant information from the perspectives of:

- environmental, societal (all stakeholder), and end-user needs,
- applications/contexts and related specific language,
- functionality and related enabling technology, and
- value creation and business models.

Unfortunately, since most other innovation-related functions and business units were reorganized as well, the implementation of this approach was not realistic. I needed to admit that there was no mind space and no emotional capacity to both "survive in the storm" and, at the same time, "explore new ground."

I decided to use the time to "put more meat on the bones" and started with further deepening my understanding about the sustainability-driven innovation work at Philips. I wanted to understand:

- What is the activity's starting point in the "old paradigm"?

- What is the desired long-term result/impact?
- Which gap needs to be bridged? How can it be bridged?

Pioneering integrated reporting

Sustainability reporting is a very important means to create transparency and credibility for customers and stakeholders externally. Philips published its first corporate Environmental Report in 1999. In 2003, this was extended to a Sustainability Report acknowledging social impacts and benefits of the business activities. In 2009, for the first time, the Sustainability Report and the Annual Report (creating transparency about 2008) were combined and published as one document. This reflected the deep level of embedding sustainability thinking and practice in the entire corporation. It was a massive organizational challenge to align the internal agendas of all the different information contributors, to create a clear "integrated reporting" team, and to negotiate on priorities and decide which information would be published in the printed version and which would be accessible via Internet (Table 5.1).

Table 5.1 Transition to integral reporting expressed in sustainable innovation framework logic

Old paradigm	Transition activity	New paradigm (vision or solution)
Annual Report on **financials** and Sustainability Report	Integration	Integrated Report on **multi-stakeholder value** creation

Beyond end-user-driven innovation towards context relevant solutions for the poor

Since the publication of the book *The Fortune at the Bottom of the Pyramid* by Prahalad in 2004, innovating for the poor had become officially wanted at Philips. Building on a few early experiments of some passionate innovators in Philips Lighting, Design, and Research, the CSO together with local Sustainability Offices defined the New Sustainable Business Initiative (NSBI) process. It can be seen as an end-user-driven innovation (EUDI) extension embracing the Stuart Hart BoP protocol.

The freedom to come up with product concepts for the poor was enthusiastically used by many employees. After several successful concept validations and optimizations and even some commercial pilots, the SB selected the woodstove[6] and some lighting products to pioneer industrialization and market introduction in Consumer Lifestyle (CL) and Lighting. This proved to be extremely challenging, since the existing business processes and decision-making structure were geared towards serving developed mass markets in contexts with stable financial, logistical, and IT infrastructures, and an employee base with a high level of education and customers with disposable income.

BoP contexts have radically different boundary conditions. Bringing a new product or innovation to the market here means "building an economic infrastructure" from scratch. The first needs of people at the bottom of the pyramid are health, food, and work; thus, the idea of "selling products" represents a mental model that does not work here (see Table 5.1, third column). As a consequence of this insight, the target group definition for Emerging Markets (EM) and developing countries got specified towards the "emerging middle class" customer and stakeholder groups.

In addition, the insights of the early cultural immersion activities (see first step of Philips NSBI, Table 5.2, column 1) inspired the development of the Cairo to Cape Road Show as context appropriate way (for Africa) to further explore new potential future markets and their characteristics.

Table 5.2 Innovating for and with the poor

Philips NSBI process	Bottom of the Pyramid: BoP 1.0[7]	Bottom of the Pyramid: BoP 2.0
BoP as new market • Local immersion to identify needs • Develop context relevant solutions • Validation and optimization • Commercial pilot • Controlled launch • Scale-up	*BoP as consumer* • Deep listening • Reduce price points • Redesign packaging, extend distribution • Arm's length relationships mediated by NGOs	*BoP as business partner* • Deep dialog • Expand imagination • Many capabilities, build shared commitment • Direct, personal relationships facilitated by NGOs
"Co-creating value"	"Selling to the poor"	"Business co-venturing"

How co-creation with the poor can be mapped on the sustainable innovation framework can be seen in Figure 4.13.

Beyond reacting to a threat towards responding to an opportunity

Since 2007, Greenpeace had given Philips a tough time demanding more responsibility in taking back e-waste and dealing with hazardous materials. In June 2008, Greenpeace dumped 500 TV sets in front of the Breitner Tower, Philips headquarters. The biggest "highlight" of this spotlighting was the publication of the report "Poison for Ghana" on Philips e-waste being dumped in Ghana in August 2008. Greenpeace had taken the Dutch RTL-TV channel to Ghana to visit dumping sites there and apparently identified a large quantity of Philips electronics products (among others) there. The report has been covered extensively in the Dutch media. These attacks initially triggered the "routine" corporate response: that was to ask the directly affected business PD Consumer Lifestyle (CL) to take action to limit the brand exposure. This was the normal defense strategy, which was very much in line with risk-management behavior. However, in a secondary response to the initial reflex the "attack = crises" was transformed into a set of the opportunities to:

- review global recycling policies across all businesses;
- increase the understanding of the economic, social, and ecological impact of post-use material streams;
- define a new corporate take-back and recycling strategy. Consequently, Philips could sign the Individual Producer Responsibility (IPR) agreement. The deeper understanding of the IPR implications helped to adjust the accounting practices properly; and
- give extra momentum and additional context to insights for the cradle-to-cradle (C2C) pilot that had been running in CL since the beginning of 2008 and was about to move into its second phase. It marked an early, very important step towards fully embracing the circular economy idea.

*Via cradle to cradle (C2C) towards sustainable lifestyles on the pathway
to circular economy*

CL's sustainability community had taken Philips bad position in the
Greenpeace rating 2007 as a call to action. They had identified the *cultural
creatives*[8] as a significantly sized consumer group in the developed world
(United States, Canada, and Europe), experimenting with new sustainable
lifestyles and asking for sustainable alternatives in terms of product offerings.
These were typically people who buy bio-food and do eco-tourism. The
C2C approach seemed to be a way of working that would facilitate the
development of such sustainable products (Figure 5.2). In the follow-up to
Michael Braungart's[9] inspirational speech at the yearly innovation meeting
early 2008, a whole program had been initiated to explore ways to use recy-
cled material and design for upgradability. Strongly supported by the CL
Sustainability Board member, who, in his main role, led a business unit,
they explored the transition from product to service design, with its related
logistical and business model consequences. The C2C pilot at CL pro-
gressed quickly and in 2009 resulted in the launch of the "Green Perform-
er" vacuum cleaner, a C2C-inspired product, in which for the first time a
remarkable amount of recycled material was used. In addition, a "white list"
of preferred materials was developed complementary to the "red list" of
forbidden substances—an important step on the pathway from doing less
bad towards "doing good."
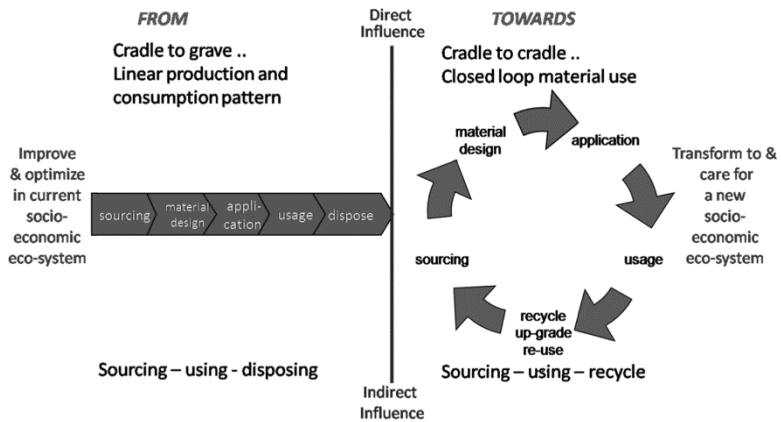
*Figure 5.2 Transition from linear to circular material use mapped on
sustainable innovation framework*

However, questions like how to organize take-back and how to generate value out of service business models were quickly emerging and started to fundamentally challenge implicit business assumptions.

By the end of the pilot project in late 2009, a set of insights was made explicit:

- The cradle-to-cradle concept had engaged a "new and passionate" generation of Philips employees for the concept of green product design.
- Cradle to cradle should be embedded in the Philips EcoDesign strategy and processes with a special attention to closing the material loops.
- Green product certification is an important topic. It needs to be standardized for the entire firm and not be reduced to C2C logos.

Building on this pioneering work in CL, a corporate sustainability target on materials was defined and launched with EcoVision 5 at the beginning of 2010. An EcoDesign 2.0 process was launched in 2011. Recycled materials were to be managed on three levels: raw material, component, and product. In the meantime the Philips focus has slightly shifted to embracing the concept of "Circular Economy" in cooperation with the Ellen McArthur Foundation.

Climate Change: An environmental and technological but also a cultural challenge

In the context of the global Climate Challange in 2007, a corporate wide energy footprint analysis was executed along the whole lifecycle of the entire product portfolio. It showed that about 90 percent of the carbon footprint caused by Philips goes back to lighting products in the usage phase. Artificial lighting accounts for 19 percent of global electricity use; thus, switching to energy-efficient lighting seemed to be a "low hanging fruit" in the fight against climate change. Energy-efficient lighting technology existed already for every application: with potential energy savings of up to 70 percent. Why then did change happen so slowly? What was the real nature of the innovation challenge? Obviously it was not a question of solution availability.

The main innovation challenge was the slow renovation rate in both, the building management sector—for indoors lighting—and municipalities—for public lighting. In the traditional planning process in construction industry lighting is seen as part of the interior design, thus considered very late in the planning process. At that stage, daylight integration or connected atmosphere creation systems cannot be implemented any more. In addition to this, both the value chain and regulatory system of the construction industry are highly fragmented, thus complex.

In order to better understand the situation and develop a weighty position, Philips Lighting was one of the leading companies in the WBCSD project on Energy-Efficient Buildings.[10] Also a lot of effort was spent on awareness campaigns, contributions to policy development, and the co-development of new standards. In a broad variety of iconic pilot projects, both the cost and CO_2-saving potential of energy-efficient lighting was shown.

LED technology is a key element in energy-efficient lighting. Due to its superior lifetime and small size, LED is a both very energy-efficient and material-efficient. This, in combination with the cradle-to-cradle experiments conducted in Consumer Lighting, triggered questions about new leasing or service business models. In a variety of pilot projects, the corresponding organizational challenges and potential benefits for all stakeholders of such value generation methods were explored.

Although energy efficiency is an important step for "buying time" in terms of global warming, it cannot be the long-term solution. Only moving towards energy effectiveness will prevent humanity from repeatedly running into the rebound effect[i]. Philips identified three main levers to move towards energy effectiveness or in other words carbon neutral or even carbon-positive solutions.

- Technology → energy-efficient lighting in combination
  with renewable energy/electricity generation

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[i] See glossary

- Financial models → towards zero-carbon buildings through system[11] integration, thus different value generation, which would in turn lead to completely different financing mechanisms and business models in the highly complex construction and building management industry
- Consuming behavior → sustainable lifestyles, especially in urban environments currently, are difficult to achieve. How would individuals in their different roles need to change their behavior to decrease their energy footprint?

At the beginning of March I joined a small, very diverse group of people who aimed to align forces to proactively respond to the financial crises. This idea had been born during the IUCN conference and now about 20 representatives of environmental NGOs, United Nations and other policy-shaping bodies, the International Trade Union, the International Labor Organization (ILO), business, and some foundations met and initiated the Green Economy Coalition (GEC).

During the formation meeting at Lake Geneva, I met Alastor McIntosch,[12] a Scottish community builder and writer. Invited to shed some extra light on what individuals could potentially contribute to the big global climate change challenge, he stated that we all should "finally dare to learn to love." In his book *Hell and High Water* he explains this in more depth. I was thrilled and at the same time shocked about my inner response that I heard calling: "yes, yes, yes!" so loudly that I couldn't escape it. I was working for business. What did a topic like love have to do there? I had difficulty making sense out of this. Finally, I asked him and he responded with a big smile at his face: "If you start to love, you'll know!" I shared the story of the contribution stone with him and how they work and his smile became even bigger. "You're on the right track ..."

I gave him my *TRUST* stone.

He gave me his book and I read it.

And I started to imagine that love and care can be an attitude, a worldview.

Beyond selling hardware towards a carbon credit-based financing model

Colleagues of Philips Lighting participated in a project called LUZ VERDE (green light) in Mexico. The idea for this project was that the large reduction in CO_2 emissions from millions of Mexican families switching to energy-efficient bulbs could also be translated into real money. As per the Kyoto protocol each tonne of greenhouse gas emissions reduced by projects in developing countries can be sold as an emission reduction "credit" to governments or companies in industrialized countries who can then use these credits to meet their CO_2 reduction obligations under the protocol. The success laid in the new financing model: A Dutch alliance between Phillips supplying the energy-efficient bulbs, Eneco trading the emission credits and ING providing a unique financing structure, brought the idea to fruition. During the pilot phase in 2009, one million environmentally unfriendly, incandescent light bulbs were exchanged for energy-efficient compact fluorescent light (CFLs) for free, with families in the Puebla region of Mexico (Table 5.3).

Table 5.3 Transition towards multi-stakeholder value creation

Old paradigm	Transition activity	New paradigm (solution)
Selling "cheap," but energy-inefficient light bulbs	Develop multi-stakeholder financing/business model	Create access to affordable energy-efficient lighting

Our future is important and urgent

The Innovation Framework for Sustainable Development had opened two new questions: What is the "nature" of the disruption border? And how can it be crossed?

It was Philips Research's self-understanding, being an important guardian of the corporation's future that made it possible for me to free up some budget to organize *Disruption Day* and *Connection Day*.[13] Embracing the Pioneer Dilemma (see Chapter 3.2) the names of these events and the workshop design had been chosen very carefully to

manage expectations, communicate, and embody the "newness and unfamiliarity of the topic." The two workshops were set up to stay on course for sustainability-driven innovation despite the disruptions that were carried into the process through the financial crises.

A very fine balance needed to be found for Disruption Day to meet the conflicting goals:

- On the one hand to broadly deploy the innovation framework for sustainable development and to uncover the nature of the disruption border involving as many people as possible.
- On the other hand it needed to be radiated that the savings imperative that was announced as the corporate top priority for this crisis year was respected and implemented.

It was amazing to experience the creativity that the preparation team came up with to use the limited available resources most effectively. It was a wonderful lesson in how out of the blue new possibilities emerge when familiar paths are blocked. The passion to move on was unbroken. It actually even increased despite major challenges and limitations. It almost felt as if group creativity was a collective response to the present scarcity. It seemed to be a little comparable to the situation right after the second World War, when people found surprising ways to get things done, through collaboration, fuelled by the intense will for development towards the common good.

Although it was clear that we would not be able to pay any external speakers fee, the co-founder of the GEC, the director of the United Nations University Maastricht, and the CEO of the Innovation Leadership Forum were happy to join and help to set a change agenda. They saw the event as a unique opportunity to suggest new priorities to the "Philips crisis response" and help in repositioning sustainability as business opportunity rather than threat.

Disruption Day took place on March 11, 2009 at High Tech Campus Eindhoven. It was set up to "Uncover the disruption border." Other than for the Symposium we dared to use unfamiliar interaction methods: An interview session with the experts in the morning was filmed and video clips with key messages were put on a newly established Internet site,

called Bamboostones. We had chosen this name because the bamboo is the quickest growing plant on Earth, and the stone was the metaphor for longevity and sustainability-driven innovation at Philips since 2006.

In the morning a round table discussion took place with complementary speakers representing academia, the NGO world, policy setting, and business. The experts shared their views on the radical innovation challenges and opportunities ahead and called for courageous action.[14] In the late afternoon they presented their perspectives via speeches in a symposium that was made accessible to the entire innovation community via the intranet. Embracing the broad variety of exploration work of the recent year, specific business sector–related disruptions were identified in multidisciplinary workshops in the early afternoon and during the executive dinner via a serious co-creation game (Figure 5.3).

Think Big!

Welcome to this 'disruption dinner'. It has 4 courses. After every course you will join a different table.

