Embedding Sustainability as Innovation Driver @ Philips: Towards a game with new rules: creating value together

A case study for SOI System Building[1]

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in alignment with
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[1] The term operational optimization characterizes one of the three stages of sustainability oriented innovation – SOI – introduced in the NBS-study performed by R. Adams et al. in 2012.

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1. Introduction

In future, firms will need to expand their understanding of sustainability beyond the financial axis to the triple-P approach if they want to retain legitimacy: their social license to operate.

But, what is the difference between traditional and 3-P-sustainability oriented business practice? Which implications will triple-P thinking have on innovation? What are the characteristics of truly Sustainability-Oriented-Innovation (SOI)?

Acknowledging this development in the year 2012 the Canadian Network for Business Sustainability (NBS) commissioned research to explore the question:

What innovation activities do firms engage in to become sustainable?[3]

Based on 127 leading academic and industry sources from 1992 – 2012 a framework was developed, introducing three levels of SOI innovation:

- Operational Optimization: is characterized by the approach *Eco-Efficiency*. Its innovation objective is compliance and efficiency or in other words it's about *doing the same things better*. The outcome is relatively reduced harm, and its nature is *incremental improvements* with respect to 'business as usual'.

- Organizational Transformation: is characterized by the approach of creating *New Market Opportunities*. Its innovation objective is to create novel products, services or business models or in other words it's about *doing good by doing new things*. It creates shared value for multiple stakeholders and requires new business processes next to the establishment of systemic relationships to multiple stakeholders. It is likely to involve radical innovation drawing on a much more 'open' approach. In this context new models of innovation are emerging such as frugal innovation, resource-constrained innovation, reverse innovation, jugaad innovation.

- Systems Building: is about the conscious creation of *Societal Change*. Its innovation objective is about creating novel products, services or business models that are impossible to achieve alone but need to collaboration of several actors. In other words it's about *doing good by doing new things with others*. The expected outcome is net positive impact. It requires a fundamental shift in the firm's purpose and extends beyond the firm to drive institutional change. This kind of innovation will certainly be radical and carry high levels of complexity and uncertainty. In this context new approaches as *environmental* and *social enterprises, co-creation, eco-system innovation, closed loop* or *circular economy* are emerging.

[3] Richard Adams et al.: Innovating for Sustainability, A Systemic Review of the Body of Knowledge, 2012

This case study looks deep into the *Systems Building* aspects of the Philips Sustainable Innovation Exploration Journey, particularly during the period 2006 – 2011, finally resulting in Philips' new Vision, launched early 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**. 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 is further specified through the EcoVision commitments[5].

2. Philips:[6] a brief introduction

Royal Philips NV (Philips) is a global corporation and an internationally recognized brand name. It is a diversified health and well-being company, focused on improving people's lives through meaningful innovation in the areas of Healthcare, Consumer Lifestyle and Lighting. Headquartered in the Netherlands, Philips posted 2012 sales of EUR 24.8 billion with an EBITA of 6.1%. Approximately 118,000 employees realize Philips' sales and services in more than 100 nations.

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 began producing light bulbs (see http://www.research.philips.com/successes/history.html for a brief video background.

Philips innovation legacy[7]

Philips' legacy of innovation dates back to its foundation in 1891. In 1914, Philips Research was established to fuel the company with innovative technologies. And since the mid 1920s, Philips Design has complemented technology with aesthetic and human perspectives. Today, Philips' multi-disciplinary, multi-cultural employee base continues this tradition of creativity, as reflected in its array of innovations and high patent output.

Philips has adjusted its innovation approach several times, anticipating major changes in society. In recent decades this has resulted in the extension of the traditional technology driven product creation process towards end-user driven innovation and the implementation of "Open Innovation", in which the firm is a recognized leader.

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[4] Source: http://www.philips.com/about/company/missionandvisionvaluesandstrategy/index.page
[5] Source: http://www.philips.com/about/sustainability/ecovision/index.page
[6] More information about the overall journey and Philips can be found in the helicopter-view case.
[7] The paragraphs on Philips sustainability legacy and innovation legacy are derived from: http://www.philips.com/shared/assets/global/sustainability/downloads/sustainable_innovation_paper.pdf

Philips legacy in sustainability

Putting people at the centre 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.

In the early 1970s, Philips participated in the Club of Rome's "The Limits to Growth" dialogue and in 1971 the first corporate environmental function was established. Initially this function focused on compliance to environmental laws and health & safety regulations. Already in 1992 Philips joined the WBCSD, when the Council was set up in the wake of the 1st Rio Earth Summit.

Later, in 2003, a structured sustainable supply chain program was also introduced. Philips' EcoVision programs were first launched in 1998, setting corporate sustainability-related targets. In 2003, 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, signaling the full embedding of sustainability in Philips' business practices.

3. Introduction into Systems Building

This stage of SOI involves significant systems level thinking around emergent and radically different ways to serve people's needs, accompanied by the co-evolution of technical, organizational and socio-economic structures.

For example, the ways mobility needs are met in the 21st century differ significantly from solutions in the 20th century. While only a few decades ago the youth all over the globe had invested in cars to serve their mobility needs, nowadays comparable money is spent on IT-solutions empowering the user to stay connected to family, friends and business partners. Next to this a transition from fuel powered vehicles to designing a sustainable e-mobility system to transport physical good and people is underway, involving renewable energy supplies, new infrastructure and vehicles, user practices, lifestyles, policies, regulatory frameworks, etc.

"Better Place" is an electric vehicle (EV) and network system founded in 2007 by Shai Agassi in California. It involves developing an ecosystem of electric cars, infrastructure and services including a network of charging points for batteries, battery exchange facilities, driver and network software. Two main EV challenges were addressed: *convenience* in terms of limited reach due to the frequent need to recharge the battery; *affordability* in term of high battery cost. Agassi's idea was to separate the car and the battery value streams: sell the cars in the conversional way; keep a fleet of batteries as part of the infrastructure system and sell "access to electricity" via the speedy replacement of "empty" through "charged" batteries. Better Place, which has raised over US$ 700 million in investments, has formed partnerships with governments and major energy and car companies (such as Renault-Nissan) to implement new systems in parts of Israel, Denmark, Canada, Hawaii, as well as the United States. Denmark opened Europe's first Better Place EV battery swapping station in July 2011. Its goal is sustainable transportation, global energy independence and freedom from oil (WWF 2010,

Better Place 2011). Unfortunately currently 'Better Place' is under quite some pressure. Some of the unforeseen, not yet resolved challenges they faced were[8]:

- Unexpected roadblocks through local authorities while building battery swapping stations
- Lack of car model diversity: only Renault invested in the design and building of a car embracing the battery swapping approach
- Marketing: there were too many newness dimensions to explain to the customers at the same time ➔ new car technology, new re-fuel / usage mechanism, new ownership model, new business model.

