lightingforpeople
CONNECTING OPPORTUNITIES FOR INNOVATION

SSL-ERATE OPEN INNOVATION TOOLKIT

Accelerate SSL

Innovation for Europe

SSL-erate

www.ssl-erate.eu

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ACCELERATE SSL INNOVATION FOR EUROPE

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INNOVATION IN SOLID STATE LIGHTING

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1 | INNOVATION IN SOLID STATE LIGHTING

There is a need for radical innovation in the domain of Solid State Lighting (SSL). We will not be able to capture the real potential of intelligent SSL solutions if we stick to the 'current business' and doing 'more of the same'. We need to explore and create new ways of working to realize the potential value of SSL. Therefore, we propose to look differently at lighting and at the opportunities that SSL enables.

Opportunities for promoting health and wellbeing

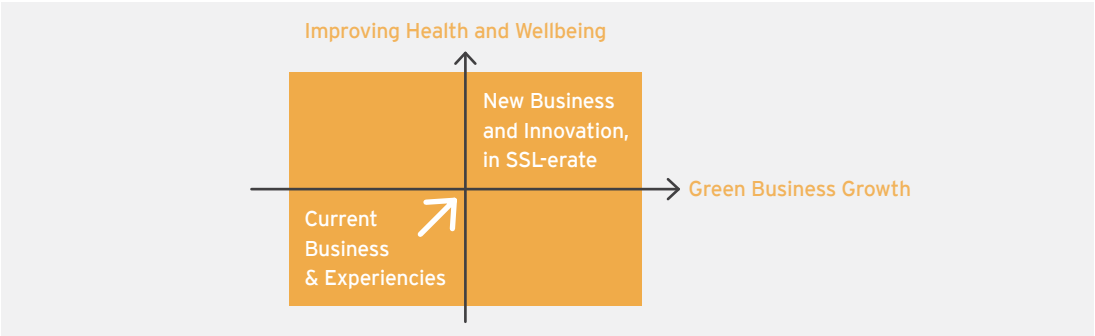
SSL enables the delivery of better quality light than traditional lighting. SSL is an opportunity to promote 'health and wellbeing' by developing innovative lighting concepts and solutions. We can translate scientific knowledge concerning the effects of light on people into intelligent and dynamic lighting products and services. Such innovations will also help to promote a broader interest in SSL and spur public investments in SSL.

Opportunities for green business development

SSL enables better functionality and attractiveness with solutions which also save energy. SSL offers opportunities to develop green business based on innovative lighting concepts and solutions. We can interpret SSL as a way to combine sustainable development and new business creation in line with companies' ambitions for corporate social responsibility, and contributing to governments' ambitions for societal social responsibility.

Transitions

The SSL-erate project aims at accelerating the uptake of high-quality Solid State Lighting in Europe by supporting open innovation and bringing validated information to all relevant stakeholders. This ambition can be visualized as transitions along two axes, going beyond current business and current experiences: towards *Improving Health and Wellbeing,* and towards *Green Business Growth*, typically involving also the development of new ways of working and new business models—see Figure 1.



The SSL-erate project aims to facilitate radical innovation in SSL

To develop such radical innovations, it is crucial to understand the needs of potential customers and users. We need to facilitate open dialogues and jointly explore and develop new products and services. Such dialogues need to involve diverse actors: companies across the value chain, from development and manufacturing to marketing and deployment, and institutions, governments and municipalities, which can act as launching customers.

OPEN INNOVATION

2 |

2 | OPEN INNOVATION

In the *SSL-erate* project we define Open Innovation as: organizing an innovation process in which companies and/or organizations collaborate in a network or consortium[1] in order to achieve goals collectively that they could not have achieved individually.

Open Innovation typically involves open dialogues and sharing of knowledge. Additionally and typically for the SSL-erate, Open Innovation refers also to the following:

- Using scientific knowledge and customers' ideas concerning 'green business development' and/or 'lighting for health and wellbeing'
- Inviting and using input from 'lead customers', e.g. cities, local governments, schools or hospitals, or from 'lead users', e.g. citizens or the people working in schools or hospitals
- Articulating and sharing 'lessons learned' and 'best practices' in collaborative innovation within and between the participating local lighting clusters.
- Co-branding, e.g. combining the identity and communication of a city and a company, as a way to highlight the potential synergies between various interests and actors.

Typically, there will be different partners with different backgrounds, roles and interests, e.g., from the supply side as well as from the demand side who share a common goal. They collaborate to solve a specific problem, to seize a particular opportunity, to create something new together, e.g., a new product, service, process, or business model. They collaborate to achieve something that each one of them could not have done individually.

In the vocabulary of Open Innovation[2], we aim to combine an 'outside-in' approach in which an organization 'imports' ideas or knowledge, and an 'inside-out' approach in which an organization 'exports' ideas or knowledge, so that a 'coupled' approach emerges: diverse companies and organizations collaborate, enter into open dialogues, and share knowledge to jointly create something new.

Advantages of Open Innovation

In general, Open Innovation can provide the following advantages:

- Larger pool of knowledge and resources, by collaborating with experts, suppliers, customers or users, and using their knowledge and resources ('outside-in').
- More opportunities for bringing products or services into 'new markets', e.g. using the sales and distribution of other capabilities of other organizations ('inside-out')
- Create a 'new market' (where currently there is no market), collaboration between suppliers and customers—in the case of *SSL-erate:* to create an interest in Solid State Lighting
- Opportunities for radical innovation and joint value creation because diverse actors collaborate and can jointly achieve goals they could not achieve on their own.
- Combining one's own knowledge and competences with the knowledge and competences of other organizations, making innovation more effective or efficient.

1 See: Vanhaverbeke 2006; this is different from the early or mainstream literature on Open Innovation, which tends to focus on innovation within one (large) company, which 'imports' or 'exports' ideas or knowledge.

2 See: Chesbrough 2003.

- Faster or better innovation process by learning from others, e.g. by discussing 'lessons learned' or 'best practices' with 'competitors'
- Overall, Open Innovation can make innovation more efficient and effective, e.g. by sharing costs (e.g. in collaborating) and sharing risks (e.g. not 'putting all eggs in one basket')

Challenges of Open Innovation

In general, the challenges involved in Open Innovation are the following:

- Less control over innovation process and over deployment/marketing—because other parties are involved, who also exercise control
- More complexity, e.g. management, control, governance, and leadership—because other parties are involved requiring extra coordination
- Risk of 'loosing' valuable information or intellectual property to others—which was not intended for sharing (unintended knowledge spill-overs)
- Difficulty of aligning different innovation processes within the organization, e.g. when 'Open Innovation' and 'Closed Innovation' run in parallel
- Resistance in the company, e.g. 'Not Invented Here' (challenge to import and adopt ideas from outsiders) or 'Not Sold Here' (challenge to export or sell products to outsiders)
- Overall, Open Innovation poses a range of challenges in that it needs a culture of transparency, agreement, openness, communication and collaboration

EXAMPLES OF OPEN INNOVATION

3

3 | EXAMPLES OF OPEN INNOVATION

In the SSL-erate project a series of Business Development Experiments have been organized by the participating Local Lighting Clusters. Each involves multiple organizations that share knowledge, expertise or resources:

- One or more companies, e.g., a developer and a manufacturer—in order to develop and manufacture the product or service
- One or more launching customers, users or distribution channels, e.g., a hospital, city or an architect office—in order to learn about their needs
- One or more knowledge institutes, e.g., a university department—in order to access and apply state-of-the-art scientific knowledge

The goal of these Business Development Experiments is to innovate collaboratively and to accelerate innovation in SSL. Below are several examples of Open Innovation, including several success factors that help to organize collaborative innovation.