1. During your 1ˢᵗ course, you have the chance to write down your **most serious challenge** for advancing in the sustainable development of Health & Wellbeing
2. When you start the 2ⁿᵈ course, you will get the opportunity to turn someone else's serious challenge into a **vision** at the right hand side of the Innovation Framework.
3. During the 3ʳᵈ course, you will have to propose what needs to be done to **bridge the gap** between 'challenge' and 'vision'.
4. At the start of the 4ᵗʰ course, pick up your own original challenge. Team up with someone to further enrich both challenges. Finally, with your partner, evaluate the 2 'transition proposals' by dividing 5 '+'s across both.

Challenge
Crossing the 'disruption border' towards truly sustainable solutions will require many steps. Some small, some great.
What do you see as **the biggest hurdle** that needs to be taken to cross the 'disruption border'?

Vision
Imagine that this challenge has been turned into its opposite: a sustainable solution that has been fully realized.
What does the world look like with that challenge overcome? What is the vision this challenge evokes?

Transition
Connect the challenge with the vision. What are your thoughts about the transition that needs to be made here? What is it concretely that should be done? How could it be realized?

Figure 5.3 Innovation framework translated in a co-creation game

We received very encouraging feedback, especially from the business managers who had joined. All acknowledged the need to ensure that the crisis was used to redirect the business course.

When leaving many said: Great that you offer space to "refill" energy, to remember that there is a reason why we do all this. I recall one observation specifically. It started with: "How blind can we be??? Sustainability currently is the only positive story we can tell both internally and externally: Why don't we do that more consistently?"

The main conclusions of the day were:

• The need to alter the concept of the "disruption border" to "disruption zone," acknowledging that the fundamental

changes ahead would not be visible and viable for everybody at the same moment in time, and that different industries will have different changeover dynamics.

• Crossing the disruption zone is about asking fundamental questions about the purpose of business and innovation in the 21st century (Figure 5.4). This is a question that nobody can answer alone.

• Sustainability is all about *caring*: for the planet, society, people (employees), and our loved ones.
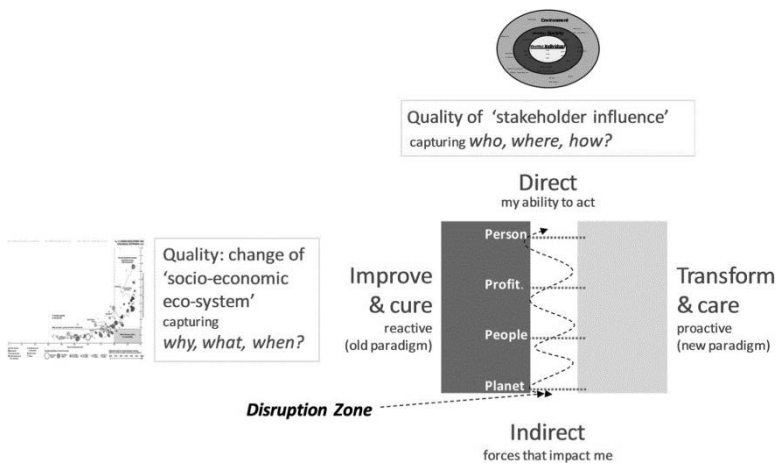
Figure 5.4 Improved innovation framework with disruption zone

Bamboostones or growing beyond prejudgment

That was very encouraging. It gave me extra energy to grow beyond the hassle of adjusting the work plan and champion network, invest in new relationship building, and reconsider the development of the foundation documents. It seemed that even here we needed to be much more creative and engaging. During the Disruption Day preparations, the idea had grown to develop a specific website to gather all the information required to build strong roots for a co-creation process in- and outside the company. It was meant to become an IT backbone co-owned by the various stakeholders for the social innovation ahead. We believed that Philips should eventually take an editorial role on this site.

Jane McGonigal, a well-known game designer in 2007 had created a serious game platform inviting people globally to imagine a *world without oil*.[15] A total of 1,800 participants had joined, discovering in how many ways humanity depends on fossil fuels and what a life without oil could look like. This approach had inspired us. In the future, I think collective intelligence tools and skills will be important in order to be a part of global dialog, global business, and global creativity. People who know how to negotiate collective intelligence networks are going to be in a good position to contribute to global society.

For me this was a personal challenge since I had some resistance with respect to social media. Even if I could acknowledge the benefits that digital technologies provide in terms of managing large amounts of data, and creating access to information and accelerating communication, I still felt uncomfortable. I wasn't using any social media channels personally, I even didn't use SMS. At that time my youngest daughter used messengers, SMS, ICQ, Facebook, and so on so excessively. I recognized their addictive potential, as well as her decreasing ability to spell correctly. I was quite skeptical about this approach. I did not yet understand that social media are just another differentiation of the way people communicate enabled by new technologies, just as book printing, telegraphy, and telephony before it.

Broadening the common goal

At the GEC kickoff meeting I had met the project manager of the WBCSD Vision 2050 project that the WBCSD had started in summer 2008 intending to develop a new vision for humanity, a big common dream that would help to align forces across industries and nations. Like Philips' sustainable innovation activities, Vision 2050 was rooted in the icebreaker sheet and the WBCSD team had also come to the conclusion that a common long-term innovation goal was to reach the "1-planet living at a high HDI level" corner (see Figure 4.5). I shared the "sustainable innovation framework" with him and we discussed how it could help to uncover and map fundamental innovation questions. "This is very much in line with our thought process" he said. "Can't you join the team? You would certainly enrich it and at the same time benefit from the multi-industry conversation."—"I'll check and let you know as soon as possible."

Philips had been a member of WBCSD since its foundation more than 20 years ago. I had not been aware of this. Only a brief conversation with both my boss and the head of the CSO was required to take the decision. In early April I joined the team on behalf of Philips, quickly accepting the content leadership role for the health and well-being work stream.

Beyond the care cycle towards sustainable health care systems

With the transition from technology-driven innovation to EUDI, the "care cycle" thinking emerged at Philips Research, Philips Design, and Medical Systems. The care cycle distinguishes six different stages a patient runs through in present health care systems: prevention, screening, diagnosis, treatment, disease management, and surveillance. While in times of technology-driven innovation, imaging systems product development was orchestrated around a hospital centric view, EUDI started with understanding the needs of different end-users: the patient, the patient's relatives, the doctor, the nurse, and so forth. Products then were designed such, that they provided benefits for multiple—if possible all—end-users who came in touch with the new solution. The Ambient Experience CT suite[16] is an early success of this type of innovation.

The care cycle approach opened up significant growth potential for Philips beyond its traditional business in selling and maintaining imaging systems. These initially were mainly linked to the steps of diagnoses and treatment. For the disease management, surveillance, prevention, and screening steps, the borders between healthcare and well-being had begun to blur.

In addition, the management of the new customer and user groups—especially during the nontraditional Philips care cycle steps— require different (service) business models. Trends like the aging population with growing related healthcare costs and increasingly knowledgeable, critical patients asking for the redesign of national healthcare systems were emerging. While in developed economies national health systems are often struggling to maintain access to care for all their citizens and to keep the health system costs under control; in

emerging and developing economies access to care for all still needs to be created and ensured. Thus, sustainability for PD Healthcare meant stretching the end-user-driven care cycle approach towards contributing to the establishment of sustainable health care systems. And alongside all these concerns, minimizing the environmental impactwas also essential.

All this meant expanding the innovation scope beyond care cycle thinking to sustainable healthcare systems. Here, Philips Research played an important pioneering role. One of the first questions that was addressed, guided through the notion *"What gets measured, gets done"* was an appropriate metric for a sustainable healthcare system. Building on the WHO report of the year 2000,[17] for which an intensive analysis of national healthcare systems was conducted, three dimensions were identified:

- Accountability → leading to good health
- Accessibility → measuring the responsiveness of the system
- Affordability → demanding fairness of the financial contributions

These three dimensions were further specified to become relevant for running research projects and stimulate the generation of new innovation ideas.

Personally experiencing the "locked-in" effect

My initial intention to join the Vision 2050 project had been to give more weight to the internal debate. Later it became clear that through Vision 2050, Philips' thought process became both further enriched and validated. I heard new arguments that I could use in senior management conversations, for example, a car manufacturer mentioned the equivalent amount of money young adults invested in physical mobility (first cars) in the 1980s was now invested by the same age group in virtual mobility (IT platforms, computer games, etc.). This observation asks for a massive change in perspective concerning a firm's competitive landscape: the shift from competition on product level within a specific industry—car brand 1 versus car brand 2—to competition on function-

ality between industries—functionality in physical world versus functionality in virtual/mind world. Another manifestation of this shift is enabled by professional video-conferencing and through social media like skype, communication means that have the power to replace travelling.

Participating in this *multiple-industry* team was quite a different experience than working in *multi-stakeholder* groups such as LEAD and GEC. Representatives of corporations are typically result-driven and implementation focused from the very start. They also share some implicit behavior patterns, which are linked to the traditionally highly hierarchical organizational structure and related decision making. This can be beneficial and hinder at the same time.

Thinking back to Disruption Day, I was amazed at the limited radicalism of the debate. This might be a result of the fact that most participants held sustainability roles that were linked to operational excellence, rather than innovation. In my personal experience, operational excellence is often managed through a "command and control" leadership, while managing (especially non-incremental) innovation often asks for a "meaning and purpose" leadership style. Quickly I grew into the role of the "rebel," always challenging the status quo, being constructively disobedient and asking for the extra mile. I had mixed feelings about that and could sense some—unfortunately often not expressed—irritation of other project team members. Joining the project late had the invidious side effect that I lacked quite some team bonding and relationship building time.

A very remarkable incident was a shared cooking session in the woods close to Zurich. For reasons of hygiene we were asked to wear disposable plastic gloves while cutting vegetables. I refused to do so. Taking into consideration that the vegetable would be put in a wok with >150°C hot oil, this rule did not make sense. I could not understand that I was the only one who obviously felt an inner resistance to this paradox. I faced major tensions with my personal value system: wanting to be part of the group, and at the same time follow my intuitive good judgment, not accepting to behave absurdly. When I talked to some of the other participants about my struggle, they could all understand it.

Still they obeyed to the group norm. An exception was one of the cooks, who came to me and congratulated for my "common sense." He told me that of course he would not wear gloves when he was cooking for friends or in his restaurant. It showed a lot to me in terms of group behavior and inner wisdom.

I felt awkward and confused. What did that mean on an individual and on a company level? It seems to be easier to play it safe yet at the same time it felt wrong to be "locked-in" by externally set norms than to dare to take a stance and challenge them. Fortunately my courage or stubbornness was honored by one fellow team member on the next morning. He left me with a very special gift: "The Practice of the Wild."[18]

Beyond nature as resource towards nature as school

Returning from the IUCN conference in October 2008 I read Janine Benyus's book. It gave me the arguments to convince my boss about the necessity to deeper explore the biomimicry concept in order to judge its usefulness for future research. I had discovered that there was an introductory training organized every year by the Biomimicry Institute.[19] In April 2009 I went to Costa Rica for a very special experience. Within a week the participants were immersed in five different biological ecosystems having the opportunity to reconnect to their inner wisdom, letting go of the idea that "nature is a resource," and instead starting to discover what seeing and treating "nature as school" might mean. In multidisciplinary teams, always composed of a biologist, a designer, a business person and an engineer real-life problems were solved inspired by solutions that nature found in its 3.8 billion years of evolution.

It was an amazing experience to firstly identify my personal spot to "quiet my mind" and start learning the skill of "deep listening." Quieting the mind means sitting still at the same place every day for at least 20 minutes (if possible even longer), trying not to think at all, but getting immersed into the environment. After a few days I started to see spiders moving in the leaves on the ground or ants: details that were absolutely not visible to me on the first days. I could see the "skeletons"

of the leaves on the trees, snails moving, and feathers falling down dancing in the wind. I started to differentiate many sounds that previously had seemed to be just one homogeneous undertone noise. I learned several important lessons:

- Much more is always around than I can imagine. The likeliness that the solution is already in hand's reach is very high. Have I unlearned my sense of observing, my seeing skills? What about my other senses?
- Life creates conditions conducive to life: Life is a very creative "force." It has the ability to adjust to local environments amazingly (e.g., mangroves have developed desalination mechanisms in order to thrive in water in transition areas between the salty open sea and fresh waters in land). We humans have a surprising capacity to adjust to different situations.
- Nature is always beautiful, thus beauty might be a useful decision criterion.
- In order to stay in balance, "thanking nature through little gifts and rituals" means "caring for life." This can be done (and is be done by indigenous people) through cultural activity such as dancing, singing, and painting.

I was intrigued by the potential of the biomimicry approach. And while in Costa Rica I met a team of four students—an engineer, a designer, a biologist, and a business person—was looking for an assignment for their final thesis work. They had participated in the first 2-year biomimicry professionals' education. Philips Research had just installed an "open lab" group. This organizational unit was set up to facilitate the spinning-out of new business ideas that did not fit into the Philips strategy and spinning-in of relevant innovation seeds from the external market place. I had a good relationship with the "open lab" manager, and quite spontaneously he agreed to host the thesis on "the design of an innovative nature-inspired business model for Philips Research's open lab."

For the biomimicry experts this was a rather unfamiliar assignment. The usefulness of the "nature as school approach" for product creation

had been proven several times already. Therefore, the team appreciated the opportunity to apply the method to a more abstract business process. Initially there was a gap in expectations between the educating institution and the possibilities at Philips. The students did not realize that supporting a thesis of a new process should be seen as a co-creation process in which also the hosting company needs to contribute its most precious resources - employee time. Staying out of the "shame triangle" the biomimicry team managed to turn initial skepticism and cynicism into mutual respect and genuine interest. Finally, six different "nature strategies" could be identified providing the open lab team with useful novel business model ideas. I enjoyed very much the RMT's openness to keep the space open for experiments even in tough times, an attitude that reflects a very strong innovation culture.

Beyond addressing symptoms to working on the root cause

In mid May, a few months after Disruption Day, a new group of people joined the scene: the artistic staff of the Van Abbemuseum in Eindhoven, a museum for contemporary art. The director was just preparing the first of a series of four "Play van Abbe"[20] exhibitions. With this project he and his team aimed to explore the questions:

> What is the role of an art museum in the 21st century?
> Which role can and should art play in society?

> That was FASCINATING!

Listening to this idea, I experienced quite a deep resonance: They were posing exactly the same questions that we had identified, yet not phased as such until then. It became clear to me in that meeting that actually we were exploring:

> What is the role of a company in the 21st century?
> What is the role of innovation in solving humanity's major challenges?
> What king of innovation is required?

Was this coincidence? I didn't think so. I saw this meeting as invitation to investigate how we could align intentions, or—if possible—agendas. After some further conversations with the museum director and my CEO and bringing them together right after the summer holidays, it was decided that Connection Day (our follow-up to Disruption Day) would be organized end of the year at the Van Abbemuseum. The idea emerged to align the Play Van Abbe project flow with the development and implementation of the Philips Sustainable Innovation agenda and at the same time explore the process of co-creation as a next step beyond open innovation. This all happened since there was a common understanding about "art: representing society's soul" and "innovation: facilitating society's survival." In so far as a museum could be a place to experience starting points for "social innovation" comparable to nature being a place to experience starting points for "environmental innovation" as suggested through the biomimicry approach.

In addition to forecasting also backcasting

A few months later, right before the summer holiday I got connected to a young entrepreneur in Eindhoven. He was in the process of establishing the International Centre for Sustainability Excellence (ICSE) in the old Philips Lighting headquarters building. His dream was to build a space where all the different, often highly complementary approaches to innovation towards sustainable development would be made accessible through lectures, courses, conferences, and the display of related products and services. I appreciated this idea since I slowly but steadily got lost in the broad variety of different processes, tools, indicators, logos, and standards that I came across on our exploration journey. I hoped he would create an overview of when to use what. Possibly the sustainable innovation framework could be helpful for such an exercise.