Such system-level innovation goes beyond reviewing the relationship between a particular product and the environment, to rethinking the way we produce and consume, imagining new outcomes, and understanding and leveraging the interdependencies of system components. Innovation here starts with a clear definition of the common gaol that should be reached, the functionality the system should fulfil. It builds on the insight that one company, however green, cannot be sustainable in an unsustainable wider system – and so it will involve collaboration between a wide range of private, public and civil society partners. Such shifts are by their nature emergent, involving co-evolution amongst multiple players, some of whom may have worked together before.

Early examples might include Grameen Shakti, a rural renewable energy initiative in Bangladesh, which fosters collaboration between the micro-finance sector, suppliers of solar energy equipment and consumers, enabling millions of poor households to leapfrog to new energy systems. It is generating new employment opportunities, increasing rural incomes, empowering women, and reducing the use of environmentally polluting kerosene. It has become the world's largest and fastest growing rural renewable energy company in the world (Grameen Foundation 2011).

Table 1 summarises this stage and gives some specific examples related Philips activities[9].

Key activities *(according to NBS report[10])*	***Related Philips activities and approaches***
Apply a whole-systems focus to influence the redesign of institutions and infrastructures and the re-conceptualization of the business purpose • Derive new value propositions from entire socio technical and ecosystem value network to make a positive impact with an inclusive business • Engage in institutional dialogue to "change	**Apply a whole-systems focus to influence the redesign of institutions and infrastructures and the re-conceptualization of the business purpose** • Co-shaping the changing business context ➔ Vision 2050, GEC, Eirma, EFQM, EU round tables, etc. • Multi-stakeholder workshops and workgroups

[8] http://www.theguardian.com/environment/2013/mar/05/better-place-wrong-electric-car-startup
[9] This list is by far not exhaustive, more information can be derived from the Philips Sustainability reports
[10] See page 20f of report

the rules of the game" • Reframe the purpose of the firm: suffuse and infuse all dimensions of Triple Bottom Line (TBL) into the organization • Initiate, mobilize, lead and inspire systems change • Apply equal weight to all aspects of the TBL in organizational thinking and decision making	• Beyond care-cycle approach towards sustainable health care systems • Launch of new Philips Vision in 2012 incl. long term target for 2025 • Announcement of phasing out the incandescent bulb by 2016 in 2006 • Connection day in Van Abbemuseum • Pilot projects: Hope schools, Rijnenburg • Co-creation of High Tech Campus Eindhoven: a multi-stakeholder innovation eco-system

3.1 The journey and its starting points

This timeline captures the key steps of the Philips Journey towards sustainable innovation.

Figure 1: Timeline of Philips Journey towards Sustainable Innovation

"Systems Building" activities had taken place at Philips before the journey had started, yet were not qualified as such, since this terminology was not known. The process of *open innovation* can be seen as an important enabler for systems innovation. Philips has the reputation to be one of the leading open innovation firms having pioneered this way of working in multiple multi-stakeholder projects especially at the fuzzy frontend of disruptive innovation. Systems Building is at the core of sustainable innovation. It is all about social innovation far beyond end-user driven innovation, fundamental questions about organizational purpose and multiple value generation have to be posed and answered.

All system building innovation share a few elements:

- An additional first step in the innovation process is required: the definition of the system functionality and its boundaries and the definition of a realistic common goal
- There are multiple stakeholders involved
- They deal with complex challenges that no organisation alone can handle
- Multiple value generation generates new challenges e.g. in terms of shared vision, trust, decision making, stamina, IP, common good, value distribution, warranty responsibilities, legal structure.

Space matters: exploring Systems Building based in an Innovation Eco-System
At Philips Research the first decade of the Millennium was characterized by the transition from a closed Corporate Lab to a Sustainable Innovation Eco-System. In 2001 2400 employees worked on Philips focus areas only at the "Natlab". About 10 years later the same space is now called High Tech Campus hosting more than 100 companies. 8,000 international talents create optimal synergy and efficiency. Most unique about this innovation-ecosystem, however, is that the philosophy of *Open Innovation* is truly lived. Actually it is the leading *Open Innovation* location in the world. In some cases it even moves beyond towards co-creation. The Campus Community is a dynamic mix of global players, start ups, SMEs, research institutes and service companies. R&D organisations and technical professionals from 60 nationalities are working in various technical disciplines. They develop disruptive technologies providing solutions to major global challenges: safety, health, mobility, communication, sustainability and energy.

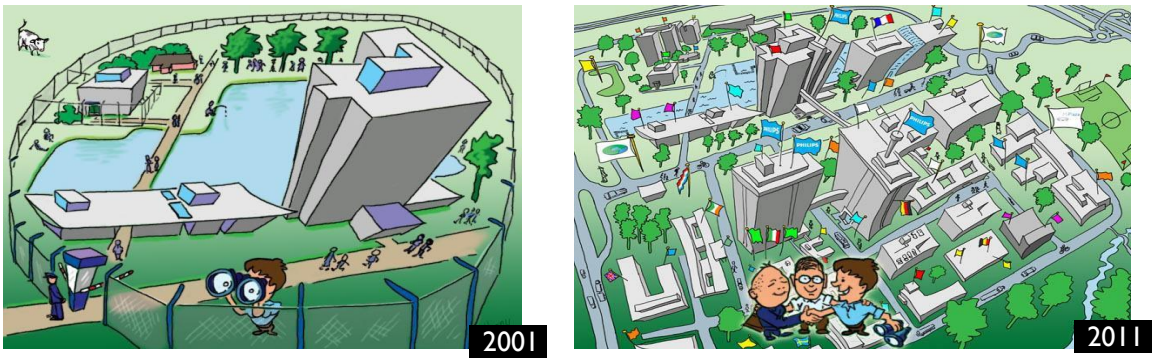

Figure 2: Philips Natlab's transition to the High Tech Campus, Eindhoven

Philips' cooperation with the City of Eindhoven and the state of Brabant[11] resulted in the establishment of a truly sustainable innovation ecosystem. 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 centre 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 next to a good net of breast feeding rooms. A small shopping area offers access to all necessary goods, hosts a bank, some sports facilities and a hairdresser.

3.2 Creating rules for a new game: systems building

WBCSD Vision 2050: co-creating a new business agenda
Quite a different way of working on system innovation is the execution of cross-industry projects like the WBCSD Vision 2050 project. 29 multinational corporations representing a broad variety of industry sectors worked together with academics and NGO representatives to develop a global vision for humanity in 2050

[11] See also http://www.hightechcampus.com/news/article/phenomenon_called_high_tech_campus/

and a pathway map to get there. Philips joined the project begin 2009 and led the work stream on health and wellbeing. This project was set up in the mindset of *servant leadership* guided by a team of excellent facilitators. Four plenary workshops were organized to consolidate the results of the thematic work-groups into a common view and envisage the concrete milestones and steps for the coming phase. Company representative *shared leadership* during the different project phases, depending on the specific expertise that was required in a certain phase. The project was set up using the "back-casting from a vision[12]" method, which in the early 1990s has been discussed under the notion of "value-focussed thinking[13]".