Business Development Experiments of Luce in Veneto

Luce in Veneto was established in 2009 by 34 SME's in the Venetian Region, with the aim to promote and manage new projects in lighting systems in that the region. It currently involves 140 companies and several universities and research centres.

As part of the SSL-erate project, Luce in Veneto organized creative sessions in April and July 2014 to generate business ideas for innovative SSL solutions, involving representatives of over 30 companies, universities and municipalities. Out of these workshops came several ideas, of which two were selected for further development via an Open Innovation approach.

Luce in Veneto facilitated the formation of project consortiums to develop these two ideas into prototypes: 'Lighting Surface' and 'H-Lamp'.

LIGHTING SURFACE

Three companies (SMEs), who had helped to develop the idea in the April and July workshops, created a consortium (in October 2014) to further develop the 'Lighting Surface': *Metalco,* an internationally operating firm, founded in 1984, that develops and manufactures high quality outdoor furniture; *Hikari*, a company that develops and manufactures innovative and custom-made LED lighting systems ('solid state handcraft'); and *Heliv,* a company founded in 2012 by nano→technology researchers, specialized in synthesis and application of optical materials.

Heliv holds the patent on LIT, an innovative technology that allows transparent materials, such as glass or polymers, to transform into illuminating graphic displays of unlimited design upon. In February 2015, Luce in Veneto suggested that they collaborate with the Municipality of Bassano del Grappa, as a launching customer: to develop practical applications for specific, local needs.

Following a series of meetings and visits, the Mayor proposed to use it to regenerate urban areas. He proposed to develop two prototype installations in places that are considered to be symbols of the city (providing also high visibility of the project): a totem in a street to commemorate an important historical event; and a glass cover (2,5m x 1m) in the façade of the Civic Museum of Bassano del Grappa. The first installation was officially presented to in September and the second one will be installed before the end of 2015.

The result: *Lighting Surface,* a transparent varnish that can be printed on transparent surfaces and that emits light when activated by a LED light source. This technology can be used, e.g., to create lighting or signalling solutions in bus stop shelters (see photo below).

The companies involved are currently (mid 2015) looking for new customers, e.g., other municipalities, hotels, airports or shopping centres, and for other companies that they can collaborate with to develop new products based on this (LIT) technology.

The Lighting Surface can switch between being transparent and illuminating printed images, e.g., on a bus stop.

Success factors:

- **Collaboration:** The companies have different and complementary fields of expertise: Heliv brings the innovative technology; Hikari brings expertise in LED; and Metalco has expertise with outdoor furniture. This created synergy.
- **Leadership:** The directors/owners of the companies are directly involved in the project. This made communication and decision making efficient and effective.
- **Clear and shared goals:** The goals (to realize two prototype installations) were clear, and could be realized efficiently and effectively—also because the consortium was relatively small and agile.
- **Customer involvement:** Collaborating with a potential client (the City of Bassano del Grappa) helped to understand this client's practical problems, and to develop practical solutions.
- **Process facilitation:** Luce in Veneto facilitated the initial phases of idea generation and selection, and consortium creation, and also facilitated a continuous dialogue to further develop and finalize the project successfully.

'H-LAMP'

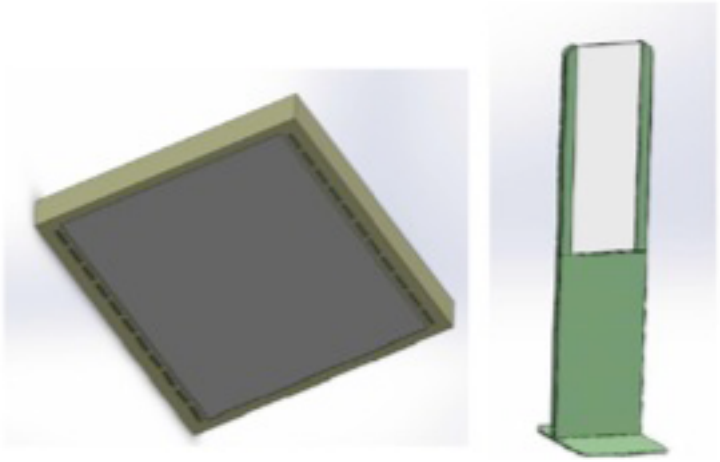
Two of the companies that participated in the April and July workshops, Fairwind and Arte Light, had already been playing with the idea for a *Hygienizing Lamp (H-Lamp)*: a product that would produce better light quality and better air quality simultaneously. The SSL-erate project provided the perfect context for them to further develop this idea: to develop a product that uses UV LEDs to sanitize the air, thus helping to prevent airborne diseases, e.g., in hospitals or industrial sites.

Fairwind offers solutions for lighting systems, mainly based on LEDs, and Arte Light is specialized in prototyping and manufacturing custom-made lighting products. They got together to create a consortium (in October) to further develop and market this product. Luce in Veneto supported them to successfully apply for funding from the European Social Fund for further investigating the technology, including a market analysis, and a 'prior art' search and patent application (by Arte Light). In addition, they applied for funding from the Horizon 2020 'Dedicated SME Instrument' for their project.

The market analysis involved a survey amongst health professionals, and helped to better understand these clients' needs, such as their need for low maintenance and ease-of-use, for light quality, and for effective virus and bacteria removal. Moreover, the companies collaborate with the University of Bologna in rigorous testing of the *H-Lamp's* sanitizing properties.

The companies presented first prototypes, during a meeting organized by Luce in Veneto in June 2015. They are currently (mid 2015) running two experimental installations: one in an industrial site for food/beverage processing; and one in a local health care provider (under development).

Next steps include: prototyping, testing (including EMC safety) and further product development, so that the product can be manufactured and sold in 2016; and creating collaborations with other customers, e.g., dental clinics, and with companies that can help to create special applications or to distribute the product.



Examples of the Hygienizing Lamp, which uses UV LEDs to break down pollutants in order to purify the air.