We met once and instantly there was a deep connection. Together we traveled to Stockholm, where he intended to deepen his relationship with "The Natural Step" (TNS),[21] an NGO that had been founded in 1989. As one of their core activities, TNS educates change agents for sustainable development to apply the "framework for strategic sustainable development" (FSSD) (Figure 5.5).
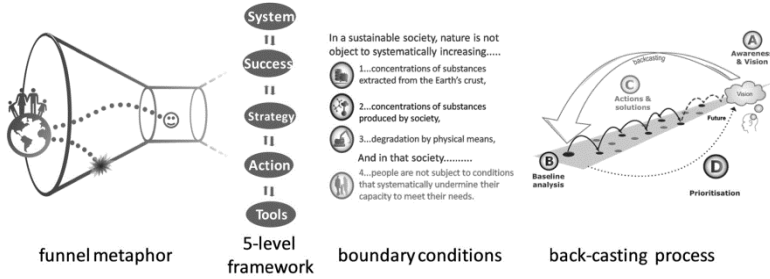
Figure 5.5 TNS framework for FSSD

The Natural Step uses a funnel metaphor (Figure 5.5 first graph) to describe how humanity is coming up against the limited natural resources of our planet. I saw that this could be used to complement to the L-sheet. It is an alternative visualization for the same core message: The current, unsustainable socioeconomic system leads to "hitting the wall" while innovation for sustainable development should lead to the establishment of a new socioeconomic system. The five-level models (Figure 5.5 second graph) helps to structure the different types of sustainability related activities, concepts and tools. In a result communication effectiveness increases significantly. The boundary conditions (Figure 5.5 third graph) offer information about important attention points when working in the new sustainable innovation space.

I immediately realized that the backcasting process[22] –a way of working that starts with defining a bold goal and then orchestrates action to bridge the gap between the desired end-state and the current situation (Figure 5.5 fourth graph)– reflected our way of working in pioneering Atmosphere Provider. It also would guide the way to cross the disruption zone, while traditional "forecasting" –the projection of historical developments into the future– along environmental and social performance indicators would be useful to guide incremental innovation activities leading to efficiency increases, thus decreasing negative environmental and social impacts.

Despite disruptions staying on course

Since Disruption Day we were happy and relieved to have protected and even expanded the "niche" for sustainability-driven innovation even in

times of overall "shrinking." But then—shortly after the summer holidays—a big announcement was made at Philips Research: *in order to increase innovation effectiveness the Aachen lab will be closed. Most research activities will be transferred to the Research Lab in Eindhoven.*

This was a shock! For me a déjà-vu…

It brought me back to early 2006, when due to strategic considerations colleagues from the display factory had lit oil barrels while fighting for their workplace. And again, employees had not done anything wrong. The Aachen lab with over 270 employees had quite a solid size and was the second biggest Philips Research Lab. In its 80-year history it had been an important gate to the German academic, science, and innovation community, the access point to apply for multiple EU and German Public Private Partnership projects.

Being organizationally embedded in the Aachen administrative system and working from my Aachen office 2 to 3 days a week, I was directly affected by the announcement and its implications. For me personally the situation created a stretch that made me feel the limits of my capability to hold external tensions. The tensions I felt were

- **On a time axis:** Being part of the "death" of a 80-year-old living organism, the Research Lab in Aachen, and concurrently working on reaching at least 20 years, more likely 40 years, out into Philips' long-term future. This meant I needed to actively handle 120 years … in a context that was in a month-to-month survival mode. That was quite a discrepancy.
- **On an expectation axis:** Consciously leading into the unknown of a new paradigm versus falling back into "reaction = safe routine" of what always worked in a context of fear, crisis, and survival mode.
- **On a colleague/site culture axis:** Since I had a global role I spent about as much time in Eindhoven as in Aachen. I was immersed both in the Eindhoven empathetic observer role and in Aachen in the role of the affected. I found myself playing a strange and quite unfamiliar, informal "bridge role." And over time I learned that this role was highly political.

Although my spontaneous reaction to the Aachen announcement was the idea to find a way to keep the lab alive, I quickly realized that a more appropriate response to this disruption was to stick to the bigger plan and pay attention to "Connection Day": to embrace and experience the "pain" related to the closing and search for joy and opportunity at the other side of the disruption zone.

It was in this challenging context and emotionally stretching situation that Connection Day was prepared. A preparation team was installed. Over the summer the relationship to the Van Abbemuseum had grown such, that a young curator of the museum was seconded to be part of the preparation team. She was from Israel and Jewish which in a good way increased the cultural diversity of the team. During the team building phase, we reconnected to the high-level Disruption Day results (Figure 5.6).

	Old paradigm...	Transition	...New paradigm
Individual	materialistic values wealth = money rich Status via consumption	Personal behavioral & attitude change	holistic wellbeing enabling tools & services
Economy / Business	Business: Trust crisis towards business & (yet trust is the basis for economic growth)	Re-define value creation beyond profit	Business: credible solution provider, sustainable consumption
Society / Government	Culture of accounting & efficiency	Redefine social systems & create independency from high quality infrastructures	Culture of creativity and innovation → Towards a new effectiveness
	Social systems & infra-structures under stress		Fair, effective social systems; autonomy via distributed systems
Nature / Environment	Nature as resource: 60% of our supporting ecosystems are under stress (→ MEA 2005)	Find a solution to "tragedy of commons"	Nature as school: Life creates conditions conducive to life ...

Figure 5.6 High-level transitions towards sustainable development

I had the impression that—despite participating in Disruption Day—part of the management during the last months had fallen back into the traditional reactive mode. They were looking for very explicit outputs in terms of concrete projects or other familiar actions that would exemplify the pathway to sustainable technology or product development. I had my doubts if that was a realistic goal.

Using the TNS five-level framework (see Figure 5.5), in my perception we were at the stage of defining "success." Since Disruption Day, the CSO in dialog with the sustainability network had been working on the

next corporate sustainability program: EcoVision 5. The intention had grown to institutionalize the pioneering work of recent years by adding to the focus on "Climate Change and energy efficiency" a new environmental target on "material use," which leveraged the C2C experiments and the new recycling and take-back approach. To make the program fully sustainable, a target on "access to care" would be set for the social dimension, which built on insights derived from the BoP projects among others. The announcement of the new corporate sustainability targets was scheduled for February 2010, coinciding with the publication of Philips second Integrated, Sustainability, and Annual Report.

According to the five-level framework, the next logical step would be to define "strategies" to bridge the gap between the desired goal (e.g., EcoVision 5 targets) and the current state. I tried to make an analogy with the "theme development of AP. I felt that the three sustainability targets "energy efficiency, materials, access to care" had a comparable theme maturity as AP right at the initiation phase of the program. I had the impression that in order to truly change towards innovation for sustainable development along these new business themes would require comparable corporate culture changes as for the AP theme. Management's expectations of "concrete results" was again neglecting the present "implicit culture" (see Figure 3.10). Unfortunately during the preparation of Connection Day, I did not yet make the connection between the TNS strategy level and the "business theme architecture"; the FSSD was too unfamiliar to me, I had not yet worked with it, had just discovered its existence.

However, we understood that the situation was complex and put special attention on:

- **Pioneer Dilemma:** How do you phrase your new understanding in such a way that it captures the essence of the new yet can be easily understood by others?
- **Redefine value:** Sustainable development has to become part of business—seeing it as an innovation driver is a powerful perspective; what are the business opportunities?

- **Lock-in and rebound effects:** How do we innovate beyond existing mental models, behavioral patterns, established infrastructure, and KPIs? How do we ensure that efficiency increases are not overcompensated by increased consumption?
- **System thinking and acting:** How do we ensure that we solve the real problem rather than optimize sub-solutions?
- **Open innovation and co-creation:** This is easier said than done: What role can alternative visualization means like art, communication means like the Internet, experiences like Disruption Day and Connection Day play in enabling more people to actively participate in *the* sustainable innovation movement?

The preparation of Connection Day emerged to be a significant experiment in social innovation, bringing up unforeseen communication and culture clash challenges. These were mainly related to implicit "mental models and world views" rooted in different expertise and the unconscious use of "organizational jargon." Interestingly, communication quickly became more effective when using "everyday language: as if you explain it to your 10-year-old daughter…" and metaphors. The common intention on both sides to make this event a success liberated a lot of goodwill. Mutual trust grew very quickly in the preparation team. Finally an invitation was sent out stating:

> *So what is Connection Day? New solutions come from new connections. On Connection Day we are bringing together knowledgeable people from many different fields. It will take place in the Van Abbe Museum (in Eindhoven): We may need a new and imaginative perspective on the way we see things.*

The entire workshop flow was set up to give the participants the opportunity to make <u>connections</u> on multiple levels:

- **Personal:** connect to oneself and one's beliefs, aspirations, struggles, possible contributions
- **Professional:** connect to new people, whom one would traditionally not have met, but who might be a valuable innovation partner in future

- **People/society:** connect to shared societal/social legacy, if possible uncover hidden or implicit cultural assumptions that currently hinder change
- **Planet:** connect to local space and global environmental challenges, transform to see them as opportunity, rather than threat

For the first time we publically expanded the triple-P model (see Figure 4.10) towards a 4P model for sustainable development adding the individual person. This expansion still was implicit. It was rooted in the EUDI that Philips implemented in the entire corporation since 2003.

A sophisticated event flow emerged. Around 55 participants representing multiple different stakeholder groups joined for the entire day. Another group of about 35 participants "grew into" the event in the afternoon. In order to facilitate effective dialogue, the participants worked in six groups. Initially the teams of nine members, in the afternoon six new participants, "grew in." The afternoon group experienced only the last four building blocks. All attention points had been embraced (see Table 5.4) in the event that was composed of seven main building blocks:

- **The opening was two-fold:** After their arrival and registration, the participants were briefly welcomed and guided through the event flow. Then they made a "time journey" starting before 1972, the year when "The Limits to Growth" was published. They were invited to "build the group's collective history" by putting events on the wall related to their personal and professional lives, changes in the economy (profit), society (people), and the environment (planet). A few "posts" had been put on the time line to show the working principle, for example, 1989 a picture of the fall of the Berlin Wall. In a second step—already split in groups—they were asked to introduce themselves by sharing their favorite household activity. This way they met on a personal level, avoiding being locked into their professional role (Figure 5.7).

Building a common history   Study group   Study sheet   Staircase dialog
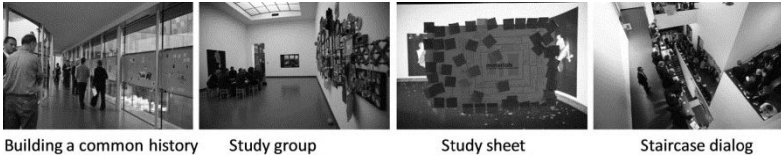
Figure 5.7 Connection Day impressions

- **Study group:** Six themes were explored in teams: energy, materials, access to care, value-redefined, co-creation, and transitions. A piece of art and a set of texts describing the theme from different perspectives were the starting point for the team dialog. Special co-creation tools had been developed to facilitate this.
- A **speed-dating session** was organized to exchange insights from the study groups. All-day participants joined two study groups and two speed-dating sessions.
- **How we got here:** An official welcome and additional motivation of the event was given to the entire participant group by Philips Research's CEO. Then all-day participants connected to the "newcomers," accompanied them on the time journey and encouraged them to add their events and memories to the group history.
- **Connecting to new perspectives:** Again in six now bigger groups, all participants experienced a "sustainability-driven innovation" tour through the museum. Everybody visited all six theme rooms, got introduced to the dialog results, and was encouraged to add perspectives, share ideas for common activities, concerns, and so on.
- **Shaping opportunities:** The staircase area was used for a plenary dialog.
- **Dine and dialog:** In the museum cafe the workshop was concluded with a dinner and time to connect more deeply through informal conversations. At their departure participants were encouraged to note down their spontaneous feedback in a guest book and invited to join the "stone-holder" group. Some participants took a second stone, complementing their initial stance. Others exchanged their stone, as they had realized that in the meantime they had personally moved to a different priority.

Table 5.4 Attention points built in event flow

	Pioneer paradox	Redefine value	Lock-in, rebound	System thinking	Co-creation
Opening	Shared experience delivers starting points for dialogue		Self-intro via favorite household activity	4Ps	Write history
Study group	Art work to inspire dialogue	Multiple perspective description inspired multi-benefit conversation	Multidisciplinary team asked for simple language, consciousness about own mental models	See theme from different perspectives	Working towards a broad, shared understanding of the theme
Speed dating: share and connect		Meet new potential innovation partners	Listen to other perspectives	Listen to other perspectives	
How we got here		Framing of the event	Invitation to think out of the box	4Ps	Add to history writing
Connecting to new perspectives	Themes represented in multiple ways	Opportunity discussion		See study group	Further enriching of study sheets
Shaping opportunities	Experience diversity	Opportunity discussion continued	Staircase space represents multiple perspectives	Different stakeholders in participant group	It all starts with an open dialog
Dine and dialog	Talking about common experience	Meet people outside one's box	Unfamiliar place allows for different behavior	All themes visible in floor between museum and café	Stones at play

Connection Day took place on December 7 and was perceived as very inspiring event. There were no directly measurable results, but every partici-pant now shared an experience of having collectively moved "out of the box," as they met in an art museum, and we used artwork to open a dialog about sustainability-driven innovation. They mostly unconsciously

experienced and co-created "culture change" in a sophisticated and well-recognized "cultural institution."

> ***Tips and tricks*** *for sense making (10)*
>
> *Space matters: In cultural development many places get associated with deep symbolism or implicit expectations that people often are not aware of, but that shape their behavior and judgments. For example, an art museum used to be space of quiet admiration. Going there shows that you have or seek a high level of education and cultivation. Understanding and discussing the cultural meaning of space can be very handy to reveal roadblocks for change. On the other hand using commonly visible qualities of space such as in the multi-perspective dialogue can significantly accelerate collective sense making.*

For a day we could let go of all the struggles to survive in disruptive times and meet as genuine humans exploring a good way forward. Participants gave energizing feedback, for example,

- Change will happen. We need to decide whether to be proactive or reactive. Let's hope we can manage the first.
- It's only possible to work on the future here and now. It was great to be here today—and wonderfully energizing.
- Thank you for a special event. What I particularly liked was that it puts responsibility on each and every one of us to make connections and to make sure that these connections are picked up and ensured.
- There is a lot to think about over Christmas!!

Nowadays I can acknowledge that—although the year seemed to be rather tough for me and I felt quite lonely and lost in times—2009 certainly was as tough for (senior) management who needed to take bold decisions and then deal with the storm of emotions that boiled up: the resistance and fear of the employees that these decisions created after announcement. Having been in the middle of the storm I started to grasp how challenging it is to organize fundamental change and at the same time continue to deliver solid business results.

Main Transition Step in 2009: A core group of formal and informal leaders of the organization moved from "concept to group-experience." Participating in both Disruption Day and Connection Day abstract concepts like "from threat to opportunity" or "beyond open innovation towards co-creation" and "disruption zone" became meaningful.

Personal

Organizational

A peaceful mind can transform deep emotion to meaningful action.

Twin-path insights 2009

The powers always fear the free, the humble and the wise because they can't control them. They speak TRUTH that cuts sharper than a knife.
(Alastair McIntosh)
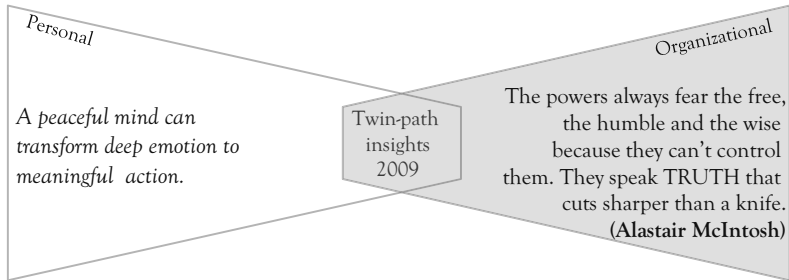
5.2   Empowerment — Shaping the Opportunity (2010)

or beyond pioneer push also corporate pull

In spring 2010 a volcano in Iceland for more than a week put air traffic to Europe on hold.

The WBCSD Vision 2050 project reached its final phase and the core team was busy consolidating all findings in a report. It was launched in early February 2010 almost concurrently with Philips putting sustainability at the top of the management

2010	The bigger picture…[23]
January	Publishing of WEF "Redefining Business Value: a roadmap towards sustainable consumption"
February	Publishing of WBCSD Vision 2050 report
	Sustainability on Philips Management Agenda; EcoVision 5
April	Iceland volcano eruptions stops flights traffic across Atlantic and Europe for several days with the result that the global economy was slowed down for a few days
September	Launch of Vision 2015

agenda and the launch of EcoVision 5. A new bold goal for humanity was set, explicitly embraced by the 29 participating multinationals and the broad network of NGOs and academic partners who had contributed to its development: *In 2050 some 9 billion people live well and in the limits of the planet.*

What empowerment means to me...