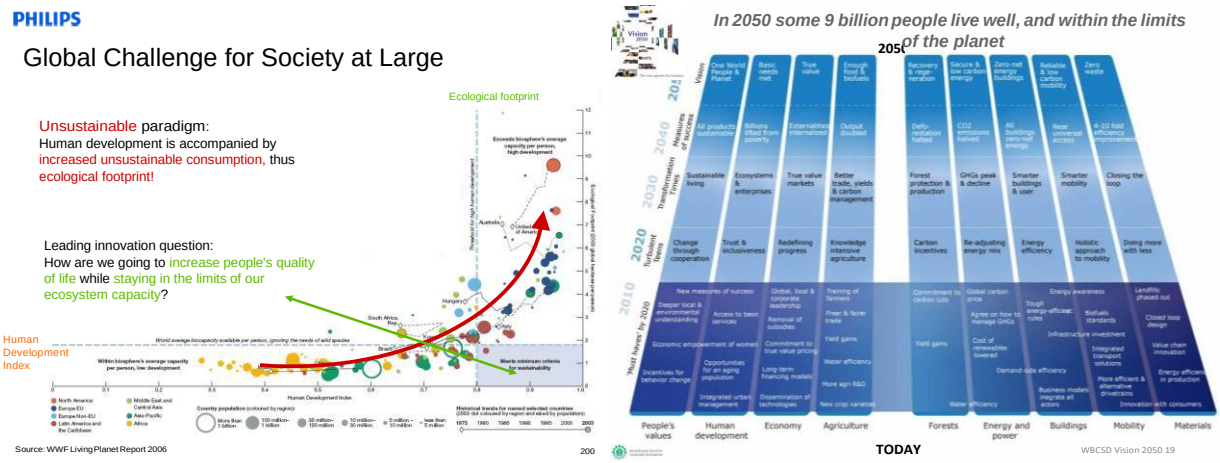

Figure 3: WBCSD Vision 2050 a) starting point → state of the planet; and b) outcome → pathway map

Four main activity areas were identified to close the gap[14]:

- Consumption: change consumption patterns towards sustainable lifestyles
- Carbon & resources: halve CO2 emissions, double agricultural output, 4-10 fold increase in resource efficiency
- Costs: internalize cost of carbon, water & other ecosystem services: handle true costs
- Collaboration: build complex coalitions, apply open innovation & co-creation

This project, like many multi-disciplinary big EU technology projects bringing together academia, corporate R&D expert, representatives from S&ME and standardization committees are good examples of system co-creation approaches. Especially Philips Research and Philips Design have a long legacy in participating in these types of innovations. A core competence here is "bridge building between different worlds".

[12] See also: The Natural Step: Framework for Strategic Sustainable Development
[13] See also: Ralph L. Keeney: Value-focused thinking, a path to creative decision making
[14] Find more in the full report: http://www.wbcsd.org/vision2050.aspx

Community-Lab Rijnenburg:
identifying new "system functionality" through defining and prototyping sustainable lifestyles
Philips Research co-initiated the "community lab" project building on its reputation for the successful use of "experience labs[15]" facilitating the transition from technology / manufacturing driven innovation to market / end-user driven innovation. In a presentation to key partners like

Figure 4: Rijnenburg floor plan & photo impression

representatives of the city of Utrecht, a big construction company, the Rabo-Bank, and most notably the Dutch Minister for environmental affairs, a multi-stakeholder Community-Lab was promoted to be a way to co-create a common understanding of the system: "urban living environment enabling sustainable lifestyles for 7.000 citizens", then derive functional system specifications and in a last step translate these into technical specs that then could be the starting point for product innovation.

Some key steps of the project:

- In 2008 the city of Utrecht and the Province Utrecht kick off the development of a structure plan for Rijnenburg, a terrain that is more of a river / countryside areas than urban. In this context the "Charette [16]Rijnenburg" is organised. One of the recommendations of this Charette was the initiation of a Community-Lab Rijnenburg.
- January 2009: the Community-Lab idea is shared with the Dutch Minister of Environmental affairs. The idea in a nutshell:
  - *Objectives* ➔ *Develop local lead market, test multi contextual user and social interfaces, systemic innovations*
  - *Enabling Technology* ➔ *Creative combination of existing and emerging interoperable technologies to be combined towards the most **effective** context relevant system solution*

[15] More can be found here: http://www.research.philips.com/focused/experiencelab.html and http://www.youtube.com/watch?v=1edIODuCxes

[16] A charette is a participatory process in which in a restricted period of time with a clear deadline participants with a wide range of diverse backgrounds and interests work together on the final integral conceptual design of a big architectural construction.

- *Behavior change* ➔ *lead users – both individuals and groups – experimenting with and developing new ways of living, sharing resources, using energy, etc.*
- *Approach* ➔ *Open system innovation, co-creation*
- *Operational partners* ➔ *Consumers, users and their organizations, companies and civic sector, local interest groups, research community (both R&D /socio-cultural)*
- *Executive partners* ➔ *Local public partners, research institutes, SME companies and larger national/ international companies, civic organizations.*
- *Time span* ➔ *Long , could be permanent*

Figure 5: charette impressions

- February 2009: letter of intention capturing the Community-Lab idea and introducing the partners for the "Community-Lab concept development" project. This was sent to 4 initial innovation partners (Philips CT, AMVEST: a construction company, BouwFonds: a financial service provider, EPEA: the Dutch Cradle 2 Cradle entity) and 3 public bodies (the province of Utricht, the city of Utrecht, the Hoogheemraadschap de Stichtse Rijnelanden)
- June 2009: project kick-off
- During project execution the team came together for 6 meetings with well-defined work streams executed in between.
- A very experienced facilitator guided through the process and organized a transparent documentation on a website that was available to all project participants.
- Special attention was put on "getting to know each other's worlds" and developing a common language.
- The meeting places were consciously chosen such that they embodied the topics of discussion, so that there was consistency between the physical environments and the thought and dialog process that took place.

Figure 6: some innovation questions for the Community Lab Rijnenburg, 2010

End 2010, after 1.5 years the project team had reached following results:

- Availability of a rich, well grounded project plan Community Lab Rijnenburg
- Identification of four value creation areas: active community, landscape shaping and maintenance, energy and comfort, ownership and financing
- Elevator pitch for different stakeholders
- Swot analysis about next steps
- Plan for potential resident involvement

Begin 2011 it was set on hold due to major changes in personnel and priorities of a majority of the key stakeholders.