Success factors:

- **Collaboration and synergy:** Fairwind and Arte Light conduced a common technological research, which resulted in a patent application by Fairwind and an exploitation agreement with Arte Light. Arte Light brings manufacturing capabilities for metal parts and Fairwind brings manufacturing capabilities for electronics; this way their knowledge and capabilities create synergy.
- **Clear and shared goals:** The companies have clear and shared short-term goals, e.g., for prototyping, and they also discuss longer-term goals, such as the creation of a legal entity to share commercial benefits.
- **Leadership:** The directors/owners of the companies are directly involved in the project. This made communication and decision making efficient effective.
- **Market analysis:** The consortium conducted a market analysis, including a survey amongst potential users; this helped to understand users' practical problems, and to develop practical solutions.
- **Additional funding:** The consortium applied for funding to commission work that is outside the core of their own expertise (e.g., patent search, market analysis)—this is an effective and efficient way to generate useful knowledge.

Business Development Experiments of the Danish Lighting Innovation Network

The Danish Lighting Innovation Network (DLIN) aims to promote innovation in lighting. It was established by the Danish Technical University and receives funding from the Danish Government.

As part of the SSL-erate project, the DLIN organized a workshop in April 2014 to explore ideas for new SSL products. In addition, they invited companies to propose innovation projects in collaboration with the DTU. Out of the submissions, they selected eight, two of which are relevant here: 'Better Light, Better Control' and 'The Window'.

The arrangement is that companies invest time and knowledge ('in kind') and that knowledge institutes receive funding for management, research and knowledge transfer. Moreover, each proposal needs to involve at least two companies and needs to include plans for further development and for finding additional funds.

'BETTER LIGHT, BETTER CONTROL'

As people get older, they need more light. Moreover, older people can benefit from light that supports their biological circadian rhythm. Such lighting system are, however, are typically difficult to use for older people. Against this background, Aalborg University, together with *Simplight*, an SME with expertise in creating lighting systems that support people's circadian rhythm, and the *Dansk Farveinstitut,* which has expertise in interior design, colours and lighting fittings, successfully proposed a project to develop an easy-to-control circadian lighting system for people over 65 years old.

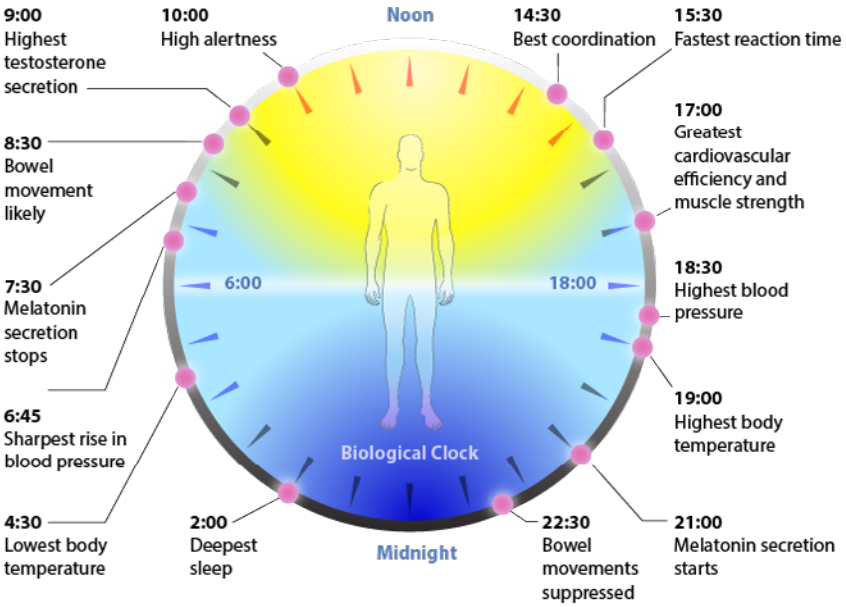
Their proposal included also collaboration with *Gladsaxe Municipality,* as a launching customer and potential buyer of this system. Furthermore, the Danish Technical University provided additional knowledge.

The project consortium was formed in December 2014, with the goal to develop a new LED lighting product that will support older people's circadian rhythms, in order to promote their health and wellbeing—a product, moreover, that they can easily use and control, and that can be easily implemented in private homes. In addition, each participant has individual goals; Simplight, e.g., wants to develop user interface for elder people.

The project consortium is currently (mid 2015) preparing the implementation and evaluation of prototypes in several elderly homes of Gladsaxe Municipality. The plan is to install the system in a 3-room apartment and to let various people to the system over a period of 2 months.

Furthermore, Aalborg University is planning ethnographic (qualitative) fieldwork as part of the evaluation, in order to better understand older people's experiences of using these new products, and to find out how people want to interact with such a system.

At the same time, the project partners are looking for additional funding to organize a larger-scale site for implementation and evaluation.



Success factors:

- **Collaboration:** Aalborg University brings expertise of the circadian rhythm, Simplight expertise of lighting system, Dansk Farveinstitut expertise of interior design, and Gladsaxe Municipality acts as a launching customer.
- **Shared goals and trust:** The project partners share a short-term goal (to implement and evaluate a prototype) as well as a longer-term goal (to use light to promote health and wellbeing). This also fosters trust: if partners are clear about their goals and stick to their goals.
- **Triple Helix:** The project consortium includes industry, academia, and local government—this combination can deliver solutions that matter for industry, for academy, and for society.
- **Early prototyping and evaluation:** The project organizes prototyping and evaluation in realistic settings relatively early-on; this can help to improve the product rapidly and iteratively.
- **Academic knowledge:** The academics involved project are keen to collaborate with companies and to help them to achieve their goals.

'THE WINDOW'

The people of Aalborg University combined two trends in building—i.e. the trend to reduce energy, and the trend to create large windows—to develop the idea for a window system that combines natural daylight and artificial light. They envisioned 'The Window', which would combines natural and artificial light intelligently, so that it supports people's circadian rhythm.

Together with three companies, they successfully applied for funding and created a project consortium in December 2014, together with Dovista, a leading manufacturer of windows, Simplight, an SME with expertise in creating innovative lighting systems, and GXN, an architecture agency (also an SME), which can act as a way into the market, e.g., to give feedback during development, and to apply the developed product, i.e., the new window, in their architecture designs. In addition, DTU and Nordic Power Converters are also involved.

The companies involved are currently (mid 2015) creating and testing prototypes. In addition, they plan to apply for additional funds to finance further development and testing. This would be needed in order to create a product that is practically ready for the market.

Moreover, the project consortium plans to do additional work to demonstrate that the product produces sufficient lighting so that it can actually replace traditional lighting points. This would create a competitive advantage and make the product more attractive to customers.