When the word empowerment comes to my mind, I see my children on their first day at school. They went to a Montessori school, where the educational principle is called: "help to be able to help yourself." Learning is experiential. Children of different ages (in Germany

> ### Dictionary Definition
> *Empowerment* is about the granting of power to perform various acts or duties Synonyms: accreditation, authorization, delegation, mandate, empowerment, license

6 to 10 years old: first to fourth grade) share a class room and learn in a "prepared environment" from and with each other. All the material is available once, and there are clear rules on how to access specific pieces: You need to be sufficiently mature to work with it (have done all the other work that leads to a specific task), you have priority if you have not done it before (someone who has done it previously has to wait). The experienced children explain to the younger/inexperienced ones, how it works. The teacher is the facilitator only getting involved in moments when conflicts occur that can't be solved by the children themselves. My children loved to learn at that school. They were allowed to follow their "sensitive periods" tapping into their intrinsic motivations and following the "Kairos" principle: doing things—in this case learning subjects—at the (for them) "appropriate moment."

*Why are empowerment and shaping the opportunity
the essence of my twin-path journey 2010?*

For the participants of Connection Day, this event had been an amazing—almost "healing"—way to close a year of disruptions, a year in which all of us had witnessed a major storm—if not even a hurricane. Like a ship on the ocean we had been shaken and it had been hard to keep the course. Finally, aligning aspirations and accepting the present created some space and confidence in the future grew again, despite the fact that some would leave the ship soon.

Reflecting on it I realized:

- A disruption (negative connotation) zone can become a
transition (positive connotation) zone. Whether that

happens or not is a question of attached expectations, perspective and personal mindset, for example, the birth of a child, and end of school or the beginning of a new professional assignment are major changes that are generally positively perceived. We tend to welcome them. The information about a serious disease or a forced unemployment is generally perceived as negative. Initially we tend to refuse to accept them. Deliberate effort is required to change attitude, accept the new reality, and deal with it constructively.

- Dialog is framed by participant's roles and related sets of expectations. For example, introducing oneself with one's favorite household activity made it easy for Connection Day participants to meet as "human to human." This in a consequence led to the openness to honestly and passionately discuss fundamental human questions very quickly.

- Art is a useful tool to inspire meaningful dialog about complex societal themes among a broad variety of stakeholders. It offers the potential to express opinions and feelings without losing face or to project unconscious feelings of fear or resistance onto an object rather than the dialog partner.

- Coherence between language, activity, and space significantly increases the effectiveness of a learning activity experience.

A bold vision for mankind

I was happy about the launch of the WBCSD Vision 2050. It significantly strengthened the message of the "icebreaker sheet" rooting it in collective, cross-industry insight. It put the goal of "1-planet living on a high human development index level" into everyday language and increased the meaning of Philips' approach towards "sustainable health and well-being." New terminology emerged: system innovation, complex coalition structures, co-creation, aligned action beyond competition, connecting, interdependency and blurred lines, a 40-year journey...

As the first step in translating this very abstract, not actionable vision, a "pathway map" was co-created. This communication tool introduces the emerging innovation landscape, reveals some initial connections between different industry sectors and shows that business will not be able to implement the changes towards sustainable development without other stakeholders in governments and civil society changing as well. Thus it is a powerful tool that can be used to open up multi-stakeholder dialogues for (social) system innovation and social innovation. Unfortunately it is not specific enough to guide innovation in a single organization, since the milestone targets have the quality of "boundaries." Also there was not clear definition of what "living well" means.

Beyond a home lab to engaging lead users towards a community lab to explore sustainability needs towards "living well" in Western Europe

In early 2010, the city of Utrecht launched a project, aiming to develop the most sustainable neighborhood of the Netherlands in Rijnenburg. What, however, does "most sustainable" mean? A multi-stakeholder group of local authorities, construction and building companies, potential future inhabitants, banks, and so on first defined the boundary conditions for the development area. This happened in a charette[24] process. Then a multi-stakeholder team including Philips Research was established to detail the vision for Rijnenburg and develop actionable "system innovation specifications." Building on Philips Research's broad experiences with the Experience Labs[25] involving lead users in the specification of intuitive user interfaces and functional product specification, a "Community Lab" was envisaged to explore emerging social and environmental needs and co-create functional system specifications for future sustainable solutions. Also new ownership or sharing models and related business models would be investigated. Unfortunately due to personnel changes at the different stakeholders, and increasing challenges to safeguard the stable financial support from all the parties involved, after a few years this promising starting point was put on hold. I see this as an invidious example of the puzzle dilemma.

Towards leading

In February with the launch of the second integrated financial, social, and environmental Annual Report for the first time in Philips history, "sustainability as strategic driver" became one of the nine explicit top priorities on the corporate management agenda*: Leverage sustainability as integral part of our strategy.*

On the same day, the EcoVision 5 program was launched (Table 5.5). With this corporate program Philips for the first time launched a set of targets that truly contributed to sustainable development in both the environmental and social dimensions. A major mental shift was facilitated with the introduction of future-oriented "Leadership KPIs."

Table 5.5 Comparison of EcoVision 4 and EcoVision 5

EcoVision 4: By 2012 We…	→	EcoVision 5: By 2015 We…
Double total revenues from Green Products to 30%		Will bring care to more than 500 million people
Double investment in Green Innovation to EUR 1 billion cumulative	From **lagging →leading** indicators	Will improve the energy efficiency of our overall portfolio by 50%
Improve our operational energy efficiency by 25% and reduce CO_2 emissions by 25%		Will double the global collection and recycling amounts of our products, as well as the amount of recycled materials in our products

To safeguard proper implementation and demonstrate the seriousness of the program, the Sector CEOs were made personally responsible for their realization. The "lagging KPIs"—measuring incremental operational green and social performance improvements—stayed relevant as well. In the meantime these had matured such that they were handled as "hygiene factors" of good corporate citizenship. With this decision, sustainability became fully anchored in all business balanced score cards (BBCSs) and the bonus targets of all decision makers. In other words, sustainability became embedded in the business strategy.

In addition, Philips employees were invited to engage in a variety of different philanthropic activities, for example, the global program SimplyHealthy@Schools[26] or in the United States the American's Heart

Association's Heart Walk initiative. A key to the success of the broad variety of different embedding activities[27] was their consistent orchestration around the EcoVision 5 goals: access to care, energy, and material use. It ensured reinforcement and thus the coherent diffusion into the corporate culture.

From push to pull

I used the EcoVision 5 program and the fact that sustainability had been put on the Philips management agenda to switch from a "push" to "pull" communication and implementation style. What do I mean with this? Since the creation of my role in April 2006 I had been the "driving force" of sustainability, consolidating already existing activities into a meaningful plan, orchestrating new knowledge development both in terms of discovering relevant knowledge and translating it into training modules, facilitating the champions network, and so forth. For 4 years the exploration work had been done in a bottom-up "push-mode," stretching the boundaries of the innovation horizon, challenging implicit worldview assumptions and creating confidence. Doing so, the sustainability champions and I had been in constant competition with the regularly planned work. We had constantly pushed boundaries, creating space for the new topic to seed and start to grow. The "green innovation" target of EcoVision 4 had already created a small "pull." I had used it together with Philips Research's quality manager to implement both a mandatory use of a green innovation checklist for every research project and the certification of all Research sites according to ISO 14001. These activities had been initiated already before 2007. EcoVision 4 had given us the legitimacy to demand it, to make it a "must-do," while before it had been "useful" or "sensible to have." But it had been restricted to "green" and still mainly linked to compliance and good housekeeping, expanding quality management.

Now it became time to fully shift towards a "pull mode," accelerating engagement and implementation also via the top-down route. This was accompanied by a fundamental shift in my role and champions' way of working.
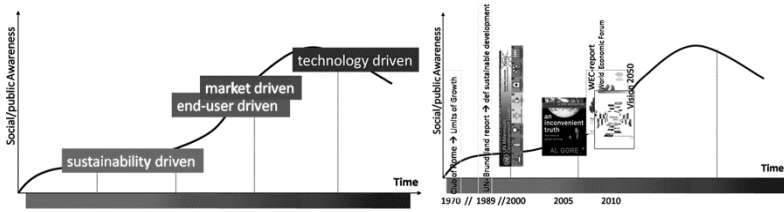
Figure 5.8 Positioning of sustainability as innovation driver in research group deployment

Between February and May 2010, about half of the research groups put sustainability on the agenda of their regular group meetings. I used Roger's innovation diffusion curve (Figure 2.2 first graph) to map the different maturity of the innovation approaches (Figure 5.8 first graph). In addition I visualized the growing market readiness of sustainability as an innovation driver through populating the graph with external publications and activities (Figure 5.8 second graph).

In a second step during I shared the Philips approach towards sustainability as innovation and business driver, discussing the "L-sheet," the EcoVision 5 targets as mid-term goals and the innovation framework as a mental model to frame the overall challenge ahead on the pathway to Vision 2050, the long-term goal.

During the sessions the Research groups were invited to work on required expansions of their own group skills and attention points for crossing the disruption zone (Figure 5.9). Finally they were asked to develop their group's EcoVision 5 action plan and identify at least one project, which could enable a major sustainability impact by contributing in a significant way to one of the EcoVision 5 targets: care, energy, or material use. The
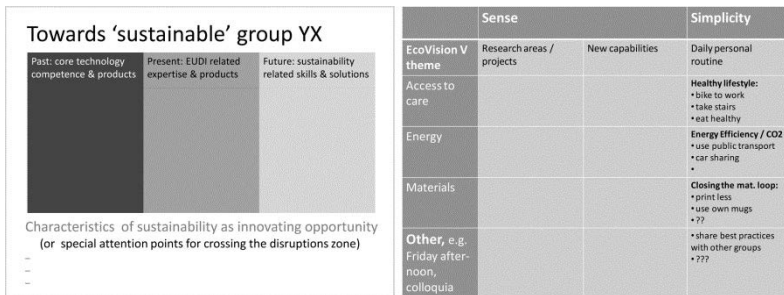
Figure 5.9 Work sheets for EcoVision 5 deployment in Research groups

RMT had requested the identification of such projects and suggested that they would be called sustainability ICON projects. In addition the group should perform operational/philanthropic actions in order to build a group culture for sustainable development.

The next question emerged: What are the characteristics of an ICON project?

It was my assignment to come up with an actionable set of criteria to quality and quantify an ICON project, an activity that should be done in strong cooperation with the CSO.

I did not find any practicable and clear definition internally. When discussing the question in my—in the meantime quite broad external sustainability expert network—all dialog partners recognized the struggle, yet did not have an immediately applicable solution. Therefore, in order to give the desired guidance and inspiration, I suggested a "sustainable innovation portfolio tool." It embraced all the insights of different pioneering efforts of new innovation methods, business models, ways of cooperating and crossing the disruption zone that had taken place at Philips in previous years.

The portfolio tool was rooted in the "L-sheet." In order to embrace the implicit corporate progress logic—good innovation moves from bottom-left to top-right—the graph was mirrored along the horizontal axis. Both, the "environmental" and the "social" axis were customized to the Philips context. Finally the "sustainable innovation framework" logic got applied, with the current business focus representing the "old paradigm," and the now right top corner being a place holder for the "new paradigm" on the other side of the disruption zone. Impactful ICON projects should stretch the current business focus into the disruption zone, the middle gray area...

Involving internal thought leaders both from the innovation and the sustainability network, a maturity metric[28] was also developed. It was built up such that as indicated by the dotted lines in the second picture of Figure 5.10, the moving borders of mainstream business could be made visible. Also it acknowledged that concurrently to the Philips innovation activities, national legislation and local and global compliance norms would be sharpened, as shown through the "moving line of noncompliance."
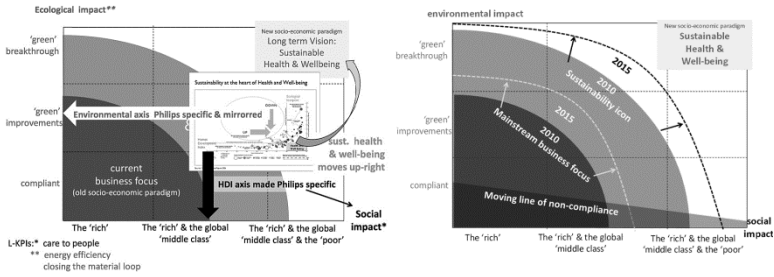
Figure 5.10 Portfolio mapping tool to identify ICONs and expected sustainable innovation dynamics

This was very useful to facilitate the core team dialog about the probable innovation dynamics in coming years. It also helped to envisage the changing quality of a sustainability icon and some main characteristics of the disruption zone. For broad usage, however, it was too complicated.

To guide and measure the environmental impact of ICONs, the existing green innovation metric was used. Finally, the UN Millennium Development Goals were chosen to guide and measure the social impact of ICONs.

Gaining extra energy

Possibly because of management's embracing of sustainability on its agenda, Philips's CEO got invited to join a panel on the "State of the Planet conference" in New York on March 25, organized by the Earth Institute of the Columbia University. He could not travel. Instead the CEO of Philips Research accepted the invitation. I was asked to join him, bringing him up to speed with all the sustainable innovation developments and ambitions of recent and coming years.

The conference participation was a relatively short-notice event. It resulted in a major increase of credibility for the Research sustainability agenda. More and more skeptics and cynics could let go of their mistrust and doubts and open up to the emerging opportunity. It considerably strengthened the evidence for my "pull story" and proved to be an extra door opener to engage the research groups in the structural development of an "EcoVision 5" research portfolio complemented by site-specific employee engagement activities.

Moving into action

One of the first sites to translate the new corporate sustainability program into concrete action was the research lab in Briarcliff, close to New York. Already some time ago I had planned to visit the lab. Since quite a sizable group of researchers had come to the Earth conference, an interesting three-step deployment flow surfaced and seemed to be very effective:

- **Inspire**—happened during the State of the Planet conference.
- **Invite to imagine**—in early April the deployment sessions took place for each research group individually. These were closed by setting the concrete task of using the coming 2 weeks to reflect on the group's current skills and their relevance for sustainability, to imagine—using the sustainability lens—which new research topics might become relevant and suggest the group's EcoVision 5 program using the worksheets of Figure 5.9.
- **Commit to implement**—by mid-April the results were discussed and decisions on next steps taken. A month later together with the head of the Briarcliff lab I had consolidated all group action plans into a "EcoVision 5 site plan," setting an example of how an entire research lab can take sustainability as starting point for innovation.

Nature as school to deal with complexity

In the time between the two Briarcliff visits, I went to Costa Rica for the second time. I had been invited to join the final presentations of the first 2-year biomimicry expert program. Eight teams shared their findings related to a complex innovation challenge. The "Open Lab" team that had worked at Philips Research since September 2009 was one of them. Listening to the different results helped me to understand more deeply what biomimicry experts mean when they state: "Nature should be seen as school." In addition it gave me a flavor of the nature of co-creation as a future innovation process. It should be rooted in a single goal meaningful for all stakeholders, one complementary skill set, and one common language. Observing nature with all its working principles, visualizing them, and then combining these

with the different expert perspectives seems to be a way to bridge the communication gap between diverse expert groups.

Unfortunately, this is—like leveraging all the knowledge hidden in patents via TRIZ[29]—a very time-consuming process. A lot is possible, if we give it the time it needs; I realized. Could it be that all the pieces of the "solution puzzle" are around somewhere already? What if our challenge actually is to become brilliant puzzle players, rather than creating more and more puzzle pieces?

Any disturbance holds a possibility

My journey back from Costa Rica to Briarcliff and my last stay there coincided with the big air travel chaos that had been caused through the eruptions of Eyjafjallajökull in Iceland. Many colleagues were stranded in the Briarcliff lab. Consequently colleagues who were often quite hard to catch at home were suddenly accessible and some unforeseeable deep and meaningful conversations took place. It felt a bit like a refugee camp and was provided the encouraging experience of the beauty of human supportiveness in times of crisis.