Towards smart and creative Strijp-S: Implementing a "system solution"

Philips Design, Philips Research and Philips Lighting were/are involved in the "Strijp-S" project in Eindhoven. Strijp-S is the part of the city centre in which Philips from its early days beginning last century onwards had established a broad variety of development and production facilities. In 1917 the NatLab, originally a physics laboratory and nowadays Philips Research, was founded here. At its best times more than 12.000 people worked on this 66 acres big area. In the early 1970's Philips started to relocate and outsource its production facilities to different places, leaving an industrial fallow area that constantly grew until the 1990s. Then the municipality of Eindhoven started to think about a new and different use of the area, if possible keeping the old buildings – that inherit so much of Eindhoven's economic legacy. In a "triple helix" process bringing together the municipal council, industry and academia a new vision for Strijp S was co-created. In 2006 this process consolidated in the shared intention to turn the area into *an inspiring environment with a mix of living, working and recreation*[17]. According to the urban development plan, by 2020 the terrain will host 2.500-3.000 "houses" (studio flats, flats, town houses and lofts), an about 285.000m² big residential area, approximately 90.000m² office space and commercial facilities and space for culture on around 30.000m². It should enable smart, creative sustainable lifestyles even further increasing Eindhoven's reputation of being one of the most creative and innovative cities in the world.

In a first step aligning all stakeholders and embracing the different qualities that lighting on Strijp-S should deliver an extensive lighting-master-plan was developed.

[17] Quote from the Strijp-S brochure, developed by the Park Strijp Beheer in cooperation with the miunicipality of Eindhoven. See also www.strijp-s.nl

Figure 7: Lighting Masterplan of Strip-S in Eindhoven

This plan is good example of a *system building specification*, since technical system requirements are anchored in 6 social scenarios, describing different living situation:

- Living at Strip-S – creative working day
- An evening out - an experience at night in the "Klokgebow[18]"
- Visit a friend - have dinner outside
- Visit Strijp-S – shop 'till you drop
- Sportive outdoor living - skaten on Friday evenings
- Special event --- throughout the year

When developing these scenarios special attention was laid on social and environmental sustainability aspects. Both deep knowledge about future technology trends contributed by Philips Research and weak signals from society, derived through to the by Philips Design developed latent needs identification process called "probes[19]" had been leveraged.

In 2009 the phase of implementing had started. With this new challenges emerged:

- Within Philips: how to set up and coordinate a sales / implementation project to which at least three Philips profit-centres contributed? Which type of project management and internal decision making structure could facilitate both the newly emerging commercial and technical challenges?

- In the Strijp-S team: who needed to be involved at which stage of the project? Which decisions need to be taken by whom? E.g. the municipality of Eindhoven also needed to organize the multi-functional cooperation between the department for finance, civil engineering, high building design, public lighting (different parts of the responsibility were links to road maintenance and city marketing) etc.

[18] The Klokgebow is a clock.tower and the architectural icon of the Strip-S area

[19] A probe is a Philips Design foresighting initiative which tracks emerging developments in five areas: politics, economics, environment, technology and culture. See also http://designprobes.ning.com/

Finally one of the core *system innovations* of this project was the development of a new type of strategic partnership that enables Philips and the municipality of Eindhoven to align internal departments at both ends and adjust the work procedures accordingly in order to effectively implement the master-plan.

3.3 (Mental) models, tools and metric

Systems building ask for co-creation rather than top-down hierarchical management
In the 2007 published Philips Design thought-leadership-piece "democratizing the future[20]" a socially led innovation process is suggested. Along with the emergence of this new innovation approach also the transition of the hierarchal management structure (visualized through the pyramid) towards collective co-creation is suggested. This thinking very much influenced the contributions Philips made to the WBCSD Vision 2050 project.

[20] See also http://www.design.philips.com/shared/assets/Downloadablefile/democratizing-the-future-14324.pdf

It suggested the emergence of a new innovation paradigm enclosing deep disruptions and the need for radical, transformational change in our societal set-up. This was very much in line with the findings of WWF, as introduced through the "L-sheet" (see figure 3a) in the Living Planet report, 2006. Yet what exactly did that mean?

Capturing the "systems building" space: innovation framework for sustainable development
A multi-functional team started collecting the scattered information that could help to answer this question. It looked at different already visible manifestation of the necessary transformation. It was challenging to find the appropriate level of abstraction, the right language to be able to identify and describe effective levers for fundamental long term change and then align them to concrete and specific short term actions that could be done as a next step. While incremental innovation practice follows a "zoom-out" ➔ from concrete to abstract approach, here a "zoom-in" ➔ from abstract / global to concrete approach was chosen. The simple visuals in figure 10 helped a lot to facilitate a constructive dialog process. It represents questions about the "eco-system change" in terms of: Why? What? When? And it provides space for both: incremental improvements in the existing socio-economic eco-system (left➔ industrial age), radical innovations while developing and living in a new socio-economic eco-system (right ➔ people age). Summarizing: the first dimension (the horizontal axis) of the innovation framework captures the "type of innovation / quality of change".

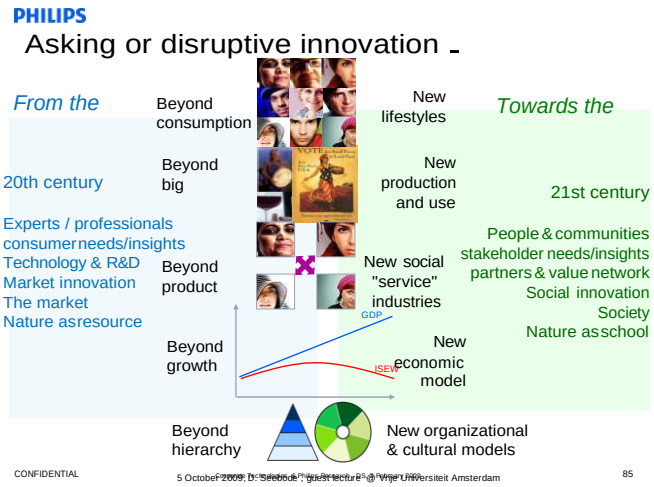

Figure 10: Visuals supporting initial framework dialogues used to map global trends

The second dimension (the vertical axis) of the framework looks at the "quality of personal influence". The team took some time to deeper understand how to describe the big goal of *1-planet living for all*, or as expressed by Vision 2050: *nine billion people live well and in the limits of the planet.* How could Philips building on its capabilities and leveraging its markets turn this global challenge into a business opportunity?

Philips was committed to *improve people lives through meaningful innovations in the area of health and well-being.* So, what was the bridge between this mission and 1-planet living?