Success factors:

- **Collaboration:** Aalborg University provides knowledge of daylight and the circadian rhythm, DTU knowledge of artificial light, Nordic Power Converters of power converters, Dovista of manufacturing windows, and Simplight of lighting systems, and GXN acts as a market entry.
- **Shared goals:** The project is focused on a shared short-term goal: to create a prototype and to include it, as soon as possible, in regular architecture projects.
- **Personal contacts:** Interestingly, the project manager, of Aalborg University, used to work at a company associated to Dovista; this gave her access to several personal contacts in Dovista, which enabled smooth collaboration.
- **Market entry:** Including architecture agency GXN, as a way into the market, will help the project consortium to 'pitch' their product and include it in current architecture projects.
- **Joint innovation and trust:** The idea for 'The Window' was developed over a period of time, in a process of collaborative creativity; we cannot trace back 'who came up with the idea'. This way of working depends on mutual trust.

OPEN INNOVATION PROJECT CANVAS

4 |

4 | OPEN INNOVATION PROJECT CANVAS

An innovation process is inherently 'slippery'. At the start of an innovation process it is not entirely clear what the end-result will be. The preferred way of coping with this 'slippery' element is to express and discuss the possible end-result of the innovation process early-on (e.g. as a 'sketch'), and to organize iterations in which this 'sketch' is re-vised, discussed and improved iteratively.

Furthermore, we are dealing here with Open Innovation, which involves multiple parties in collaborative innovation. Moreover, we propose to create a temporary form for collaboration during the innovation process: e.g., a project consortium, a (public-private) partnership, a network or any other (informal) type of collaboration. This collaboration then becomes the vehicle for the first steps of the innovation process, typically from idea to the development of a working prototype and a first implementation for a launching customer. The next stages of innovation will involve, e.g., the creation of a viable business model, further development and implementation, scaling-up and commercialization. Sometimes the form of the collaboration needs to change in these phases, e.g., by creating a new organizational entity that will be the vehicle for scaling-up and commercialization.

In order to facilitate the creation of a consortium, partnership or network that can conduct an innovation project that can develop an idea into a prototype, we developed the *Open Innovation Project Canvas*, which can be used together with, e.g., the *Business Model Generation* (BMG) or the *Value Proposition Design* (VPD) Canvases, both created by Osterwalder and Pigneur.

The *Open Innovation Project Canvas* is distinct and complementary in the following ways:

- It focuses on **collaboration** it has the collaboration as focal entity—rather than having one (key) actor as focal entity, as is typical in BMG;
- It focuses on the **first phases of innovation**, e.g., from idea to prototype—not on operations (after the innovation project), as BMG typically does;
- It focuses on **project results,** e.g., a prototype—in addition to VPD, which typically focuses on a finished product and its production and delivery;
- It focuses on **the project results' value** and identifying a party that can use these—in addition to VPD, which typically focuses on the finished product's value;

Instructions for using the Innovation *Project Consortium Canvas:*

- Start with the **Idea** (A)
- Work in parallel, and iteratively, on:
  - **Market / Demand Side** (B)
  - **Value Proposition** C) and **Project results** (D), a derivative of the Value Proposition
  - **Collaboration** (E), e.g., a consortium, partnership, network (which may be different from the entity that will produce or market the product after the project)
- Identify and monitor critical relationships between B, C, D and E, e.g., between a key customer's key pain, and a key element of the Value Proposition, or a key Project result, key activity that is needed for that, and a key partner.
- Identify and balance what each partners aims to bring to and get from the project (F)
- Articulate questions about the demand side (G) and discuss ideas for marketing (H)
- Discuss how to use the project's results (I) and how to create a business after the project (J)

OPEN INNOVATION PROJECT CANVAS

Goal and scope_
This Canvas is intended to facilitate collaboration between partners and to articulate clear project goals, as first steps in an innovation process. It supplements other Canvases, e.g., for Business Model Generation and Value Proposition Design.

A IDEA

What is the opportunity? The idea? How will it create value? For whom?

Overall vision or motivation to do this? Any longer term goals?

B MARKET / DEMAND SIDE

What makes them happy ('gains')?

Which types of customers, users or others? What 'jobs' do they need to do?

What causes them problems ('pains')?

Identify key customers. Also identify relevant users or other stakeholders, e.g., intermediaries. You may need different value propositions for different groups of customers.

C VALUE PROPOSITION

A new product, service, process?

How does it create 'gains'?

How does it solve 'pains'?

Any current products or services?

How is this better than current ones? Unique or key elements?

Benefits for health and wellbeing?

Benefits for green business?

D

INNOVATION PROJECT RESULTS (practical, short term)

E. g. prototype and implementation at launching customer

- ☐
- ☐
- ☐
- ☐

E COLLABORATION

(E. g. consortium, public-private partnership, network)

Key activities needed to archive results?

Which partners are needed?

Key resources needed to archieve results?

Involve different partners from the entire value chain. Some partners are critical. Others can be at a distance. Maybe you need different partners in different phases.

F ROLES OR PARTNERS

Role
Bring
Get

Role
Bring
Get

Role
Bring
Get

Role
Bring
Get

Role
Bring
Get

G

Questions about the demand side that you need to find out (a.s.a.p.), e.g., willingnesss to pay, market segments and sizes.

☐ **Conduct market research**

H

Ideas for marketing and sales (after the project)? E.g., build customer relationships, distribution channels, intermediaries, etc.

I

Who wants to use the project's results? This organization needs to be in the consortium. E.g., as first customer, or owner of the patent.

J

Idees for creating a profitable company (after the project)? E.g. business model, manufacturing, operations, sales, etc.

☐ **Do Business Model Generation**

A. IDEA

What is the opportunity?

What is the idea?

How will it generate value? For whom?

Overall vision or motivation to do this?

Any longer term goals?

B. MARKET / DEMAND SIDE

What customers? Which organization/people will pay for it? E.g., a hospital.
Are there different types of customers or segments? Which are key?

What users? Which organization/people will actually use it? E.g., doctors.
Are there different types of users or groups? Which are key?

What others? Which other organizations/people will be affected? E.g., patients.
Other stakeholders, e.g., influencers or intermediaries? E.g., municipalities.

For each key customer (or user or stakeholder):

What 'jobs' do they want to or need to do?
What are their (longer term or short term) goals?

What 'gains' are they looking for? What do they need or want?
What makes them happy?

What 'pains' do they want to avoid? What are their problems?
What makes them unhappy?

C. VALUE PROPOSITION

Please note that we focus her on the Value Proposition after the project. Furthermore, you may need to develop different value propositions for different groups of customers or users or stakeholders.

Is it a new product? A new service? A new process or way of working? Or a combination?

In what practical situation(s) will it be used? ('jobs to be done')

How does it create 'gains' for (key) customers, users or others? Which benefits does it offer?

How does it create 'gains' for (key) customers, users or others? Which benefits does it offer?

What alternative products/services are available or currently used in these situations?

How is this innovation better than current ones? What is its 'relative advantage'? What are the innovation's unique or key elements?

The SSL-erate project aims to develop innovations promoting people's health and wellbeing, and/or green business growth. As a consequence, the following questions also need to be addressed:

For promoting health and wellbeing

How exactly is this new product/service promoting health and wellbeing?