> ***Tips and tricks*** *for sense making (11)*
> *Life creates conditions for life… It might be useful to look into the many paradoxes of life, when searching for pathways through the disruption zone; for example, on the one hand life (as a phenomenon) is endless, and on the other individual lives of specific plants, animals, humans, and social systems are limited ... life is highly complex and dynamic, it is present everywhere, it can be a school if we learn to read it and reconnect to our "common sense". What if we would reconnect to our physical and mental senses instead of fully relying on artificial instruments? What if we would build on our own experiences and acknowledge that not everything can be explained with a linear cause & effect logic? What if we would more consciously search for the opportunity in any disturbance?*

Technology enables EUDI and sustainability-driven innovation

During the first half of 2010, 16 research groups developed their EcoVision 5 plans and started to define ICON projects. They discussed

new dimensions of their research and explored which types of additional skills would be required in order to appropriately meet both end-user needs and solve environmental and social/societal challenges.

Technology driven &	End-user driven (since 1990's) &	Sustainability driven (since 2005 emerging)
Core contribution	**ENABLE**	**EXPERIENCE**	**EMPOWER**
High level Customer benefit	Independence from nature /environment	Independence from culture / community (self-expression)	Interdependence with nature, culture / society
Research capabilities	Physics, chemistry, math, engineering, material science	Psychology, design, biomedical engineering, medicine,...	Broad sustainability related skill -, mind-, heart-set
Fields of Research	Technology	user, activity & application oriented	Life-cycle-driven, eco-system & society oriented
Type of work	IP generation, scientific research fundamental working principles	Develop & respond to user insights , user friendliness, comfort	Develop & collect society & environmental insights, context
Type of solutions	Standardized & mass hardware devices & components	Integrated solutions product+ service personalized solution	Products & system solutions beneficial for planet, society, individual
Way of working	Closed research & development	Open innovation	Co-creation, participation, creative community
Innovation process	Technology leveraging product creation , PCP	Market & end-user driven, design thinking, lead user approach, EUDI	Sustainability driven: framed through planetary & social boundaries , FSSD
Value creation via	Best technology enabled product functionality, IP	Multiple superior (end-) user benefits	Sustainable alternative, context relevance

Figure 5.11 Evolution of innovation drivers embracing complexity

I consolidated all findings[30] of the group sessions in a table (Figure 5.11). This helped to resolve all the fundamental language inaccuracies that arise when one innovation approach is replaced by another. Instead—as in biological evolution—the next level of complexity embraces the previous one, yet changes the role of the earlier, so we are confronted with an "as well ... as" inclusion logic rather than a "from–to" transition.

Beyond Open Innovation towards Co-creation in Innovation Ecosystems

At Philips Research the first decade of the millennium was characterized by the transition from a closed Corporate Lab to a Sustainable Innovation Ecosystem. A total of 2,400 Philips employees worked at the Research "Natlab" in 2001. About 10 years later the same space was called High Tech Campus Eindhoven and was hosting over 100 companies. Today's

campus community of 8,000 international talents is a dynamic mix of global players, start-ups, SMEs, research institutes, and service companies. R&D organizations and technical professionals from 60 nationalities working in various technical disciplines create optimal synergy and efficiency. They develop disruptive technologies providing solutions to major global challenges: safety, health, mobility, communication, sustainability, and energy. Most unique about this innovation ecosystem, however, is that the philosophy of *Open Innovation*[31] is lived.

In some cases this open innovation even moves further towards co-creation. For example, this truly sustainable innovation ecosystem resulted from Philips' cooperation with the City of Eindhoven and the state of Brabant[32]. On the *environmental* side, state of the art technology was used to maximize operational resource efficiency; the parking facilities were positioned such that the inner campus is car-free. A rebuilt lake brought back a variety of local birds, thus revitalizing the biological ecosystem. On the *social* side the meeting center was consciously designed to host a broad variety of innovation meetings. Different canteens serve people's diverse food needs. Recently employees of multiple companies have started to build a garden that will provide one of the canteens with locally grown vegetables. A kindergarten is available with pleasant rooms available for breast-feeding. A small shopping area offers access to all necessary goods, hosts a bank, some sports facilities and a hairdresser.

As all these efforts demonstrated, sustainable innovation, especially systems building, is a shared multi-stakeholder co-creation effort. With this becoming ever-more widely understood, a benchmark study was executed by Philips Corporate Communications on how other industries organize stakeholder engagement. Some of the findings were:

- The Unilever Food and Health Research Institute brought the Unilever Vitality Mission to life.
- The goal of the Danone Institute was to link scientists involved in nutrition research with health and education professionals.
- Johnson & Johnson focused on saving and improving lives and on preventing disease and reducing stigma. They contributed $510m in cash and products to 650 philanthropic programs in more than 50 countries.

In this landscape the (Philips) *Center for Health and Well-being*[33] was started. Initially two think tanks were launched:

1.   The theme *Livable Cities* embraced the global mega trend of urbanization and looks at ways to enable sustainable lifestyles in cities all over the world.
2.   The second theme *Aging Well* looked at new challenges for citizens, governments, and care providers and their responsibility to establish sustainable healthcare systems.

Measuring progress with respect to health and well-being is challenging since both are quite subjective. However, in order to be able to communicate consistently and identify relevant innovation directions, the *Global Index for Health and Well-being*[34] was launched in 2010 and complemented at the beginning of 2013 by the *Meaningful Innovation Index*.

Beyond meaningful innovation towards meaningful, sustainable innovation

In September 2010, Philips launched its corporate Vision 2015 as the next public expression of its seriously changed perspective on sustainability (Table 5.6). The Vision expressed the following ambition:

Philips wants to be a global leader in Health and Well-being, becoming the preferred brand in the majority of our chosen markets. We believe Philips is uniquely positioned for growth through its ability to simply make a difference to people's lives with meaningful, sustainable innovations.

Table 5.6 Comparison of Vision 2010 and Vision 2015

Vision 2010 (Launched in 2007)	Vision 2015 (Launched in 2010)
Build a portfolio of businesses that stands to grow on the back of key global trends	Expand leadership positions while benefitting from markets growing faster than gross domestic product (GDP)
Simplify Philips to optimally tap into market opportunities	Be the preferred brand in the majority of our chosen markets
Continue to invest where it matters to fuel future growth	Lead in sustainability
Lower our costs structurally and increase profitability	Be seen by all stakeholders as making a positive difference in people's lives

The fact that with "lead in sustainability" and "be seen by all stake-holders as making a positive difference in people's lives" were half of the key attention points was for me the 'cherry on the cake" of this sustainability breakthrough year at Philips.

Deploying Vision 2050 or the main challenge is trust

Meanwhile, having been a member of the WBCSD Vision 2050 team, I got invited to share its vision in several innovation conferences and workshops. The WBCSD had created a deployment package and put together some speaker guidelines. One element was the suggestion to engage with the audience after having introduced the common goal—*in 2050 some 9 billion people live well in the limits of the planet*—by asking three questions:

1. Do you think this is a desirable future?
2. Do you think it is a realistic future?
3. Do you think it will happen?

Typically close to 100 percent of the audience agree on the first question; for second question the yes drops to 50 percent or slightly less, and the third question in optimistic groups is positively answered by about 8 percent of the participants, in pessimistic groups by only 3 to 5 percent.

What does that mean?

Our initial challenge at this moment in time is a lack of confidence, a lack of pioneering spirit, and a lack of trust that innovating for sustainable development is a possible and worthwhile journey. It's not a challenge that can be solved with technology. It's a challenge that is rooted in culture, in worldviews, in mental models.

Resilience required

In parallel another series of disruptions impacted my work environment. I was in the process of redesigning the champions' network, aligning it with the newly emerging matrix structure of the Research organization.

Before this was barely done, within only 4 months, the three senior managers building my "organizational backbone" left the company. You might recall that my role was *not* a "standard role" structurally managed with a solid role description and a clear place in the organizational chart. Of course we filled in a job description document. This had been a prerequisite to define a job valuation and a related salary. With my "godfathers" I shared a mutual understanding that this was the best way we could imagine to capture an exploration assignment that was dealing with a completely new topic, an assignment that in its essence was built on the mutual trust between them and me. Now these "godfathers" left: all at once. I felt lost. Although—building on my AP experience—I had consciously created redundancy in terms of senior ownership and created a broad support base. Obviously sometimes even the best safety belts break. Everything seemed to fall apart like a house of cards.

What should I do in this situation? How should I respond?

Reflecting the journey so far and envisaging next steps I realized that my original assignment "to explore sustainability as an innovation driver and embed it in Philips (starting with Research)" had come to an end. Conversation about a redefinition of my role would be required. Who would be my dialog partner for that in a context where another reorganization was already emerging? Things seemed to get stuck. Next to this, some major changes happened in my private life.

Space to reflect

An open conversation with my boss resulted in the opportunity to participate in a 4-day personal mastery training called "the block." It brought me to the Alps close to Munich. The entire program was set up around the seemingly simple questions:

- Who am I?
- What does "living well" mean to me?
- What—in case there is anything—hinders/blocks me to live my life well?
- What can I change to live well?

A variety of experiential learning exercises brought the participants close to themselves amazingly quickly, confronting us with our explicit and hidden expectations towards ourselves and others, strengthening my awareness about how certain situations trigger routine reactions and how difficult it is to break through them in order to consciously respond differently. I was allowed to deeply explore the threatening and opening power of silence, a phenomenon that I had observed in group settings several times in recent years. It was an eye-opening experience to develop awareness for the "emotional and cognitive noise" that is created through small talk and other constant information inflows. We were also pointed to our strengths and invited to work on a personal vision along the angles of self, private, professional, and social life.

A *bold personal decision*

The "block training" had been a powerful and well-orchestrated starting point of a fundamental personal decision-making process, which took several months to mature. Finally, some day early winter it became clear to me: It was time to reconnect to myself, to create space to reshape my private life, and in order to do this leave Philips.

However, my "assignment" was not yet finished. I was not yet ready to properly hand over the baton. I defined a set of "rounding-up activities":

- Consolidate all learnings in a "paper" on sustainable innovation bridging the gap between WBCSD Vision 2050 and Philips' current corporate sustainability program EcoVision 5
- Participation in developing a set of three internal "white papers" on technology enabled sustainable innovation linked to the themes: energy, material use, and access to care
- Participation in the organizational change from a "Senior Director Sustainability and Research Environmental Policy Board and sustainability champions" to a "Research Sustainability Board" (RSB)
- Coordination of knowledge transfer to new sustainability champions
- Advice on the development of a sustainable innovation communications/stimulation plan

This final task set was confirmed through the RMT right before Christmas. It was the rational, the easy part. Much more challenging for me was to find an appropriate way to leave my "baby" emotionally: to deal with the complexity and broad variety of emotions that would surface in the months to come ranging from grief and pride about the near past, through fear and courage towards the unclear future, to still staying flexible and agile, consistent and constructive, passionate and calm, and trustful in the appropriateness of the decision.

Fortunately, there were many colleagues who supported me on this bumpy part of the journey sharing the joys of completion and reducing the sorrow of leaving and letting go.

> ***Main Transition Step in 2010:*** *The organization moved from "alignment to reinforcement" of economical business goals social/society-relevant and ecological goals. EcoVision 5 sets directions: How to contribute to the global sustainable development agenda and responsibilities? Who is in charge of implementation?*

Personal

Live balanced and dare to enjoy a rich life.

Twin-path insights 2010

Organizational

The danger of the past was that men became slaves. The danger of the future is that men may become robots **(Erich Fromm)**
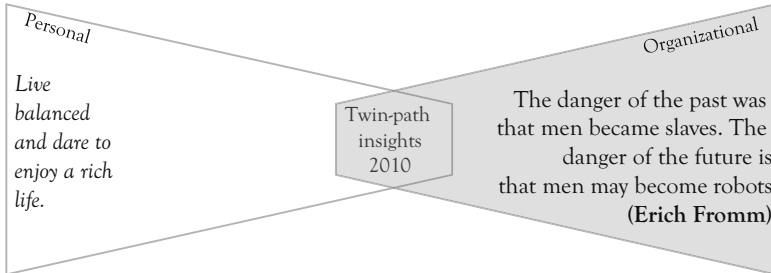
5.3   Hope — Accelerating Implementation (2011)

or beyond exploring and pioneering towards mainstreaming

The nuclear power plant accident in Fukushima put unsolved problems related to this "clean energy" back on the global agenda…

Philips' new CEO used his first months for deep listening. He visited Philips sites and factories all over the world and used the social media to engage employees in an open dialog about the needs and potential of the firm.... That was new, refreshing, and promising. Handshakes from one CEO to another, though, tend to have an interesting dynamic. The old has not yet left—the new has not quite started. Strange political moves emerge.

Last chances are taken to finish open business or leverage the good relationship to the "old king"; some open issues deliberately are ignored hoping that after times have changed they might not be relevant any more.

2011	The bigger picture…
	Civil disobedience: using mobile information technology, citizens in the Middle East organize the Arab Spring (began December 18, 2010 in Tunisia, lasted until mid-2012) strongly facilitated through smart phones
March 11	A major earthquake and subsequent tsunami hits the east of Japan, causing the nuclear power plant catastrophe of Fukushima
	Social unrest about the unjust and broken global financial system expressed through the emergence and spreading of the Occupy movement over 82 countries

What hope means to me…

When the word *hope* comes to my mind, I see myself in a situation of mixed feelings. I have contributed my share in reaching a (common) destination, goal, or task and am grateful—probably also a little proud—about what

Dictionary Definition

Hope is the feeling of wanting something to happen and thinking that it could happen: a feeling or chance that something good will happen or be true; someone or something that may be able to provide help

has been achieved. Now it is no longer in my hands, under my control. That worries me, creates a feeling of being excluded. I need to transform these feelings into trust in the next steps; steps that might not be obvious. I need to move away from concrete action to the state of "holding" the idea, sticking to the dream. It's the state of mind of optimistically looking towards an uncertain future. It's time of letting go, of giving up of control in order for new trust to grow.

Why are hope and accelerating implementation the essence of my twin-path journey in 2011?

With two colleagues I had already worked quite a bit on the "sustainable innovation" paper.[35] This thought leadership piece was consolidating the insights of 5-year pioneering work on sustainability-driven innovation.[36] It also formed a first step in translating the highly abstract WBCSD Vision

2050 pathway map into concrete actions that could be performed now. It had a long-term scope reaching into 2020 and beyond.

We knew there was quite some time pressure. The document needed to be ready prior to my departure in the middle of the year. When working on the AP foundation document I had experienced, that consolidating knowledge in a "foundation document" requires a time-slot of about 9 months from the moment of deciding to go for it with a clear flow to the printed document. Was that the case here as well? If yes, we were right on track. We had started in September. However, something fundamentally did not feel right before Christmas and we stopped working on the text mid-December to let it "sit" and give our brains time to idle.

We met for 2 days of intensive work right after the winter break and there it was: within a couple of hours it became obvious, that the content will be shared in two parts:

- **A workbook:** Introducing the Philips approach with a series of thought-provoking questions to help innovators define concrete ways to translate these strategies into action and empowering them to identify their individual first steps on the sustainable innovation journey.
- **An innovation context part:** Translating the general sustainability challenges into four key strategies to deliver high-impact sustainable innovation. Here the 3P model was expanded to a 4P model, adding the individual person as the fourth P in the center of the graphic (Figure 5.12).
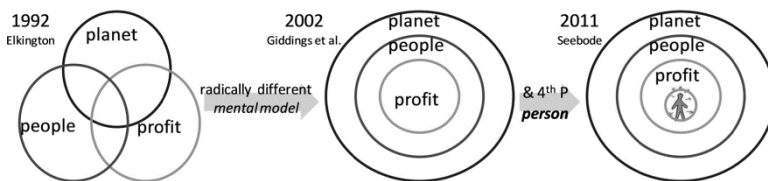
Figure 5.12 Adding the 4th P = Person to the triple-P model

Originally the paper was meant to be an internal publication only. At a later stage it was decided to develop a second external version that is available on the Internet for everybody.