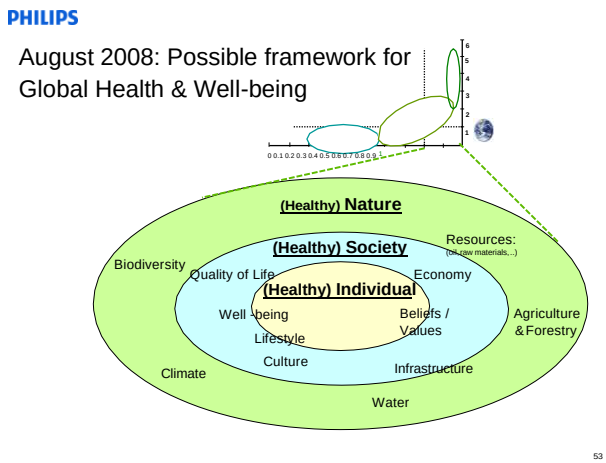

Figure 11: Steps towards sustainable health & well-being in 2008/2009

Figure 11 captures the 3-layerd result of the conversations, with

- *Healthy Individual*: by a healthy body & mind being enabled to live well in dignity & freedom, maintain intact relationships, be a responsible citizen, enjoy spare time, develop skills, ..
- *Healthy Society*: a people fairly sharing the load of proving to its citizens access to education, sustainable health healthcare system, a reliable pension system, legislative and economical structure, in the context of its specific values & belief systems, embracing 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 clean air and water, shelter, (energy efficient) light, safe food, ..

This conclusion was the starting point for a more fundamental dialogue about the triple bottom line model, which via a change in perspective from the original model of overlapping circles to the nested triple P[21] model finally led to the extension to a nested 4-P model[22].

Figure 12: development of triple bottom line to "4-P model"

[21] *Source: B. Giddings, B. Hopwood, G. O'Brien, Environment, Economy* and Society: fitting them together in Sustainable development, *Wiley Interscience, 2002;*
[22] *extension to "4-P" : D. Seebode, Sustainable Innovation, Philips publication, 2011*

Bringing both dimensions together the Innovation Framework for Sustainable Development emerged, envisaging a "disruption zone", which organizations and individuals need to pass on their sustainable innovation journey.

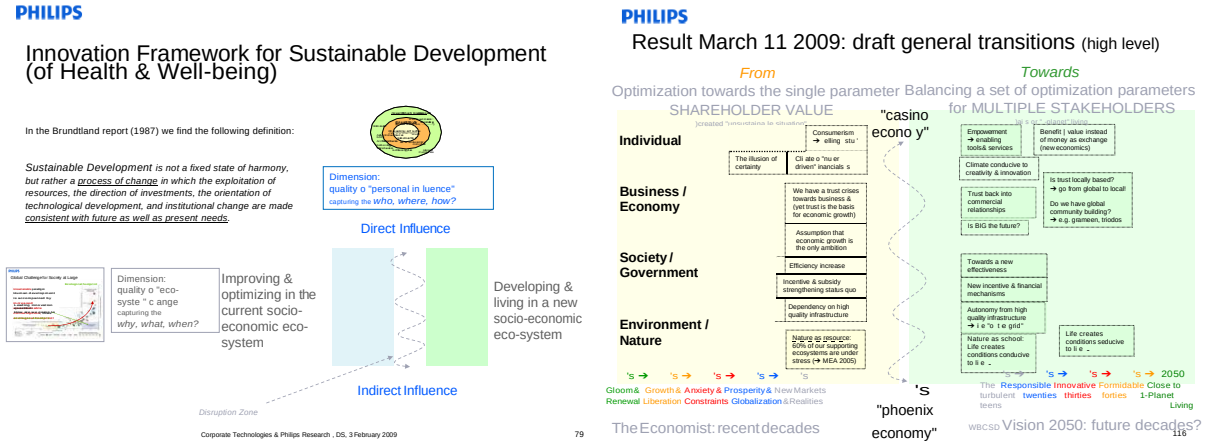

Figure 13: Sustainable Innovation Framework: a) concept and b) insights of Disruption Day

The vertical axis reflects the 4-P model of influence on change, introducing the personal, economic, societal and environmental dimensions of sustainable development. For product and service innovation discussions at Philips these dimensions were translated into application areas: person ➔ home; profit ➔ professional end users: office, hospital, hotel, shopping, etc.; society ➔ public buildings, health care system, etc.; environment ➔ public infrastructure, green houses / food, etc.

Between mid 2008 and mid 2010 the framework was broadly used as mapping tool for existing innovation projects to identify possible already existing starting points and levers.
Next to this it was very useful to stimulate out-of-box idea creation to bridge the gap.

System Building: any decision is taken by an individual ➔ more on nested 4-P model
The triple-bottom line model of overlapping circles originally used to engage business/economy to the sustainability debate at Rio in 1992 inherits a fundamental problem: it suggests that there is a part of economy, that exists independently from and society and environment. This would mean that there are business activities that do not impact society and environment and therefore legitimizes purely financial profit oriented economic activity. This is not the case! In 2002 the "nested triple P" model was proposed reflecting the actual situation much better. A disadvantage of this model is, however, that it describes highly abstract entities, which are not in itself decision makers nor directly accountable for chance in economic practice. Decisions are always taken by individuals, independently whether they represent the views of many in democratic processes or single persons in private contexts. This view has firstly been expressed in the 2011 launched Philips publication on Sustainable Innovation[23].

[23] See http://www.philips.com/shared/assets/global/sustainability/downloads/sustainable_innovation_paper.pdf

Disruption Day and Connection Day ➔ how could the new world look like?

Tell me and I will forget, show me and I might remember, let me experience and I'll understand

When setting a new theme or exploring an emerging innovation force there are no standard processes in place. This always happens at the cutting edge of the "fuzzy front end" of innovation. However, workshops are a powerful tool to feel the new, share insights; align passions; express and move beyond concerns and fears; identify the next sensible step on the journey into the unknown. Such workshops, though need very thorough preparation, since they are only lasting impactful if there is a consistency between participant's cognitive, emotional and physical experience. This can be achieved if the workshop flow embodies the "nature of the new phenomenon".

At Philips in 2009 two workshops: Disruption Day and Connection Day were designed and run to give the sustainable innovation community and potential system change partners the opportunity to start to "imagine the world otherwise – together".