How is it 'better' in this respect as compared to currently available solutions?

What does 'better' mean, practically, from the perspective of customers or users?

Can we quantify the improvement offered by this innovation?

For green business development

How exactly is this new product/service promoting green business development?

How is it 'better' in this respect as compared to currently available solutions?

And what does 'better' mean, practically, from the perspective of customers or users?

Can we quantify the improvement offered by this innovation?

D. PROJECT RESULTS

We need to specify the (short term) results that the innovation project consortium aims to realize.

These will typically be a derivative of the Value Proposition. If the Value Proposition is, e.g., an 'X' SSL product, then the innovation project consortium will typically aim to develop a prototype of 'X' and to implement it the day-to-day processes of a launching customer.

Please make these results specific and practical, and use a planning ('put a date on them').

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E. COLLABORATION

What (key) activities are needed to achieve these results?
E.g., build a prototype, organize a first implementation, organize tests with users

What (key) resources are needed to achieve these results?
E.g., facilities for testing, specific expertise, access to technological know-how

What key partners are needed in the project consortium?
E.g., development or manufacturing

What other parties are needed, outside the consortium?
E.g., as supplier or distributor

Are key activities and key resources needed now covered—inside or outside the consortium, network or partnership?

F. ROLES OF PARTNERS

- **What would be the role of each partner in the consortium?**
- **What does each aim to contribute? What activities or resources?**
- **What does each aim to get from the project? What results?**

PARTNER P
Role
Bring
Get

PARTNER Q
Role
Bring
Get

PARTNER R
Role
Bring
Get

PARTNER S
Role
Bring
Get

PARTNER T
Role
Bring
Get

During preparation, but also during the actual collaboration, please discuss these roles, contributions and interests, in order to develop a balance between what each partner contributes and receives.

The templates above (especially D, E and F) focus on what is done in the Open Innovation Project. It may be useful, in parallel, to keep track of questions that emerge, e.g., about the market (G), and to explore and discuss ideas for marketing (after the project) (H), for using the project's results (I), and for creating a profitable business (after the project) (J). It can be useful to use the *Business Model Generation Canvas or the Value Proposition Design Canvas* for these questions.

G. QUESTIONS ABOUT DEMAND

Questions about the demand side that you need to find out (a.s.a.p.), e.g., willingness to pay, market segments and sizes. In order to better understand the demand side, it may be needed to conduct market research

- **Assess size of total available market**
  (also served by other products and services)
- **Assess size of addressable or serviceable market**
  (interested in this new product/service)
- **Assess size of targeted segment**
  (the segment that we can target, realistically)
- **Assess market share in that segment**
  (part of this segment we can sell to, realistically)

- **What would a customer be willing to pay for this product/service?**
  E.g., based on what they currently pay for similar products/services.

- **First estimate of revenues: number of units sold x revenues per unit**
- **First estimate of costs: number of units sold x costs per unit**
- **First estimate of operational profit: revenues -/- costs.**
- **First estimate of (one-off) investments, e.g., development**

H. IDEAS FOR MARKETING AND SALES

Explore ideas for what needs to be done regarding marketing and sales (after the project)? E.g., build customer relationships, distribution channels, intermediaries, etc. Parties that are critical to marketing and sales are ideally involved (in some way) as early-on as possible.

I. USING THE PROJECT'S RESULTS

Which organization wants to use the project's results? E.g., as a launching customer or as owner of the patent. Typically this organization needs to be in the consortium, network or partnership. Moreover, it is advised to discuss ideas for actions after the project, e.g., to scale-up its results, as early-on as possible, during the project.

J. CREATE A PROFITABLE BUSINESS

Explore ideas for creating a profitable company (after the project)? Explore all the functions that need to be in place and develop an overall business model. E.g., development, manufacturing, operations, marketing, distribution, sales, installation, maintenance.

Determine which functions should be in this (new) company or collaboration, and which functions can be outside, e.g., as suppliers or sales channels—which can be done via subcontracting.

Also explore possible forms for this collaboration, e.g., subcontracting, cross-licensing or corporate venturing, or in the form of a strategic alliance, joint venture or collaboration network.

You can do a Business Model Generation workshop for this. This will typically also address questions regarding a fair distribution of revenues, benefits and investments and costs between participating parties, and how to deal with risks and uncertainties (inevitable in innovation).

THE BUSINESS MODEL CANVAS

Designed for:

Designed by:

Date:

Version:

KEY PARTNERS

Who are our Key Partners? Who are our Key suppliers?
Which Key Resources are we acquairing from partners?
Which Key Activities do partners perform?

MOTIVATIONS FOR PARTNERSHIPS

Optimization and economy
Reduction of risk and uncertainty
Acquisition of particular resources and activities

KEY ACTIVITIES

What Key Activities do our Value Propositions require?
Our Distribution Channels? Customer Relationships?
Revenue streams?

CATEGORIES

Production
Problem Solving
Platform/Network

KEY RESOURCES

What Key Resources do our Value Propositions require?
Our Distribution Channels? Customer Relationships?
Revenue streams?

TYPES OF RESOURCES

Physical
Intellectual (brand patents, copyrights, data)
Human
Financial

VALUE PROPOSITIONS

What value do we deliver to the customer?
Which one of our customer's problems are we helping to solve?
What bundies of products and services are we offering to each Customer Segment?
Which customer needs are we satisfying?

CHARACTERISTICS

Newness
Performance
Customization
"Getting the Job Done"
Design
Brand/Status
Price
Cost Reduction
Risk Reduction
Accessibility
Convenience/Usability

CUSTOMER RELATIONSHIPS

What type of relationship does each of our Customer Segments expect us to establish and maintain with them?
Which ones have we established?
How are they integrated with the rest of our business model?
How costly are they?

EXAMPLES

Personal assistance
Dedicated Personal Assistance
Self-Service
Automated Services
Communities
Co-creation

CHANNELS

Through which Channels do our Customer Segments want to be reached? How are we reaching them now?
How are our Channers integrated?
Which ones work best? Which ones are most cost-efficient?
How are we integrating them with customer routines?

CHANNEL PHASES

1. Awareness. How do we raise awareness about our company's and services?
2. Evaluation. How do we help customers evaluate our organization's Value Proposition?
3. Purchase. How do we allow customers to purchase specific products and services?
4. Delivery. How do we deliver a Value Proposition to customers?
5. After sales. How do we provide post-purchase customer support?

CUSTOMER SEGMENTS

For whom are we creating value?
Who are our most important customers?

Mass Market
Niche Market
Segmented
Diversified
Multi-sided Platform

COST STRUCTURE

What are the most important costs inherent in our business model?
Which Key Resources are most expensive? Which Key Activities are most expensive?