From exploration and pioneering to developing strategy

With the new matrix structure, Philips Research organized itself to mirror Philips' Business organization along its program development axis, while capabilities were managed in the Research group axis. The new organization had resulted in the nomination of three Research program sustainability champions. They were co-responsible for sustainability-related innovation at Philips Lighting, Consumer Lifestyle, and Healthcare.

In the follow-up to the broad EcoVision 5 deployment in 2010, they were asked to develop program-specific sustainability white papers, explaining which (new) technology requirements were likely to occur in the mid-term (2 to 7 years ahead) when viewing the market landscape through the EcoVision 5 lens. These *sustainable innovation white papers* brought together both Research insights and business sector information. By mid-2011 three Research program–specific documents were available. They formed an important starting point for the 2011/2012 project programming cycle.

How did all these consolidation efforts complement each other? Weren't we doing redundant work? These questions emerged more and more often. Figure 5.13 was developed to clarify the relationships.
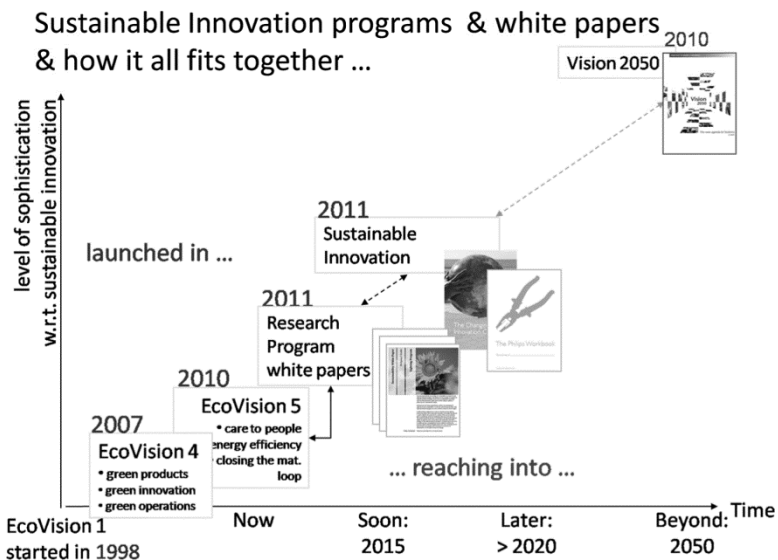
Figure 5.13 Sustainability-driven innovation: theme development

Using the power of Kairos

It was surprising for me to experience how priority-setting and door-opening a departure time is. The statement "if you want me to still get this done, you need to decide it now. In June I'll no longer be there" helped me to free the budget to kick off a "community of practice" for sustainable innovation, and accelerated the establishment of a Research Sustainability Board (RSB). Its regular meeting cycle was aligned with the meeting schedule of the broader sustainability network facilitated by the CSO. Also all the content contributions to finish the work on both the sustainable innovation paper and the white papers were made in time, despite the fact that the ongoing reorganizations were still asking for major attention.

A change agent's or intrapreneur's success is institutionalization

In the course of 2010, it became clear that in order to accelerate implementation, sustainability thinking and acting needed to be embedded even more deeply in all Philips organizations. The business sectors' response to this was the enrichment of their sustainability boards with the inclusion of product development, design and marketing experts far beyond the scope extension already inspired in 2008. The CSO adjusted the monthly sustainability network meeting accordingly and the new situation was well reflected in the "holistic" CSO action plan.

Philips Research decided to transform the *environmental policy board* that had formerly only organized the operations-relevant compliance activities into a *RSB* with responsibility for both: environmentally and socially sound operations and sustainable innovation feeding into EcoVision 5 and beyond. The RSB had its first meeting in March 2011.

I shared the "Sustainable Innovation" paper at my final RMT meeting mid-May. It resulted in a request to derive a public version of it, which prolonged my contact by a month and was a wonderful recognition for the usefulness of the document.

A few days later, a group of 30 Philips sustainable innovation practitioners gathered to form the seed of the sustainable innovation community of practice. This was in line with the new Philips training philosophy of

building *communities of practice*[37] for experienced practitioners to accelerate knowledge diffusion and expertise development. This also inspired internal network building for core activities with the aim of increasing the effectiveness of leveraging collective intelligence. The Sustainable Innovation paper was distributed to all participants with the invitation to work through the workbook and proactively start to inspire sustainable innovation conversation in the participant's direct work environment.

Closing the loop: exploring trust

End 2010 I had received notice about a special event. The leadership consultancy that we had involved in the facilitation of the sustainability strategy workshop 5 years earlier was holding a two and a half-day workshop dedicated to the theme *trust,* my personal theme in that first year of my sustainable innovation assignment. That could not be a coincidence. I participated. One exercise stood out. It focused on the link between capability and consciousness development. We went into a sports hall and were invited to try a new type of sports, one we are unfamiliar with.

Being rather small and not at all a good ball player I chose basketball. Initially my pitches reached the basket surprisingly often. Of course I liked that. Then I became ambitious. Suddenly the failure rate went up. Why? I looked around, talked to a few other participants and realized we all had similar experiences. What was going on? The facilitator introduced the second two steps of a four-step model of capability development that can also be used as a model to change behavior or develop professionalism:

1. **Unconscious incompetence:** In this stage we tend to be playful, just give things a try, and often our body somehow knows what to do. We are surprisingly successful.
2. **Conscious incompetence:** In this stage our mind and willpower comes into play and we start to want to be successful. The rational mind and willpower tend to use abstract symbols like words or numbers. We do not playfully trust our body any more, yet try to control it. Success rates decrease and failure frustrates us.

Then the facilitator invited us to look at a few photos and identify one that visualized what we were trying to achieve. I chose a jumping dolphine, imagining that the basketball was the dolphin's mouth. More attempts to pitch the ball in the basket followed and I witnessed that my success rate went up in line with my concentration on the dolphin jump.

3. **Conscious competence:** In this stage we consciously use our imagination and visualization capacity to learn the new capability and practice, practice, practice. In a consequence success rates increase again.
4. **Unconscious competence:** In this stage the new capability is fully embodied. We can be playful again.

I realized that this phenomenon does not only apply to an individual's capability development or behavior change, but also to collective capability development and culture change. Wasn't this what my colleague from the innovation excellence team had pointed to when we discussed the building of a community of practice for sustainability-driven innovation? He had introduced the new training philosophy that built on different types of training for employees at different levels of maturity in this area. A community of practice would offer capability development space for people on stages three and four.

When I had realized that, I remembered another special moment of that conversation. He had asked me what the new insights were, that I wanted to share with the experienced practitioners. "The workshop participants will experience the benefits of the TNS FSSD with special focus on the third and fourth level: strategy and action. Levels one—the global challenges Philips wants to address, and two - Philips' vision – are clear now," I answered (see Figure 5.3). "And they will receive the Sustainable Innovation workbook."—"That sounds useful, he replied. And what are your key messages in the workbook?" I initially got stuck. I realized that for me in the meantime sustainability "jargon" and all the new mental models, the L-sheet, the innovation framework, and the 4P model, had become very familiar. I felt that I needed to make a decision. What was really the key insight for me? "Well" I said, "I guess it is the addition of a fourth 'P,' the individual person—you or me—to the triple

bottom line idea." I took a pen and draw the figure with the four circles on the white board (see Figure 5.12, third graphic). He looked at it surprised. "The triple bottom line is represented by the overlapping circles...," he mentioned. "Where have they gone?"—"Almost 10 years ago scientists suggested an alternative model: the nested circles. The overlapping circles could lead to the assumption that there can be trade-offs. At the most extreme such a model suggests that financial (economic) capital can replace or substitute for natural resources. So they divert us from the real questions that lead to sustainable development such as: what is the true nature of human society? How can business enable human well-being? How are decisions made and in whose interest and benefit? The nested model portrays the interdependencies between economy, society, and environment more accurately. The economy depends on society and the environment. And nature will continue to exist without humanity and human activity. In my view, though there is an important circle missing: the individual. There are no "system decisions." We need to finally start taking personal responsibility and stop hiding behind roles and systems. I had finished my explanation. Some of the, in the meantime, well-familiar silence came up. Then a big smile became visible and I heard him say: "That makes sense. You seem to have understood it deeply. You used the time well. Now, please be patient with us. We have a different starting point. We need to learn all this step by step..."

I came back strengthened, full of confidence about the foundation we had built, trust in the capacity and passion of those colleagues who would take over the baton, and an emerging excitement for new opportunities.

I had the impression that I had followed the path of new capability development that I had begun with the "5 minutes silence" of 10 years ago. Which new capability had I developed? I had worked at the fuzzy front end of innovation for over a decade, but what I had done was not rooted in technology, it all started with my statement, "I am a people person." My science education had been a pre-requisite for success. It had provided me with a certain way of thinking, a special world view and the expert language of technology. I had received a lot of trust from

my management to explore new innovation themes and to find ways to make them actionable. Doing so, I had worked in and with many different departments at Philips and many experts representing a broad variety of knowledge fields externally.

I had expanded the trust in myself, had become ever more conscious of what works and what does not. But I was not yet ready to find the right words to express my intuitions. I had the impression that intuition is rooted in experience before taking root in consciousness. How could this help me to find a way to respond to the lack of confidence, the lack of pioneering spirit, and the lack of trust that innovating for sustainable development is a possible and worthwhile journey? How could the lack of collective confidence, this core challenge that had surfaced during the Vision 2050 deployment sessions be addressed?

Especially when exploring sustainable development as innovation driver I had engaged with a broad variety of stakeholder groups. This, in combination with my experiences of working with multi-disciplinary teams at Philips led to the following idea: we are currently confronted with a "Tower of Babel 2.0" situation. While until a few decades ago language barriers mainly were linked to geographical location or "physical space" (English, German, French, Chinese, Arabic,…), nowadays –rapidly accelerating through the diffusion of digital communication technologies– we are confronted with new language barriers linked to expertise or knowledge fields or "mind-space". I more and more wondered: how can effective communication between all these experts been established? Who can take the translator role for "mind-space" languages? And I realized that I had fulfilled such a translator role in recent years. I had built quite a few bridges between formerly separated functions and stakeholder groups.

> ***Tips and tricks*** *for sense making (12)*
> *People with solid experiences in different knowledge fields*
> *and / or stakeholder groups can be credible translators in the mind-*
> *space and / or effective bridge-builders between different expertise*
> *and experience worlds.*

Finally I realized that the closing phase of my assignment had a lot in common with the letting go of children when they "fly the parental

nest". It's then the parent's duty to trust that they'll find their way, equipped with all the roots their parents have established and the seeds that got planted during their childhood. This analogy helped me a lot in getting my "ego" out of the way, this voice that demands acknowledgment and recognition. Mothers do not expect recognition from their kids. They gain energy from witnessing them flourish. I lived through that experience in my private life in parallel.

A *surprising "good-bye"*

Almost before I became aware of it, the day of my departure arrived and I experienced a very acknowledging and sincere farewell dinner receiving a unique present. You might recall that my "hidden agenda" at the start of my sustainability assignment had been to "find ways to strengthen or bring back soul" to the workplace. The sustainability stones had been my metaphor for that, although I had positioned them differently embracing the culture of Philips Research rooted in scientific thinking and more related to numbers than symbols or metaphors. Since the announcement of the closure of the Aachen lab mid-2009, it had been hard to proactively work on this agenda and only incidentally had opportunities opened to bring the stones into play. I had prepared my farewell speech along the lines of leaving with one smiling eye, being proud of the results achieved in common, and one crying eye: being sad to see that my hidden agenda unfortunately did not work out. This speech was never said. Right before the word was given to me I received a basket of farewell stones from my colleagues. They had put their wishes and perspectives about me on them asking me to remember them well. Everyone had brought their own stones to the dinner, sharing with each other why they had chosen their word and how the stone had accompanied them in previous years.

Soul was present!

With this impression and immense gratitude for having received both the space and the trust to do amazing work, I left Philips after 16 years.

Main Transition Step in 2011: The exploration and pioneering phase of sustainability-driven innovation came to an end. The journey insights were consolidated into a series of strategy documents, the new task set was institutionalized through the establishment of a Research Sustainability Board that was connected to the CSO and the initiation of a Philips wide community of practice.

Personal

Organizational

Not yet here, not there; what can I say? I am in transition right now!

Twin-path insights 2011

I am one of those who think like Nobel, that humanity will draw more good than evil from new discoveries.
(Marie Curie)
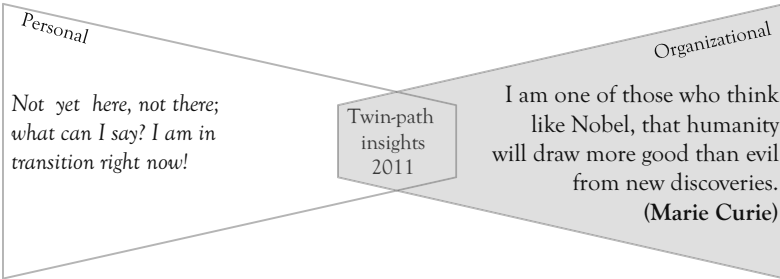
CHAPTER 6

Arrival Points

6.1   Every End Is a Beginning

At the beginning of April, the new CEO had officially taken over his role. He fully embraced the outcomes of the "sustainability-driven innovation exploration journey," which can be summarized by mid-2011 as:

- Around 12,000 people (about 10 percent of the employee base) had been involved globally.
- All employees had been in touch with the topic of sustainability as a business and innovation driver via a set of specific questions in the employee engagement surveys of 2009 and 2010.
- An easy-to-tell story capturing the long-term Philips sustainability ambitions had been developed. It linked the company's history of social engagement and environmental responsibility with the insights of the "L-sheet."
- Two corporate sustainability programs including innovation as a key lever had been launched: EcoVision 4 introducing green innovation and EcoVision 5 shifting to social and green leading key performance indicators (KPIs).
- A variety of new sustainability-embracing innovation methods had been successfully tested and led to first product, service, market, and business model innovations.
- Philips leadership in sustainability was consistently recognized by multiple external parties.
- Internal innovation processes were enriched with green and social criteria.
- Sustainability and annual reporting had been integrated.

At the end of 2011, the new Philips CEO invited his "top 600" to a jam session about the Philips' vision and ambitions. The lively and at times quite controversial dialog was consolidated in Vision 2012: *At Philips, we strive to* **make the world healthier and more sustainable** *through innovation. Our goal is* **to improve the lives of 3 billion people a year by 2025.**

Accordingly, the EcoVision commitments were adjusted (Table 6.1).

Table 6.1 EcoVision programs

EcoVision 4 (Launched in 2007): By 2012 we will ...	EcoVision 5 (Launched in 2010): By 2015 we will ...	EcoVision Commitments (Launched in 2012): By 2015 we will ...
Double total revenues from *Green Products* to 30%	Bring care to more than 500 million people	Improve people's lives: 2 billion lives a year by 2015 *3 billion lives a year by 2025*
Double investment in *Green Innovation* to EUR 1 billion cumulative	Improve the energy efficiency of our overall portfolio by 50%	Improving energy efficiency of Philips products: 50% improvement for the average total portfolio compared to 2009
Improve our operational energy efficiency by 25% and reduce CO_2 emissions by 25%	Double the global collection and recycling amounts of our products, as well as the amount of recycled materials in our products	Closing the materials loop. Double global collection, recycling amounts, and recycled materials in products compared to 2009

And what has happened since then?

In 2013, Philips engaged in a strategic partnership with the Ellen McArthur foundation to strengthen its contributions on the pathway to a Circular Economy.

In September 2014, a tough decision was announced: Philips intended to merge its Consumer Lifestyle and Healthcare business sectors to form one company, and to establish Philips Lighting as an independent firm.

The future will show where this journey ends...

6.2   What Were My Final Steps?

I had worked until the last day to finish the external version of the Sustainable Innovation paper. I was tired and impressed about the density of events during the last months of my employment. And I had received a set of invitations to talk about sustainable innovation in Brussels at the European Union, in Copenhagen at Novo Nordic, and in San Francisco at the Green Biz conference. I was surprised to receive these invitations on a personal note, despite the fact that I was no longer representing the Dutch multinational.

The conference in San Francisco[1] happened at the beginning of October. It offered me an amazing opportunity to reflect: It was close enough to my departure that I was still deeply emerged in the Philips journey, still felt part of it ... and it was long enough ago, that my emotions had settled and I could share experiences with equanimity and difficulties with appreciative honesty.