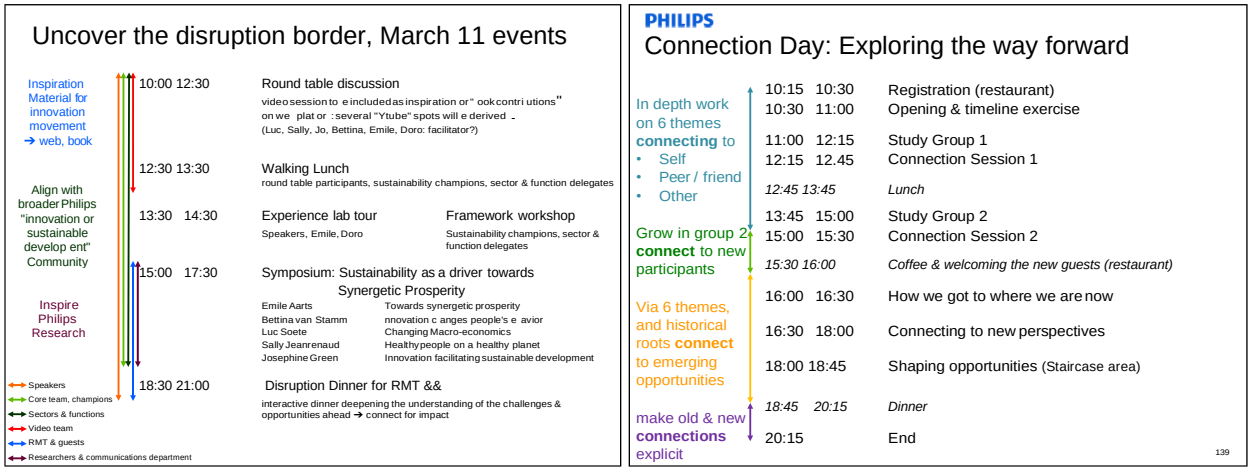

Figure 14: Workshop flow a) Disruption Day b) Connection Day

The aim of *Disruption Day* was to create a broad understanding about:

- Which are the *carrying*, which the *destroying* elements in the industrial paradigm's invisible architecture?
- Which are the *accelerating,* which the *slowing down* factors towards the new paradigm?
- Which *rebound effects** should we expect?
- Who are the key *movers, k*ey *shakers*, key *influencers?*
- Which concrete actions will have which type (minor, medium, big) of impact *now, soon* and *later*? How difficult is execution?
- To which *"pain points"* can we – Philips – make a significant contribution?

The innovation framework rooted in the L-sheet and the sustainable health and well-being definition formed the consistent starting point for all workshop parts. While during the framework workshop right after lunch practitioners mapped out potential pathways for their

business or function, in the evening key decision makers made themselves familiar with the disruption border and envisaged transition pathways via a co-creation game.

Figure 15: template for the "crossing the disruption-border game".

The aim of *Connection Day* was to create a deep, lasting experience about:

- How to engage with multiple stakeholders around a common goal?
- How can we deal with disruptions?
- Which innovation opportunity is hidden underneath the global challenges?
- How can we work together differently?
- Which could be sensible first steps?
- How to strengthen creativity? Whom else could we partner with? Where could we find surprising inspiration?

Why was the Van Abbe Museum chosen as location? The director of the Van Abbe Museum in Eindhoven was in the process of launching the courageous "Play van Abbe[24]" project: a cultural research project in four steps dealing with the fundamental question "what is the role of a museum for contemporary art in the 21st century? What is the role of art?"
This was surprisingly well in line with the fundamental question that emerged on disruption day: "what is the role of innovation in the 21st century? What is the role of business?"

The whole workshop has been organized along the three EcoVision 5 targets: (access to) *Care, Energy, Materials*. These innovation areas at that moment of time were not yet publically launched, but internally known. Complementary three process / culture-shift challenges were explored: *Co-creation, Transitions, Value Re-defined*. These were priorities directly derived from Disruption Day. Van Abbe Museum curators selected corresponding pieces of art and literature.

[24] See also http://www.vanabbemuseum.nl/en/browse-all/?tx_vabdisplay_pi1[ptype]=24&tx_vabdisplay_pi1[project]=548

In this way contemporary art, capturing the emerging "societal consciousness" was used to stimulate "out of the box" thinking. It provided powerful *lateral thinking* entry points and created awareness for a normally "out of scope" stakeholder for social innovation.

Figure 16: art corresponding to innovation themes

For the museum it was an important experiment to use its resources: both the space and the art in a completely different, yet highly meaningful way. It was a step in the transition of *a museum as a treasure chest* with art being the *treasure* to be admired by the visitors towards *a museum as a tool box* with art as *tool* to be used by all citizens.[25]

One striking response of quite many participants was: it can be surprisingly easy to engage in deep dialog about things that really matter in life: how to stay healthy, how to maintain a good future of our children, how to make sure that there is peace between nations ... if only we could always meet from human to human[26], rather than hiding behind corporate or other social roles...

Systems are built in co-creation processes asking for new decision making processes

After understanding that social system innovation is at the core of innovation for sustainable development it became clear very quickly that in order to do this, Philips' existing open

[25] Charles Esche: opening speech of "Once Upon a Time... The Collection Now", November 2013

[26] People met first as humans, since in they introduced themselves to each other with their names and favourite household activity ©

innovation strength needed to be expanded towards co-creation. To become actionable clear focus needed to identify concrete pathways through the complexity of challenges.

Building on the experiences of implementing the Atmosphere Provider innovation theme at Philips Lighting[27] it was the idea to develop a set of "foundation documents" to describe the sustainable health and well-being innovation space from different perspectives: individual, environmental and societal needs; technology and business models. These foundation documents were meant to become the detailing of the Vision 2050 that was not at all actionable yet. They should also provide a consistent starting point to help orchestrate the broad variety of required innovations in and outside of Philips consistently.

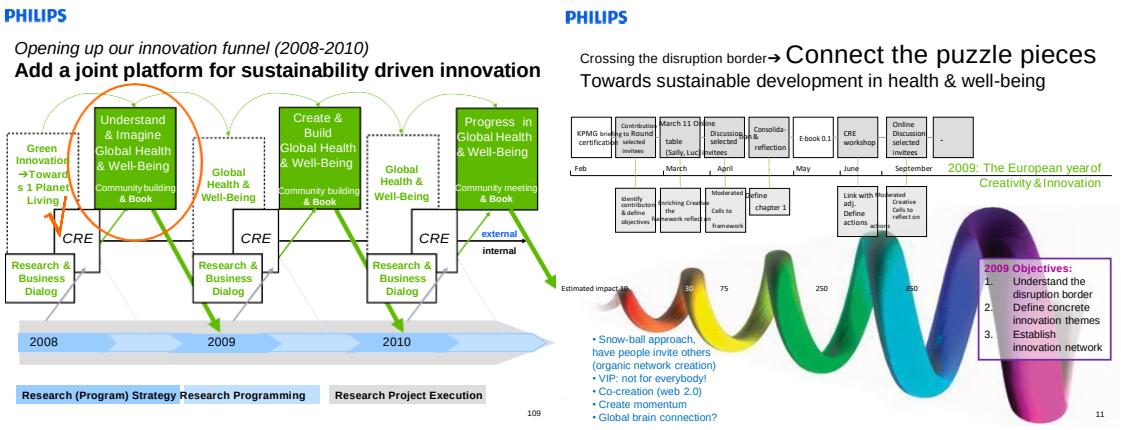

Figure 17: beyond a) dialog decision process towards a b) co-creation spiral

Building on the Lighting experiences the DDP (dialog decision process) was envisaged to become the leading way of working. It became clear quickly that the complexity of the change process towards sustainable innovation was much higher than in the case of Atmosphere Creation, where the main challenge had been to balance short term expectations with the strategic nature of radical innovation, thus long term result creation. Next to this in the Lighting case the envisaged change was happening in the "closed system" of the Philips Lighting organisation, which means any required change was under control of the Lighting Management. Sustainable system building has different characteristics: it's an "open multi-stakeholder system" challenge. It asks for

How to organise effectively for strategic decision making in such situations stayed an open question until the end of the here described initial exploration phase of the journey.