IS YOUR BUSINESS MORE

Cost Driven (leanest cost structure, low price value proposition, maximum automation, extensive outsourcing)
Value Driven (focused on value creation, premium value propostion)

SAMPLE CHARACTERISTICS

Fixed Costs (salaries, rents, utilities)
Variables costs
Economies of scale
Economies of scope

REVENUE STREAMS

For what value are our customers really willing to pay? For what do they currently pay?
How are they currently paying? How would they prefer to pay? How much does each Revenue Stream contribute to overall revenues?

TYPES

Asset sale
Usage fee
Subscription Fees
Lending/Renting/Leasing
Licensing
Brokerage fees
Advertising

FIXED PRICING

List Price
Product feature dependent
Customer segment dependent
Volume dependent

DYNAMIC PRICING

Negotiation (bargaining)
Yield Management
Real-time-Market

HOW TO ORGANIZE OPEN INNOVATION

5 |

5 | HOW TO ORGANIZE OPEN INNOVATION

Companies or organizations participating in Open Innovation (OI) may face several challenges. Below are ten key topics that need to be managed when organizing Open Innovation.

The first topics (1-5) relate to the 'soft' side of OI ('relational governance')[3]. They require continuous attention, from the start-up of a collaboration and throughout the collaborative innovation process.

1. Relationships and cohesion between the people and parties involved
2. Open communication and dialogues between the people and parties involved
3. Commitment of people and parties to collective goals, e.g. avoid opportunistic behaviour like 'free riding'
4. Trust between the people and parties involved, e.g. feeling of safety
5. Climate for innovation and creativity, e.g. dealing with uncertainty

The other topics (6-10) relate to the 'hard' side of OI ('structural governance')[4]. They are related to building and managing a network or consortium and making collaborative innovation successful.

6. Clear strategy and goals for collaboration, e.g. 'make or buy or collaborate'
7. Selection of relevant and appropriate partners, e.g. combining 'own' competences with other parties' competences
8. Structure and governance for collaboration, e.g. dividing of tasks and processes for decision making and conflicts resolution
9. Contractual arrangements, e.g. for dividing investments and revenues, or for sharing knowledge, including Intellectual Property (e.g. Non Disclosure Agreements)
10. Evaluation (during collaboration) of process and results of collaboration

In the next 10 sections, these topics are briefly introduced, and practical recommendations are provided, in order to help to organize a successful process of Open Innovation.

Like any toolkit, one can use this Open Innovation Toolkit in many different ways.

- If there is already some kind of collaboration, and if it needs to be improved, one can go to sections 4.1 to 4.5 (below), depending on the topic that needs to be improved, e.g. open communication.
- If parties are busy starting-up the collaboration, it can be useful to (also) look at sections 4.6 to 4.10 (below), in roughly that order: from strategy and partner selection to contracts and evaluation.

3 Partially based on: Enkel et al. 2011.
4 Partially based on: Tjemkes et al. 2012 .

A. Relationships and cohesion

Productive relationships between people and parties are at the heart of successful Open innovation. Different organizations and companies can collaborate in the form of a network or consortium. They can share their knowledge and experiences, and their different competences and skills can supplement each other. Hence, combining their differences offers benefits. However, making the collaboration productive and successful requires extra attention.

There is a natural development in a team's functioning: 1) 'forming', bringing the people together; 2) 'storming', positioning and trying-out roles; 3) 'norming', finding norms and ways to collaborate; and 4) 'performing', actually collaborating. This means, e.g. that it is 'natural' when there is some level of friction in the start-up period of a team, and that critically discussing 'norms' and ways of working can help to move towards productive collaboration.

When forming a team, it is also critical to be aware that different roles are necessary, and that there are dynamics between these roles. It may be useful to consider and discuss different people's roles explicitly, e.g. by using the 'Belbin roles'[5], and assessing whether these are present within the team: Plant, Resource Investigator, Co-ordinator, Shaper, Monitor/Evaluator, Teamworker, Implementer, Completer/Finisher, and Specialist.

In order to make teamwork and collaboration productive, these topics need attention:

- **Open communication (see below, section 2)**
- **Commitment to shared goals (see below, section 3)**
- **Trust and safety (see below, section 4)**

The following actions are ways to create (more) productive relationships:

- Each party expresses their own vision, interests and overall goals
- Each party expresses their concerns, bottlenecks or challenges
- Each party expresses their expectations for other parties' activities

Next, they can bring their interests, concerns and expectations together and jointly articulate:

- A shared vision and overall, collective goals
- A shared vision on how to collaborate
- How to collaborate practically, e.g. dividing tasks, dealing with conflicts

5 Belbin team roles: http://www.belbin.com

B. Open communication and dialogues

Open communication and open dialogues are critical for Open Innovation. Obviously, communication and dialogues have two sides. Expressing ideas, interests, concerns and expectations is one side. Listening to other people, and their ideas, interests, concerns and expectations is the other side. Openness requires efforts from all the people involved.

These are practical recommendations to facilitate communication:

INTERPRETATIONS

- Use language that other people can understand, e.g. avoid technical jargon
- If you need to use technical jargon, you need to explain what you mean
- Check whether you have interpreted information correctly

ASSUMPTIONS

- Express any implicit assumptions, in order to avoid misunderstandings
- Ask for other people to also express their implicit assumptions
- Check whether you understood other people's assumptions correctly

PROBLEMS

- Discuss any problems or challenges—preferably before they 'get out hand'
- Make sure others understand the problem or challenge
- Work together on exploring the problem and on finding solutions

PRACTICALLY

- Agree on with whom to communicate—within the project and outside the project ('public relations')
- Agree on which means to use—e.g., a mix of face-to-face, conference calls, and email
- Agree on a mixture of frequent/shorter meetings and less-frequent/longer meetings
- Communicate regularly and effectively, e.g., with clear agenda points
- Document important issues to share them with those who were not present
- If you use emails, make them 'actionable', i.e., asking for specific actions
- Communication fosters trust and helps to keep the project 'on track' and 'on target'

CHECKLIST - to evaluate communication:

- ☐ We freely express our thought and feelings
- ☐ We listen to each other, what we say, and also 'what we don't say'
- ☐ We understand each other's language
- ☐ We express implicit assumptions
- ☐ We freely discuss problems and challenges
- ☐ We ask questions, to check our interpretation and understanding
- ☐ We have clear agreements on how to communicate, and with whom
- ☐ We communicate frequently and effectively

C. Commitment

For Open Innovation, it is critical that the people and parties involved commit to collective goals—the goals for collaboration. Please note that it is okay if people and parties also have their own, individual goals, as long as they can also commit to their shared, collective goals. In addition, it is critical that higher management provides sufficient support and resources.