I was able to verbalize that I could lead disruptive change because I had experienced disruption in my own life. Reflecting on them as part of my personal mastery journey I had been able to develop an intuition to "navigate disruptive waters" that goes beyond intellectual concepts and theory. I had realized that we nowadays have access to an abundance of scientific insights and theories that offer mental models and a language for complex phenomena (which often in its true meaning is only understood by experts). However, it is the intrinsic nature of theories and models that they are generalizations and/or simplifications. They are a result of pattern recognition. Reality always is more complex than our idea of it. Meaningful decision making and action takes place in a specific context. Experience is required to identify which patterns occur and consequently which of the many theoretical concepts and related language make sense to characterize a unique situation. And these appropriate concepts might be found in different disciplines: reality does not conform to humanity's categorization. In addition I had discovered that meaning is revealed in human interaction and relationships. Only through generative, non-judgmental dialog different perspectives on a problem or opportunity can be integrated to a shared view, which is the prerequisite to grow beyond the fear of not-knowing and align will power towards co-creation.

This insight had been the essence of my wake-up call, back in December 2000. It had been a feeling then, far from being expressible in language. Nowadays I am able to do so.

I was asked what would be the one key piece of advice I would give people to move towards innovation for sustainable development.

"Dare to reconnect to being human"

I heard myself answer. "And what are you going to do next?"—"I want to help people and organizations to transform their (scary) disruption zones into (rewarding) transition zones and find their way to living well." It was very clear to me, building on my experience, I wanted to help people and organizations to develop confidence in the possibility of Vision 2050 and focus their will power to engage in the massive transformation that's required to get there. I knew this was not a technological question, rather a fundamentally human one, one of individual self-awareness and cultural (collective consciousness) development.

In order to do that I felt I first needed to consciously go the next steps through my personal transformation. I knew it would be a complex and deep development, one that would bring me back to my fundamental personal values and worldview. I needed to find a new answer to the question: what does "living well" mean to me? I promised myself to allow me to take as much time as it takes, trusting that life will guide me. That felt a bit scary and at the same time deeply appropriate. This would help me to broaden my intuition to the level that's required to guide the way through complexity later. In other words:

I wanted to slow down to speed up!

CHAPTER 7

Outlook

At this point I thank you, dear reader, for your interest in the journey described in this book.

I wonder what you might think about what you read:
Did it make sense to you, maybe even enrich you?
Are you going to do things differently in future?
Have some new questions emerged?
I like to take the opportunity to share some ideas and questions that have emerged for me…

Since I left Philips, life has offered me a broad variety of experiences that have allowed me to

- expand my perspective on life, to complement my worldview (Table 7.1);
- engage with my hometown community and explore some fundaments of current societies by expanding my understanding of history, sociology, art, and philosophy;

Table 7.1 Worldview characteristics

Not only "Modernity"		But also … Worldview: "???"
Linearity of time: time is an arrow, chronos	*… Building on strength*	**Flow** of time and evolution: constant movement between chronos, kairos, and rhythm
(Historical) determinism leading to the idea of **predictability**, security, and expectations; allowing simplification through **fragmentation**	*Creating the future…*	Entanglement and connectedness leading to the idea of **probability**, complexity, and diversity; acknowledged through **system thinking**

- experience what it means to work as an independent expert:
  - not being part of a big, well-recognized money-making machine offering "security" in terms of personal identity via my professional role;
  - not living in economic resilience via a safe salary;
  - not being a well embedded part of a big community;
  - not having access to a well maintained physical context providing, for example, an IT infrastructure and a workplace; and
- accompany friends and family members through life-threatening diseases, witness death, and healing.

Just a few weeks ago, I created a new visual that enables me to capture the essence of all these experiences. It feels like a next step in the evolution of mental models that are useful to communicate effectively about the complex endeavor of sustainability-driven innovation (Figure 7.1).

Here is a brief sketch of my line of thought. It builds on a set of starting assumptions:

- Humanity and its development are part of a large evolutionary process.
- The distinctions of "body, mind, and soul" are useful in capturing very different dimensions of life.
- Every person in principle has the capacity to develop self-awareness. Different meditation techniques can guide the way. Many share the view that the "self" is the "observer" of reality, witnessing their own body signals, emotions, and thought processes as well as the interactions between these phenomena.
- Body, mind, and soul can be associated with different types of "time logic" and have different "roles":
  - The body follows *rhythm.* It wants to be cared for. It allows us to sense, thus connecting us to physical reality. Its expressions are activity and movement.

- The mind follows *chronos.* It wants to be used to analyze, understand, and make sense. It allows us to respond appropriately (e.g., by consciously overruling instinctive reactions). Its expressions are thoughts in language.
- The soul follows *kairos.* It wants to be acknowledged. It allows us to embrace complexity and meaning. Its expressions are emotions and intuition.
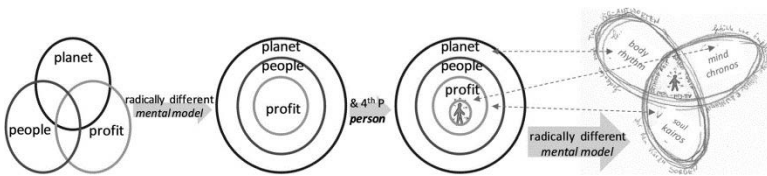
Figure 7.1 Evolution of mental models to communicate about sustainability-driven innovation

What if...

> ... it would be appropriate to associate "planet (nature)" with the body, "people (culture)" with the soul, and "profit (economy)" with the mind?

What if...

> ... the essence of innovation for sustainable development is the creation of a resilient balance of body, mind, and soul, a constant dance of rhythm, chronos, and kairos?

What if...

> ... the pathway to get there is the development of personal self-awareness?

I do not have the answers to these questions yet. I do not even know if the questions are phrased properly and really useful to find ways to bridge the collective confidence gap with respect to the possibility of Vision 2050.

However, I experienced one of these rare epiphany moments when the drawing emerged and therefore I share it with you here and now in the middle of my current twin-path journey, one that is not yet ready to be shared in this travel report....

TRANSITION TIME

Transition time
Dealing with the unknown
Doubts come
And you better
Let them go
QUICKLY!

Transition time
Fighting with your legacy
Frustrations emerge
And you better
Face them
HONESTLY!

Transition time
Being on your own
Loneliness appears
And you better
Appreciate it
FULLY!

Transition time
Longing for the opportunity
Visions shape
And you better
Work on them
PASSIONATELY!

Transition time
Trusting in a better future
Confidence grows
And you better
Go with the flow
CONSCIOUSLY!

Transition time
Arriving at that other place
Satisfaction forms
And you better
Enjoy this feeling
DEEPLY!

... to prepare yourself
For the next
ROUND
since:
It seems that
LIFE
Is a continuous

TRANSITION TIME

(D. Ernst, 2009)

Acronyms

AP	Atmosphere Provider
BG	Business Group
BRIC	Brazil, Russia, India, China: the four biggest "emerging economies"
CC	Climate Change
C2C	Cradle to Cradle, a closed production and consumption pattern
CDL	Central Development Lamps (earlier Lighting)
CE	Consumer Electronics
CEO	Chief Executive Officer
CFL	Compact Fluorescent Lamp
CL	Consumer Lifestyle
CMO	Chief Marketing Officer
CRE	Corporate Research Exhibition (at Philips)
CSO (1)	Chief Strategy Officer
CSO (2)	Corporate Sustainability Office
CT	Computer Tomography, an imaging method mainly for medical applications
CTO	Chief Technology Officer
DDP	Dialogue Decision Process
EUDI	End-User-Driven Innovation process
EF	Environmental Footprint
FSSD	Framework for Strategic Sustainable Development
HDI	Human Development Index
GEC	Green Economy Coalition
GDMM	Global Development Manager Meeting
GSM	Global Strategic Marketing
GOAL	Global Organization for Applications in Lighting
GRI	Global Reporting Initiative
HR	Human Resources
HTC	High Tech Campus
ICSE	International Centre for Sustainability Excellence
IIED	International Institute for Environment and Development
ILO	International Labour Organization
IP	Intellectual Property (patents, licenses, standards, and product rights)
IUCN	International Union for the Conversation of Nature
ISO 14000	Quality Standards for Environmental Management
KPI	Key Performance Indicator

LEAD int.	An educational organization for leaders for sustainable development
LED	Light Emitting Diode, semiconductor-based light course
L-sheet	Mapping of HDI versus EF taken from WWF Living Planet Report, 2006
MEA	Millennium Eco-System Assessment
MNC	Multinational Corporation
NBC	New Business Creation
NGO	Nongovernmental Organization
PCP	Product Creation Process
PD	Product Division
PLEC	Philips Lighting Executive Committee
R&D	Research and Development
RMT	Research Management Team
SAM	RobecoSAM: investment specialist focused exclusively on Sustainability Investing
SB	Sustainability Board
TBL	Triple Bottom Line (also 3P → planet, people, profit)
TMM	Technology Manager Meeting
TNS	The Natural Step
TRIZ	theory of the resolution of invention-related tasks (originally Russian)
TTLF	Think the Lighting Future
UN	United Nations
USP	Unique Selling Proposition
VPH	Value Proposition House
WBSCD	World Business Council for Sustainable Development
WHO	World Health Organization
WWF	World Wildlife Fund

Glossary

Backcasting: Starts with defining a desirable future and then works backward to identify policies and programs that will connect the future to the present. The fundamental backcasting question is: "if we want to reach a certain goal, what actions must be taken to get there?"

Biomimicry: (or biomimetics) Is the imitation of the models, systems, and elements of nature for the purpose of solving complex human problems.

Butterfly effect: In chaos theory, the butterfly effect is the sensitive dependence on initial conditions in which a small change in one state of a deterministic nonlinear system can result in large differences in a later state.

Care cycle: Philips introduced the care cycle model to describe the different stages a patient follows within the healthcare system. The six stages are prevention, screening, diagnosis, treatment, disease management, and surveillance.

Cradle to cradle: Closed-loop production and consumption pattern, with two "nutrient circles," the circle of the "bio-nutrients," and the circle of the "technical nutrients."

Cradle to grave: Linear production and consumption pattern.

Chronos: The linear flow of time used for planning.

Concept car: The notion of "concept car" was used to explain the outcome of the idea development phase: visuals or 3-D objects that enable users to stretch their imagination beyond the existing functionality to future possibility. This is a powerful way to inspire new customer desire and create a "memory of the future." The car industry has done this since 1938 with the Buick Y-Job, the first concept car.

Dauphin NGO: A metaphorical expression for a NGO that acts in a cooperative way, for example, via knowledge sharing, for example, WWF.

Design thinking: Is a product creation process that initially focuses on need finding and understanding. Then appropriate functionality and solution ideas are created and tested. At the core of this process is a "dialogue" between creation and test: by creating and then testing with potential users, continuous appropriate improvement is safeguarded.

Eco-design: Is a product innovation process putting special attention on the environmental impacts of the product during its whole lifecycle. In a life cycle assessment, the life cycle of a product is usually divided into procurement, manufacture, use, and disposal.

EcoVision programs: Name of corporate (initially environmental, later) sustainability programs at Philips. The first EcoVision program was launched 1998.

Forecasting: Is the process of predicting the future based on current trend analysis.

(Philips) Green Product: (in 2007) Green products were characterized by significant performance improvements along at least one of the six green focal areas: energy efficiency, packaging, hazardous substances, weight, recycling and disposal, and lifetime reliability. The entire life cycle was considered.

High design: According to Philips Design, High Design is an integrated approach, incorporating all of the traditional design skills, plus all of the new design–related skills needed to respond to the complexity and challenges of the present and the future. It is a practical approach to design that helps to create commercially successful products and solutions that support people in accomplishing and experiencing things in natural, intuitive ways.

Kairos: The opportune time and/or place, the right or appropriate time to say or do the right or appropriate thing.

Lagging KPI: Lagging indicators measure relative improvements against a historic start value, for example, 10 percent less water use in production with base: water consumption in year 2000.

Leading KPI: Leading indicators point into the future and measure the steps that are made to close the gap between the current situation and the desired end goal, for example, all use material is part of closed material streams in 2030.

Lock-in effect: Is a situation in which individuals, groups, or organizations stick to familiar behavior, technical solution, belief, and so on—sometimes even despite the realization that this is inappropriate—because the (emotional or financial) cost of change is so high that it is more beneficial to stick to the old approach.

Rebound effect: (or take-back effect) Is the reduction in expected gains from new technologies that increase the efficiency of resource use, because of behavioral or other systemic responses. These responses usually tend to offset the beneficial effects of the new technology or other measures taken.

Rhythm: The time logic of nature and biological systems (in discrimination from technical systems that normally follow a chronos logic), rhythm of the moon, the rhythm of day and night, and the rhythms of the season over the year.

Scenario approach: (or scenario planning) Is a strategic planning method that some organizations use to make flexible long-term plans. It may involve aspects of systems thinking, specifically the recognition that many factors may combine in complex ways to create sometime surprising futures (due to nonlinear feedback loops). The method also allows the inclusion of factors that are difficult to formalize, such as novel insights about the future, deep shifts in values, unprecedented regulations, or inventions. Dynamic scenarios are built when systems thinking is used in conjunction with scenario planning. This leads to plausible scenario story lines because the causal relationship between factors can be demonstrated.

Shark NGO: A metaphorical expression for a NGO that creates attention for problems through polarizing activism and radical campaigns, for example, Greenpeace.

(Economic) Sustainability: Describes strategies that make it possible to use available resources both efficient and responsible to their best advantage. In the case of a business operation, it calls for using resources such that the business on the long term consistently stays profitable.

Sustainable development (SD): Is a process for meeting human development goals while maintaining the ability of natural systems to continue to provide the natural resources and ecosystem services upon which the economy and society depend. While the modern concept of sustainable development is derived most strongly from the 1987 Brundtland Report, it is rooted in earlier ideas about sustainable forest management and 20th-century environmental concerns.

Systems thinking: Is the process of understanding how the different parts that constitute a system influence one another within a complete entity, or larger system. In nature, systems thinking examples include ecosystems in which various elements such as air, water, movement, plants, and animals work together to survive or perish. In organizations, systems consist of people, structures, and processes that work together to make an organization "healthy" or "unhealthy," which has its roots in the General Systems Theory that was advanced by Ludwig von Bertalanffy in 1940s. In recent decades, systems thinking has emerged as a problem-solving approach. Systems science argues that the only way to fully understand why a problem occurs and persists is to understand the parts in relation to the whole. Standing in contrast to Descartes' scientific reductionism and philosophical analysis, it proposes to view systems in a holistic manner.

Transformational change: Is the last step of the evolution of products according to J. Pine and J. Gilmore. The different product evolutions steps are: commodity, good, service, experience, and transformation.

TRIZ: Is a problem-solving, analysis, and forecasting tool derived from the study of patterns of invention in the global patent literature.

Triple bottom line: Is an accounting framework with three parts: people = social, planet = environmental (or ecological), and profit = financial—the three pillars of sustainability. The term was coined by John Elkington in 1994.

Twin-path of leadership: A twin-path is the aligned journey of personal mastery and impactful action in the world. It was introduced to me by Mac Macartney (http://embercombe.org/explore-our-programmes/personal-development/the-journey/)

Value proposition: Is the essence of the value proposition house (a tool used by Philips Consumer Electronics). It's the starting point to set up a business plan. It's not a product specification.

World café: Methodology is an effective and flexible format for hosting large-group dialog.

References and Notes

Framing

1. WBCSD, Vision 2050, http://www.wbcsd.org/vision2050.aspx launched 2010.
2. Macartney, T.: Finding Earth – Finding Soul, Mona Press, Embercombe via Green Books, Totnes /Davon, 2007 and http://embercombe.org/explore-our-programmes/personal-development/the-journey/
3. The term "fuzzy front-end" was first introduced in the late 1980s/early 1990s, describing the initial phase of disruptive innovation, which cannot be "managed," but highly depends on the passion of individuals and kairos: appropriate timing; for example, by Cooper, R.G.: Predevelopment activities determine new product success. Industrial Marketing Management, Vol. 17 (2), 237–248, 1988 or Smith, Preston G., Reinertsen Donald G.: Developing products in half the time, Van Nostrand Reinhold, New York, 1991.
4. Senge, P.: The fifth discipline, Doubleday/Currency, New York, 1990.