Towards aligned action: Sustainable innovation paper

When sharing the Vision 2050 pathway map, both inside and outside of Philips, it turned out to be useful to pose these three questions:

[27] See also http://www.managing-innovation.com/case_studies/Radical Innovation at Philips Lighting 1 June 2009.pdf

1. Do you think that this Vision is desirable: *by 2050 some nine billion people live well and in the limits of the planetary boundaries*?
   Response: 95-100% agreement
2. Imagining the best case scenario and acknowledging that an incredible amount of required know-how is already available; do you think it is possible to get there?
   Response: ca. 50% agreement
3. Will it happen?
   Response: 2-7% agreement

What does that mean? The main challenge ahead is a mind-set, a belief (a heart-set[28]) challenge. It has to do with trust in ourselves, the others, the possibility. It has to do with power distribution. It has to do with fear and the feeling of helplessness. Often people expressed that everything is too complex, too interwoven, too big ... And: why should I or we start? Can't someone else guide the way?

In order to help bridging the disruption zone and finding first concrete steps towards Vision 2050 the insights of the Philips Sustainable Innovation exploration phase have been consolidated in a thought-leadership paper (see footnote 17). There is an internal version as well, which add to the public text a workbook with Philips specific examples and questions guiding the user's knowledge development process. In Philips it was motivated as follows:

Why?
- *Sustainable Innovation is a new paradigm*
- *Consolidation of learning of recent years to simplify skill development*
- *Development of a shared language and common purpose*

For whom?
- *Philips Innovation and Sustainability community*
- *External innovation partners & sustainability stakeholders*

What is it?
- ***Paper** : a collection of key insights about sustainable innovation*
  a possible step to making Vision 2050 actionable
- ***Workbook**: an interpretation of current Philips innovation practice*
  through the lens of sustainable innovation
  a set of questions enabling the reader to define concrete action

What is it not?
- *a set of solutions*
- *a Philips strategy / roadmap / action plan*

The core of this tool in terms of Systems Building is the Philips 2050 Pathway map. It is leveraging the WBCSD approach. A clear distinction is made between the changing innovation context along the 4-Ps, which a corporation depends on, but cannot directly influence on the left side. On the right side there is space for Philips pathways into the future. System solutions like major

[28] In her paper "From system thinking to system being: the embodiment of evolutionary leadership"; Journal of Organizational Transformation & Social Change, Vol.9, No.2, 2012 K.C. Laszlo introduces the need of three competence "sets": *mind-set (know-why), skill-set (know-how), heart-set (care-why)* for successful systems building.

improvement in national healthcare systems or the transition to CO2-neutral public lighting will require cross business-sector and beyond Philips co-creation efforts. These can be made explicit with this methodology.

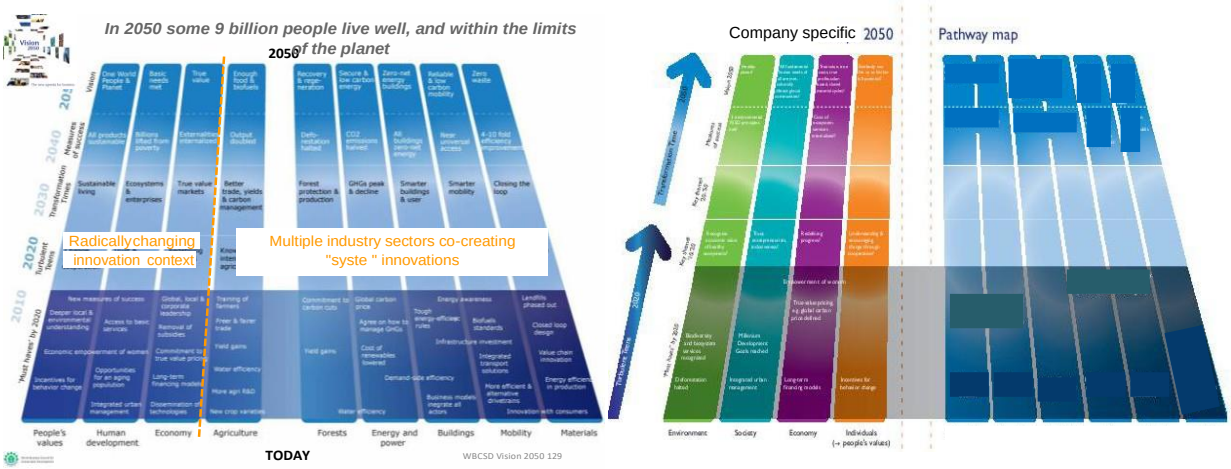

Figure 18: Pathway maps towards 2050 a) original incl. classifications b) company-specific

The approach can be used in different abstraction levels: on social system/industry level, company / MNC level or business line level, yet requires a good facilitation, a long term commitment and multi-stakeholder involvement.

New Metric

Measuring progress w.r.t. 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 in 2010 the *Global Index for Health and Well-being*[29] was launched complemented begin 2013 by the *Meaningful Innovation Index*.

3.4 Organising for Systems Building

General observation

All systems building activities are executed in multi-stakeholder groups. These carry the intrinsic difficulty of limited common language, experience, context knowledge etc. which makes proper team building at the beginning crucial. On the other hand it offers participants the opportunity to become aware of their jargon and reconsider their starting points and unconscious assumptions.

Ensuring long-term commitment of all partners is a key challenge. Also the growing in and phasing out of team members needs to be facilitated with care, patience and a high awareness for possible irritations.

[29] See also http://www.philips-thecenter.org/the-philips-global-index/ and http://www.philips-thecenter.org/Meaningful-Innovation-Index/

Engaging with Society ➔ global multi-stakeholder dialogs

Sustainable Innovation, especially systems building is a shared multi-stakeholder effort. When this became more and more understood, a benchmark study was executed on how other industries organize stakeholder engagement. Here a few findings of that study (situation 2009):

- The Unilever Food and Health Research Institute bring the Unilever Vitality Mission to life.
- The P&G Health Sciences Institute uses the efforts of more than 200 scientists and collaborators with external partners
- The goal of the Danone institutes is to link scientists involved in nutrition research with health and education professionals
- Johnson & Johnson focuses on saving and improving lives and on preventing disease and reducing stigma. They contributed $510m in cash and product to 650 philanthropic programs in more than 50 countries
- Nestle focus on nutrition and water. There is a Nestle Foundation for the study of Problems of Nutrition in the world since 1966. They have the Nestle Nutrition Institute with 4000 medical delegates and 40.000 registered members, a Nestle Nutrition Council and the largest online library in the world.