The following recommendations can help to create (more) commitment:

- Discuss which are individual goals of specific people or parties, and which are shared, collective goals—and identify whether there is sufficient 'overlap'
- Find ways to safeguard that shared goals are guiding the collaboration—instead of, e.g., the individual goals of one person or party

- Distribute ownership over more than one person to prevent that only one single enthusiastic person is responsible and visible as 'driver'
- Make clear agreements for different people's roles, tasks and responsibilities so that they can indeed commit to these roles, tasks and responsibilities
- Exchange personnel on a regular basis—personal contact and site visits are essential for maintaining communication and trust

- When committed to collective goals, people can also informally help each other, i.e., beyond or besides their formal roles and tasks
- And: Celebrate successes—because positive feelings help to generate and improve commitment (much better than, e.g., sanctions or negative feelings)

CHECKLIST - to evaluate commitment:

- ☐ We understand each other's individual goals
- ☐ We have clear and shared, collective goals
- ☐ We have clear agreements for roles, tasks and responsibilities
- ☐ Our commitment motivates people to help each other

D. Trust and safety

Trust and safety are important in order to bridge differences between parties. Only if parties trust each other and feel safe, will they share ideas and knowledge and communicate openly. Therefore, trust and safety are key conditions for successful Open Innovation.

Recommendations that can help to develop or improve trust and safety are:

TEAM BUILDING

- Make sure that the team feels and functions like a team
- Create social relations between people from different organisations
- Develop multiple collaborations projects—successful collaboration in one project can help partners to cope with collaboration in less successful projects

PROCEDURES

- Make sure there is knowledge about intellectual property rights (IPR), or ask assistance regarding IPR
- Create an open dialogue about IPR challenges in a team with multiple parties—i.e., discuss IPR matters openly and early-on; there is no benefit in acting as if IPR is *not* an issue...
- Make sure your legal and IP department have an open attitude
- Make clear agreements on 'knowledge leakage', e.g., sharing ideas outside the project
- Make agreements for knowledge management: how to collect and share knowledge

FAIRNESS

- Make sure there is a balance in the (various) costs and (various) benefits which each party brings to the collaboration and receives from the collaboration
- If something is unbalanced, make that explicit and find a solution
- Beware of 'freeriding', e.g., one partner enjoying the benefits of collaboration while contributing little

RISKS AND LEARNING

- Encourage partners to take risks and present new ideas, e.g., noticing new opportunities
- Emphasise the benefits of learning, e.g., make sure there are little or no sanctions on 'failure' (provided that those involved learn from it)

CHECKLIST - to evaluate trust and safety:

- ☐ We act like a team, and it feels like team
- ☐ We share knowledge in effective and productive ways
- ☐ We have clear (legal) arrangements for IPR
- ☐ What each party brings to the project and gets from the project is balanced and fair
- ☐ We promote a healthy amount of risk taking and learning

E. Climate for innovation and creativity

Open Innovation requires not only a climate for collaboration, but also a climate for innovation, including elements like leadership, incentives, 'mind set', and resources.

LEADERSHIP

- Make sure that higher management supports Open Innovation and that people within the organization know about it, e.g., via 'success stories' of Open Innovation and its benefits
- Leadership styles need to facilitate collaboration and innovation, e.g., democratic or servant leadership[6]

INCENTIVES

- Make (individual personnel) targets, assessments and rewards in line with an Open Innovation approach, e.g., reward: collaboration, sharing knowledge and innovation
- Create incentives for employees to become involved in Open Innovation and take leading roles for Open Innovation

'MIND SET'

- Promote initiative taking and entrepreneurial attitude and behaviour in employees
- Promote the screening of the external environment for new opportunities

RESOURCES:

- Resources that enable employees to make commitments and enter into agreements
- Facilities that enable Open Innovation, e.g. communication and information sharing

CHECKLIST - to evaluate the climate for innovation and creativity:

- ☐ Our management supports Open Innovation
- ☐ There are incentives for innovation attitude and behaviour
- ☐ Our 'mind set' includes initiative taking and exploring new opportunities

6 See, e.g.,: http://www.mindtools.com/pages/article/newLDR_84.htm

F. Clear strategy and goals for collaboration

A first step in successful Open Innovation is the joint articulation of a clear strategy for collaboration and of clear goals for collaboration.

A clear strategic purpose is key—collaboration is never an end in itself, but needs to contribute to a business strategy. Therefore, each party—before the collaboration is created—needs to assess what they want to achieve; they need to articulate their own, individual goals. A careful examination of these individual goals can result in three basic, strategic options:

- I can realize these goals by doing things by myself ('make')
- I can realize these goals by buying something from somebody ('buy')
- In order to realize these goals, I need to collaborate with others ('collaboration')

For 'collaboration', the parties involved need to discuss their individual goals and to articulate shared, collective goals. They need to articulate a way to jointly create value, e.g. by combining their different resources or competences so that, e.g., an idea of Company A can be further developed by company B; or so that A and B can jointly develop this idea and incorporate it into a new product or service; or so that a product or service from company C can be brought to the market by company D; or so that C and D can jointly market this new product or service.

There are many options. Therefore, it is of key importance to articulate clear and specific collective goals—preferably in the 'SMART' format: *Specific, Measurable, Achievable, Results-based, and Time-bound.* Given the goals (to promote health and wellbeing and green business) of the *SSL-erate* project, 'SMART' can also be read as: *Sustainable, Meaningful, Ambitious, Relevant, and Time-boxed.*

- Please operate with long-term horizons—having long-term goals and aims top of mind promotes collaboration 'here and now'
- Please allocate tasks and responsibilities in such a manner that each party can do what they do best ('specialize')

G. Selection of relevant and appropriate partners

Open Innovation is not done by one party. Different partners are needed in order to combine different competences or fields of expertise. To make Open Innovation successful, the right partners are needed. This process starts with identifying relevant and missing actors.

First, it is useful to assess whether conditions are present for the partner selection process:

- Diversity of collaboration: are you capable to work with diverse partners and in diverse forms of partnerships?
- Network building: have you built a network of diverse contacts and (potential) partners?
- Selection process: How structured is your partner selection process?
- Partner selection: how good are you in selecting the right partner for the right moment?
- Partnering: Are your employees trained in how to start, run, and finish partnerships?
- Training and education: To what extent are your employees capable of dealing and working with external partners?

Next, the right partners need to be selected—the following questions can help to do that:

- Which are potential and appropriate partners?
- What could be this partner's role or position in the network or business model?
- What is this partner's reputation? E.g., is it a trustworthy partner?
- Looking at different potential partners: is this a homogeneous or heterogeneous network?

CHECKLIST - to evaluate the partner selection process:

- ☐ We have similar expectations
- ☐ We have complementary knowledge, skills and expertise
- ☐ All partners are able and willing to share financial risks
- ☐ We do not notice opportunistic behaviour
- ☐ We have similar culture and operational routines
- ☐ We are really willing to collaborate

H. Structure and governance for collaboration

Open Innovation does not mean that there is no structure or governance. On the contrary, choosing an appropriate structure and mode of governance is critical to its success.