Chapter 1

1. Sometimes the phase 1453–1789 is added under the notion of "early modernity."
2. See http://www.research.philips.com/successes/history.html for a brief video background, http://www.philips.com/about/company/history/ for the company's history.
3. See e.g., Meadows, D.L.: Die Grenzen des Wachstums, dav informativ, 1972.
4. See http://www.philips.com/about/company/missionandvisionvaluesandstrategy/index.page
5. See http://www.un-documents.net/wced-ocf.htm
6. Dual career ladders are an extension to the traditional career ladder allowing employees to be promoted along either a supervisory or technical track. They have become common in the engineering, scientific, and medical industries where valuable employees have particular technical skills but may not be inclined to pursue a management career path.

Chapter 2

1. "The bigger picture" references:

    Christensen, C.M.: The Innovator's Dilemma, Harvard Business School Press, Boston, 1997.

    Matheson, D., Matheson, J.: The Smart Organization, Harvard Business School Press, Boston, 1998.

    Marzano, S. (editor): City People Light, Philips Lighting, The Netherlands, 1997.

    Marzano, S.: Creating Value by Design, Lund Humphries Publishers, London, 1998.

2. See e.g. Van Hippel, E.: Democratizing Innovation, MIT Press, Cambridge M.A., 2005.

3. In mathematics, a self-similar object is exactly or approximately similar to a part of itself (i.e. the whole has the same shape as one or more of the parts). Many objects in the real world, such as coastlines, are statistically self-similar: parts of them show the same statistical properties at many scales. Self-similarity is a typical property of fractals. The Mandelbrot set is also self-similar around Misiurewicz points. See en.wikipedia.org/wiki/Mandelbrot_set and en.wikipedia.org/wiki/Self-similarity

4. All personal journey insights are written by the author, while organizational journey insights are quotes.

5. Nowadays this is managed under the notion of 'diversity and inclusion'.

6. Bruce Tuckman, a psychologist had developed a model for group development in four phases: forming, storming, norming, and performing; see e.g., Tuckman, B.: Developmental sequence in small groups. Psychological Bulletin 63 (6): 384–99, 1965.

7. The "not invented here" syndrome was a quite common phenomenon in companies with a strong technology driven cultures where inventors used to be corporate "heroes" as long as market were not saturated. At Philips Lighting at the end of the 20th century a CEO coined the slogan "proudly found elsewhere" to stimulate alternative behavior.

8. See e.g., Rogers, E.M.: Diffusion of Innovations, Free Press, Glencoe, 1962 or https://en.wikipedia.org/wiki/Diffusion_of_innovations

9. The original graph introduces different user groups: innovators: single events, early adopters: trends, request, early majority: public request, implicit needs, late majority: explicit and served needs, laggards: latent needs. The notions are also used by G. Moore in his book: *Crossing the Chasm*, Harper Business Book, New York, 2002.

10. See De Bono, E.: Serious Creativity: Using the Power of Lateral Thinking to Create New Ideas. Harper Business Book, New York, 1992.

11. See Matheson & Matheson: The smart organization. The challenge of strategic decision making is the high level of uncertainty accompanied by long feed-back times. In order to manage this, the DDP suggests to ensure high-quality decisions through step-wisely reducing a consciously defined set of "uncertainties" through the decision preparation team that stays in regular contact with the decision makers. Progress is visualized using a multidimensional spider diagram.

12. For example, entire market (either national: German, Dutch, United States, or application related: street lighting, shop lighting, home lighting) versus technology (producing glass vessels for lamps) or product category (halogen lamp). Top management also has to consider corporate and stock-market politics, which are not actively dealt with on the shop floor.

13. *Depth of time* is one of the seven human mental senses—in distinction to the physical senses: tasting, smelling, hearing, seeing, touching—as introduced by Pierre Theillard de Chardin in his book: *Der Mensch im Kosmos*, 5. Auflage, DTV, 1989 (originally published as "le phenomene humane" in 1955). The others are size, number, proposition, quality of newness, movement, and vividness/organic.

14. The notion of transformational change and innovation was used leveraging the ideas of Pine, J. and Gilmore, J.: The Experience Economy, Harvard Business School Press, Boston, 1999.

15. See De Bono, E.: Six Thinking Hats: An Essential Approach to Business Management. Little, Brown, & Company, New York, 1985.

16. It might be interesting to realize that this can be seen as "Blue Ocean Strategy." The respective book by W. Chan Kim and Renée Mauborgne was published 3 years later in 2005.

Chapter 3

1. The bigger picture reference: Aarts, E. and Marzano, S.: The New Everyday, 010 Publishers, Rotterdam, 2003.

2. In essence this was the merging of the traditional technology-driven product with Philips Design's High Design process towards a single, multidisciplinary approach. This way Philips' traditional marketing weakness should be overcome.

3. For example, a kitchen in many families is a multipurpose room: a work-space, a space to socialize, children often do their homework there… all these activities ask for different light settings, for cooking bright homogenous white light is appropriate, for socializing softer light might be more beneficial.

4. A value proposition can be developed on different abstraction levels: generic propositions capture the general positioning of the firm or product categories, the target then is the "market." Specific value propositions are rooted in a deep understanding of the customer needs and form the basis for concrete product development.

5. Bigger picture reference: Prahalad, C.K.: The Fortune at the Bottom of the Pyramid, Wharton School Publishing, Upper Saddle River, NJ, 2004.

6. See Parolini, C.: The Value Net, Wiley, Chichester, West Sussex, 1999.

7. Bigger picture reference: Hart, S.: Capitalism at the Cross-Roads, Wharton School Publishing, Upper Saddle River, NJ, 2005.

8. An in-depth teaching case focusing on the Light Embedded in Furniture project has been published: http://www.innovation-portal.info/wp-content/uploads/Philips.pdf

Chapter 4

1. Bigger picture references:
    Carson, R.: Silent Spring. Mariner Books, 2002, 1st. Pub., Houghton Mifflin, Boston, 1962.
    Schumacher, E.F.: Small Is Beautiful: Die Rückkehr zum menschlichen Maß, original 1973; here used: 3. Auflage, Stiftung Ökologie & Landbau, Bad Dürkheim, 2001
    Al Gore: An inconvenient truth, 2006, see https://en.wikipedia.org/wiki/An_Inconvenient_Truth
    Stern, N.: The Stern Review: The Economics of Climate Change, Cambridge University Press, Cambridge UK, 2007.

2. The butterfly effect is the sensitive dependence on initial conditions in which a small change in one state of a deterministic nonlinear system can result in large differences in a later state. The name of the effect, coined by Edward Lorenz, is derived from the metaphorical example of the details of a hurricane (exact time of formation, exact path taken) being influenced by minor perturbations such as the flapping of the wings of a distant butterfly several weeks earlier. See http://en.wikipedia.org/wiki/Butterfly_effect

3. At that time the news almost daily announced the closing of production sites including laying-off of hundreds of people in Germany due to strategic decisions elsewhere.

4. While writing this text I realize that doing so I unconsciously leverage my science education, applying it to a different context. In my understanding science is in essence a three-step approach: (a) careful observation of

current reality guided by a clear question, (b) finding a model/theory that enables the recognition of patterns and generalizations, (c) validation of the model or generalization through experiments or further data collection, staying open for falsification.

5. Brown, J.; Isaacs, D.: The World Café – Shaping Our World through Conversations That Matter, Berret-Koehler Publishers, San Francisco, 2005.

6. This means here: the attitude of "there is no wrong question or issue" was consequently handled; support given to find an appropriate answer, wherever it might be in the company.

7. Dialog as a creative and generative process at the fuzzy front-end of knowledge development has been deeply described by David Bohm, see e.g., Bohm, D.: On Dialog. Routledge, New York, 1996. The six dialog skills mentioned are derived from his findings.

8. See http://www.lead.org/

9. See WWF, Living Planet Report, 2006, http://d2ouvy59p0dg6k.cloudfront.net/downloads/living_planet_report.pdf

10. The Environmental Footprint is a metric developed by the Global Footprint Network.

11. All personal journey insights are written by the author, while organizational journey insights are quotes.

12. I call a haiku, tanka, or elfje essence poetry as the writer needs to express his/her thought in a very limited number of syllables.

13. Green, J.: Democratizing the Future, 2007, http://www.design.philips.com/shared/assets/Downloadablefile/democratizing-the-future-14324.pdf

14. See e.g. Elkington, J.: Cannibals with Forks, Oxford (UK), Capstone, 1997.

15. See e.g. Giddings, B., Hopwood, B.; O'Brien, G.: Environment, Economy and Society – Fitting Them Together in Sustainable Development, Wiley Interscience, Hoboken NJ, 2002.

16. Since September2008 the framework incl. the disruption border was discussed in the broader Philips Research & Sustainability community. Lehman Brothers' bankruptcy happened on September 15...what a coincidence in terms of DISRUPTIONS ;-)

17. IUCN is the representative of the world at the United Nations. See more http://www.iucn.org/

18. See Adams, W.M.; Jeanrenaud, S.J.: Transition to Sustainability: Towards a Humane and Diverse World, IUCN, Gland, Switzerland, 2008.

19. Benyus, J.M.: Biomimicry, William Morrow Publisher, New York 1998.

20. All personal journey insights are written by the author, while organizational journey insights are quotes.

Chapter 5

1. See Shell, Energy Scenarios 2050, launched 2008, http://www.shell.com/global/future-energy/scenarios/2050.html#textwithimage_4

2. See e.g. WBCSD, Exploring Sustainable Development, launched 1997, http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=143

3. See more www.greeneconomycoalition.org

4. Jackson, T.: Prosperity without Growth, 2009, http://www.sd-commission.org.uk/publications.php?id=914

5. See e.g. https://en.wikipedia.org/wiki/Karpman_drama_triangle

6. See http://www.research.philips.com/technologies/woodstove.html

7. Hart, S., Simanis, E.: BoP Strategy, 2008, http://www.stuartlhart.com/sites/stuartlhart.com/files/BoPProtocol2ndEdition2008_0.pdf

8. The phenomenon "cultural creatives" was researched by P.H. Ray and S.R. Andrew and described in their book: The Cultural Creatives, Three Rivers Press, New York, 2000.

9. Find more information, e.g. here http://www.braungart.com/en/content/publications and McDonough, W., Braungart, M.: Cradle to Cradle, North Point Press, New York, 2002.

10. See also WBCSD, Energy Efficient Buildings, Transforming the market, launched 2009, http://www.wbcsd.org/transformingthemarketeeb.aspx and WBCSD, Energy Efficient Buildings, Facts and Trends - Summary, launched 2007, http://www.wbcsd.org/Pages/EDocument/EDocumentDetails.aspx?ID=13559&NoSearchContextKey=true

11. System integration here means: the development of an integrated building management solution combining, for example, lighting, air conditioning, heating, blinds, etc.

12. McIntosh, A.: Hell and High Waters, Birlinn Limited, Edinburgh, 2008.

13. Both events are documented here http://bamboostones.net/website/TLL/bamboostones.php

14. See e.g.
    http://www.youtube.com/watch?v=Rz4zmSj63KI,
    http://www.youtube.com/watch?v=wAIY3eLiZhA,
    http://www.youtube.com/watch?v=7Ura-g7mVjk,
    http://www.youtube.com/watch?v=2Vc2T1P5QHw

15. See https://en.wikipedia.org/wiki/World_Without_Oil and http://worldwithoutoil.org/

16. See also http://theonlinelearningcenter.com/schtml/ambient/ambient_vnr/index.html

17. World Health Report: Health Systems-Improving Performance, 2000, see http://www.who.int/whr/2000/en/whr00_en.pdf?ua=1

18. Snyder, G.: The Practice of the Wild, North Point Press, San Francisco, 1990.

19. In 2009 there were two organizations: the Biomimicry Guide offering consultancy and the Biomimicry Institute offering education & trainings. Today both are combined in Biomimicry 3.8.

20. See http://vanabbemuseum.nl/en/programme/detail/?tx_vabdisplay_pi1%5Bptype%5D=24&tx_vabdisplay_pi1%5Bproject%5D=548

21. See also https://en.wikipedia.org/wiki/The_Natural_Step and Robert, K.H. et al.: Strategic Leadership towards Sustainability, Blekinge Institute of Technology, Karlskrona 2010.

22. Backcasting as an innovation approach is also known via Keeney, R.L.: Value Focused Thinking, Harvard University Press, Cambridge MA, 1992.

23. Bigger picture reference: WEC, Redesigning Business Value, launched 2010 http://www3.weforum.org/docs/WEF_RedesigningBusinessValue_SustainableConsumption_Report_2010.pdf

24. A charette is a participatory dialogue process that helps a diverse group of stakeholders to define a common goal.

25. See http://www.research.philips.com/focused/experiencelab.html

26. See also http://www.philips.com/about/sustainability/ourcommunities/simplyhealthyatschools.page

27. Only a few examples are mentioned, this is not a comprehensive overview of all the activities.

28. The development of an appropriate maturity metric for sustainability driven innovation would be a very valuable piece of academic research

29. See https://en.wikipedia.org/wiki/TRIZ

30. This has been published in Seebode, D. et al.: Managing Innovation for Sustainability, R&D Management 42 (3), 195–206, 2012.

31. See Chesbrough H.: Open Innovation, Harvard Business School Press, Cambridge MA, 2003.

32. See also http://www.hightechcampus.com/news/article/phenomenon_called_high_tech_campus/

33. See also http://www.philips-thecenter.org/

34. See also http://www.philips-thecenter.org/the-philips-global-index/ and http://www.philips-thecenter.org/Meaningful-Innovation-Index/

35. See Seebode, D.: Sustainable Innovation, 2011, http://www.philips.com/shared/assets/global/sustainability/downloads/sustainable_innovation_paper.pdf

36. Complementary learnings were captured in a series of teaching cases in 2013, see http://www.innovation-portal.info/wp-content/uploads/Philips-Operational-Optimization.pdf

http://www.innovation-portal.info/wp-content/uploads/Philips-Sustainability-Journey.pdf

http://www.innovation-portal.info/wp-content/uploads/Philips-Systems-Building.pdf

37. The concept *community of practice* was first proposed by cognitive anthropologists Jean Lave and Etienne Wenger in 1991. They often evolve naturally because of the members' common interest in a particular topic, or they can be created specifically with the goal of gaining or quickly sharing knowledge. For more details, see https://en.wikipedia.org/wiki/Community_of_practice

Chapter 6

1. See www.greenbiz.com/video/2011/10/16/dorothea-seebode-conversation-joel-makower

Index

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Personal and Organizational Transformation Towards Sustainability
Walking a Twin-Path

Dorothea Ernst

Inspired by the WBCSD Vision 2050 in which "all people live well within the limits of the planet", this book asks how do we achieve this bold ambition? Telling a story of personal growth and corporate transformation, it provides insights and tools for anyone driving sustainable development within their organizations and in their own lives.

Discover how you can consciously use your professional role as a source of change. Learn how the consistent use of few, yet meaningful visuals, enables generative dialogue and communication for aligned problem solving within multi-disciplinary and multi-stakeholder teams. See how personal mastery can guide you in identifying the contribution you can make, both towards wider goals and your individual well-being.

On this journey, "meaning-making" is essential. In organizations, co-creation of a shared language and an understanding of disruptive innovation are fundamental to successful transformation.

In exploring these topics, the book builds on a set of core concepts: Rogers' innovation diffusion curve, the triple bottom line (people, profit, planet) expanded with a fourth "P" (the individual), and the WWF "ice-breaker" graph which maps the environmental footprint against the human development index.

Dorothea Ernst (formerly Seebode) is a pathfinder, pioneer, and architect of disruptive innovation. Her strength lies in creating dialogue around new and complex challenges and opportunities. Having pioneered end-user driven innovation at Philips Lighting, she led cultural change as senior director of sustainability at Philips Research. Dorothea is a LEAD Fellow and holds a PhD in physics from the RWTH Aachen, Germany. She now works as in independent advisor and coach.

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ISBN 978-1-63157-164-0

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