In this landscape the centre for health and well-being[30] was started with two aims:

- To systematically facilitate global stakeholder dialogs, thus enriching the sustainable innovation programming by new perspective. Initially two think tanks were established.
- To bring together Philips' over many functions and business sectors distributed expertise on health and well-being,

Initially two think tanks were started:
The theme *Livable Cities* embraces the global mega trend of urbanization and looks at ways to enable sustainable lifestyles in cities all over the world.
The second theme *Aging Well* looks at new challenges for citizens, governments and care providers with their responsibility to establish sustainable healthcare systems.

4. Lessons linked to systems building

This section shares some reflections from the core team about how to manage the implementation of change at the systems building level.

a) Realistic common goals

A few additional, new complex innovation challenges emerge at the fuzzy frontend:

- System definition
- Identification and involvement of all relevant stakeholders

[30] See also http://www.philips-thecenter.org/

- Participatory "problem clarification" leading to "common goal setting"

While up to the level of "organisational transformation" single organisations were independently capable to act, in the stage of systems building it becomes crucial to involve **all** stakeholders in the system definition and goal setting process. An initial key challenge is the choice of system "size" and "nature". If the system boundaries (e.g. public lighting) are chosen too small (e.g. only street lighting), no major effect is possible; if it is too big (all outdoor lighting in a city incl. private garden lighting and shop window lighting) there is a high danger that it's not actionable ending as debate club, rather than innovative force. Once the appropriate system has been defined thus all relevant stakeholders can be identified, it can be necessary to do some "diplomatic" work to overcome prejudices and create a common ground for cooperation. Then they might meet to develop a common system view incl. current shortcomings and the desired end-functionalities. A broad variety of tools to visualize related complexities and interdependencies between different sub-functions have been developed in recent years, yet until now have not been broadly diffused into economic thinking and acting. Finally, a well facilitated dialog process might lead to the definition of a common goal.

b) Building momentum means building community

When bringing together multiple stakeholders, presenting a compelling for all relevant business case is not enough. It is important to recognise that there is a strong emotional dimension – people have commitments to the old models and roles, may feel (justifiably) anxious about the uncertain new model, especially since by its nature it is tricky and uncertain. Letting go requires both a "landing point", e.g. a strong vision a deep unmet need to focus their emotional energies and some reasoned case for making the move. Early on in the process the information available about agendas, markets, technologies, competitors, decision makers, etc. and trust between the stakeholders will be very limited and the need for emotional support has to be emphasised. As more is learned --- through working together, via prototypes, successfully reached milestones, pilot action, etc,- commitment will grow and fuelled by visible successes.

This all involves building and expanding a community of people who believe in the new idea and can then share it with others – essentially following an 'epidemic' model. In the early stages the core team require a high degree of flexibility – the ability to explore, try out and let go of new concepts as they emerge. Gradually this will take shape – via a common language and vision – into a core concept which can be taken to the wider stakeholder community. In order to establish long term commitment it is essential to defining concrete milestones with tangible results. Special attention is required to sensibly manage changes in personnel and priorities of stakeholders. Often teams start with passionate individuals, that represent and organisation, yet after some time it is essential to professionalize the cooperation to organisational levels. It is also necessary that there is provision for re-integrating that team back into the mainstream of the communities and the individual participating organisations.

Working in system-building co-creation projects first creates language tensions and surfaces cultural differences. Later enables quick decision making and implementation, as all necessary perspectives are represented. Next to this they can provide the "systemic resilience" that is required to cope with unforeseeable challenges and helps to avoid entering guilt games.

c) The puzzle dilemma

Nowadays, in times of overfull schedules and too many priorities anyways, when bringing together multiple stakeholders required for system building it is helpful to be able to speak to them in their languages, to envision to each of them the "what's in it for me". Often it is one visionary individual or a handful of "crazy idealists" who go for a "system vision", which in the beginning he/she/they can't yet 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 new skill. 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, hardly visible detective type of work. And it becomes valuable only by the moment when a majority of the involved stakeholders 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 done properly due to a lack of understanding, resources and appreciation. System building projects then are in the danger of building on inappropriate assumptions, thus designed to fail.

d) Servant and shared leadership reflects self-consciousness and self-empowerment

Multi-stakeholder value generation with new business, resourcing and distribution models; risk, benefit and responsibility sharing across different societal stakeholder groups with diverse "currencies" (economy: money, politics: votes, etc.) and knowledge creation in a space of "common goods" creation (beyond intellectual property) asks for different leadership styles and attitudes. The ideas of servant leadership, shared and responsible leadership are championed by different consultancies and NGOs, facilitation is replacing the practice of management. What do all these developments in common: they ask for self-conscious, self-empowered individuals, who use both their intuition and cognitive strength to handle the emerging paradoxes, use conflicts as rich problem solving resource and balance multiple needs. These mature persons know about their strengths and weaknesses, often have developed deep listening skills next to their "hard" professional expertise and are able to put their "ego" aside for the benefit of the whole. Next to the personal development path, modern IT technology offers amazing self-empowerment potential. Story telling beyond cultural borders is made easy through digital photography or mobile phones with video functionality in combination with Youtube[31]. And the web 2.0 age leads to the formation of completely new communities and networks far beyond national, language and geographical borders: people all over the world who connect to get things done. This is a big opportunity for change and probably in 20 years it will visible how this technology facilitated the emerging transformation of humanity.

[31] See e.g. http://www.youtube.com/watch?v=9GorqroigqM or

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Before that she worked for 10 years at Philips Lighting. There she first worked for 6 years in traditional innovation roles like project management in R&D, internal consulting and technology management; later she shaped and pioneered newly installed processes and positions in vision and strategy development, new business creation and strategic marketing. In this time she developed a strong and practical expertise in radical innovation. She was the project manager of Think the Lighting Future and head of the Atmosphere Provider Program[32].

Ms. Ernst holds a PhD in Physics from the Technical University in Aachen (RWTH Aachen), Germany. Since 2007 she is a LEAD fellow, since its founding in 2009 a steering group member of the Green Economy Coalition. Since 2011 she serves on the steering team of the Exeter Sustainable Innovation Lab.

The Alignment Partner

Dr. Wolfgang O. Budde
Following a solid education in electrical engineering, more than 23 years ago Wolfgang joined Philips Research. There he held a broad variety of innovation roles. Thematically his work is anchored in lighting technologies and connected systems. Since 2009 he could combine his always present personal passion for sustainable development with his professional assignment to promote sustainability in Philips Research's activities.

[32] A case study about this work can be found here http://www.managing-innovation.com/case_studies/Radical%20Innovation%20at%20Philips%20Lighting%201%20June%202009.pdf