Parties can chose between different types of collaboration. In the table below several types of collaboration are listed with different typical durations, benefits and challenges.

TYPE OF COLLABORATION	TYPICAL DURATION	BENEFITS	CHALLENGES
SUBCONTRACTING	Short term	Reduction of costs, risks, and lead-time	Search costs (for product performance and quality)
CROSS-LICENSING	Fixed term	Technology acquisition	Contract cost and constraints
CONSORTIUM (E.G., A PROJECT)	Medium term	Expertise, standards, share funding	Knowledge leakage; subsequent differentiation
STRATEGIC ALLIANCE	Flexible	Low commitment; market access	Potential lock-in; knowledge leakage
JOINT VENTURE	Long term	Complementary know-how; dedicated management	Strategic drift; risk of cultural mismatch
NETWORK	Long term	Dynamic, learning potential	Static inefficiencies
CORPORATE VENTURING	Medium term	Developing technology options in early stages	Many ventures finally do not deliver value; problems with VCs
CROWDSOURCING	Short term	Tapping into the creativity of crowds or individuals	Crowds are hard to manage; outcomes can be different from what was expected

For creating an appropriate legal form, it can be helpful to ask help from a (legal) advisor.

The following recommendations can help to coordinate Open innovation:

- Report Open Innovation activities to a central position within the organization, to create an overview
- Communicate Open Innovation activities within the organization, to inform all relevant people

CHECKLIST - to evaluate structure and governance:

- ☐ We chose a structure that helps us to achieve our collective goals
- ☐ We coordinate our Open Innovation activities

I. Contractual arrangements

Contractual arrangements are critically needed for successful collaboration. It is unhelpful to avoid the effort of making contracts. Sooner or later, the lack of contracts can backfire.

Interestingly, there is interplay between (informal) trust and (formal) contracts: when there is trust, people can make a contract, and making a contract can improve feelings of trust.

Moreover, it can help to keep in mind that contracts need to be helpful to achieve collective goals (not an end in themselves) and need to be specific (focusing on the collaboration).

FIRST CLARIFY:

- What is the goal of the collaboration?
- Where do we need to make agreements on?

TOPICS THAT CAN BE PUT INTO A CONTRACT:

- Ambitions and goals
- Business plan (strategy, activities and results)
- Scope of collaboration
- Legal issues
- Financial issues: Division of investments and revenues
- Regulations on compensation
- Governance structure
- Rules, tasks and responsibilities
- Ownership, e.g., how is intellectual property organised?
- Conflict management
- Exclusivity and competition
- Rules and solutions for dealing with internal and external developments
- Prerequisites for consequences of quitting the collaboration
- Communication structures
- Specifying location of activities

CHECKLIST - to evaluate contractual agreements

- ☐ We have a clear view on the goal of the collaboration
- ☐ We have a clear view on where agreements are based on
- ☐ We have contracts everyone agrees on

J. Evaluation of process and results

During the process of Open Innovation, it is critical to organize moments to evaluate the *process* of collaboration and innovation, and to the interim *results*.

This can be done by making 'evaluation' an agenda point of each meeting, and giving each participant room to express their thoughts and feelings on the process and its results.

Alternatively, one could organize a meeting dedicated to evaluation once in a while.

If we do not create such moments for reflection, evaluation and discussion, there is a risk of tensions building up between people or parties with the risk of negative consequences.

The goal of evaluating is to share thoughts and feelings, to find ways to deal with negative sentiments, and to steer collaboration towards positive sentiments—and positive results.

Questions that can help to evaluate the process (to be answered by each participant):

- How satisfied are you with the current *relationships and cohesion?*
- How satisfied are you with the current *communication processes?*
- How satisfied are you with your organization's commitment?
  And with the commitment of other participants and organizations?
- How satisfied are you with the trust and safety between participants?
- How satisfied are you with the climate for innovation within your organization?
  And with the climate for innovation between participants?
- *Overall, how satisfied are you with these relational topics?*

- How satisfied are you currently with the initial strategy and goals?
- How satisfied are you currently with the consortium and its partners?
- How satisfied are you with the current structure and governance?
- How satisfied are you with the current contractual arrangements?
- *Overall, how satisfied are you with these structural topics?*

Questions that can help to evaluate the (interim) results (to be answered by each participant):

- Looking at the concrete results that we envisioned (section 6), how are we moving forward?
- *On a 1-10 scale (or 10-100%), how far have we realized what we envisioned, in your perception?*

- How are we proceeding regarding our goals for health and wellbeing (section 6)?
- *On a 1-10 scale (or 10-100%), how have we realized our health and wellbeing goals?*

- How are we proceeding regarding our goals for green business (section 6)?
- *On a 1-10 scale (or 10-100%), how have we realized our green business goals?*

NEXT STEPS

6

6 | NEXT STEPS

SHARE YOUR EXPERIENCES

In line with the Open Innovation approach, the *SSL-erate* project will facilitate the sharing of 'success stories' and 'best practices' of Open Innovation—and also of things that could be improved, e.g., 'less successful', with 'lessons learned' and recommendations to do things better next time.

You are encouraged to share your stories, e.g., on http://lightingforpeople.eu/open-innovation/

FURTHER READING, TOOLS AND RESOURCES

You may want to read more about Open Innovation, have a look at tools, on which this Toolbox is partly based, or have a look at online resources:

Literature

- Chesbrough, 2003. *Open innovation: The new imperative for creating and profiting from new technology.* Boston, Massachusetts: Harvard Business School Press.
- Chesbrough, Vanhaverbeke & West (Eds.), *Open innovation: Researching a new paradigm.* Oxford: Oxford University Press.
- Enkel, Bell, and Hogenkamp, 2011: Open innovation maturity framework. *International Journal of Innovation Management,* 15 (6), 1161-1189.
- Enkel, Gassmann, and Chesbrough, 2009: "Open R&D and open innovation," *R&D Management,* 39 (4), 311-316.
- Tjemkes, Vos and Burgers, 2012: *Strategic alliance management.* New York: Routledge.
- Vanhaverbeke, 2006: *The interorganizational context of open innovation.* In Chesbrough, Vanhaverbeke & West (Eds.), *Open innovation: Researching a new paradigm* (205-219).

Tools:

- Osterwalder & Pigneur, 2009: Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers http://www.businessmodelgeneration.com/downloads/-business-modelgeneration_preview.pdf
- Osterwalder, Pigneur, Bernard & Smith, 2015: Value Proposition Design: How to Create Products and Services Customers Want http://www.businessmodelgeneration.com/canvas/vpc

Online resources

- Belbin team roles: http://www.belbin.com/rte.asp
- Leadership styles: http://www.mindtools.com/pages/article/newLDR_84.htm
- MOOI, Managing and Organizing Open Innovation: http://www.mooiforum.com (http://www.innovationmanagement.se/welcome-to-the-the-mooi-project/)

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