Open Innovation in Solid State Lighting

Closing event of the SSL-erate project, 13 Oct 2016

Marc Steen, TNO (marc.steen@tno.nl)

http://lightingforpeople.eu/open-innovation/

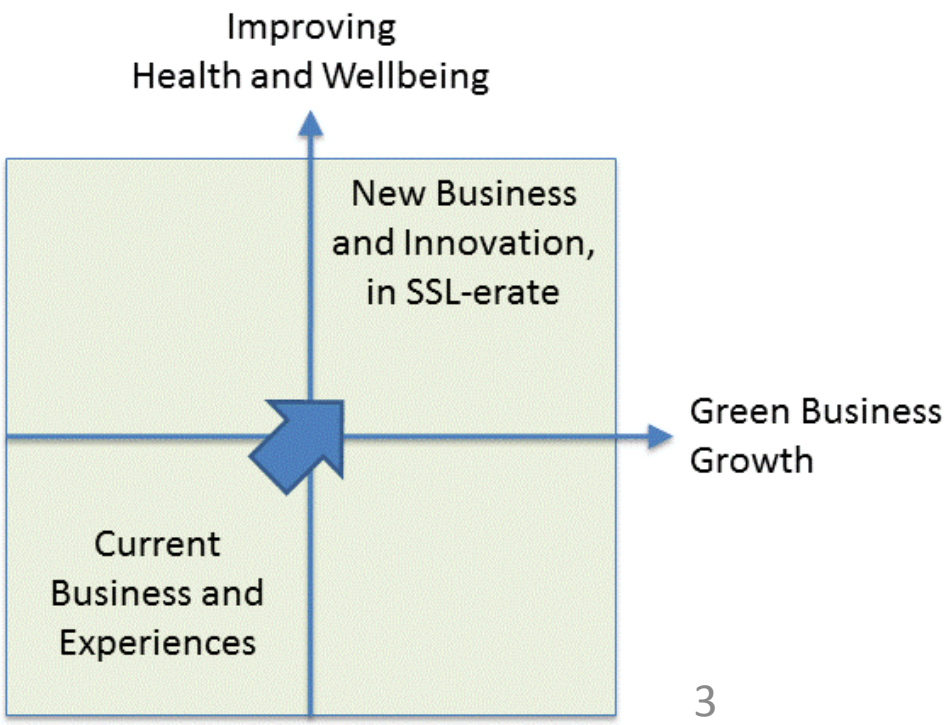
Contents

- The need for Open Innovation, and the benefits and challenges of Open Innovation

- The Open Innovation Toolkit and the Open Innovation Project Canvas—*for you to use*

The need for innovation

The benefits of Solid State Lighting (SSL) can only be fully realized if we go beyond 'current business', 'saving energy' or 'cutting costs'… we need (radical) innovation



Open Innovation

Open Innovation is about creating value, through collaboration, sharing knowledge and combining resources … ***so that partners can achieve goals together, which they cannot achieve alone***.

If you want to go fast, go alone. If you want to go far, go together.

African Proverb

Table 1: Contrasting principles of open and closed innovation

Closed Innovators	Open innovators
The smart people in the field work for us	Not all the smart people in the field work for us. We need to work with smart people inside and outside the company.
To profit from R&D, we must discover it, develop it, and ship it ourselves.	External R&D can create significant value; internal R&D is needed to claim some portion of that value.
If we discover it ourselves, we will get it to the market first.	We don't have to originate the research to profit from it.
The company that gets an innovation to the market first will win.	Building a better business model is better than getting to the market first.
If we create the most and best ideas in the industry, we will win.	If we make the best use of internal and external ideas, we will win.
We should control our IP, so that our competitors don't profit from our ideas.	We should profit from others' use of our IP, and we should buy others' IP whenever it advances our business model.

Source: Chesbrough, 2003, p. xxvi

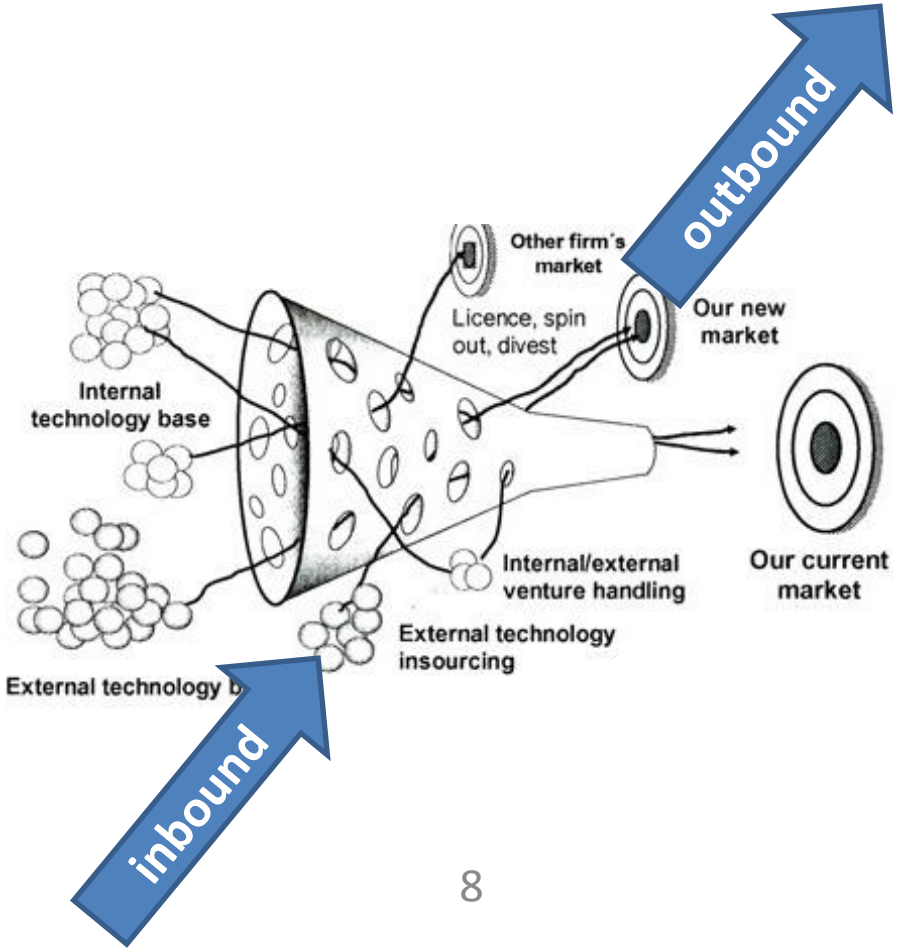
Open Innovation

A short quiz:

- **Do all the smart people work within the organization that you work for?** *No?*
- **Does your organization have all the resources that you need for your ambitions?** *No?*

Open Innovation

Often from the perspective of one large company …



Open Innovation with SMEs

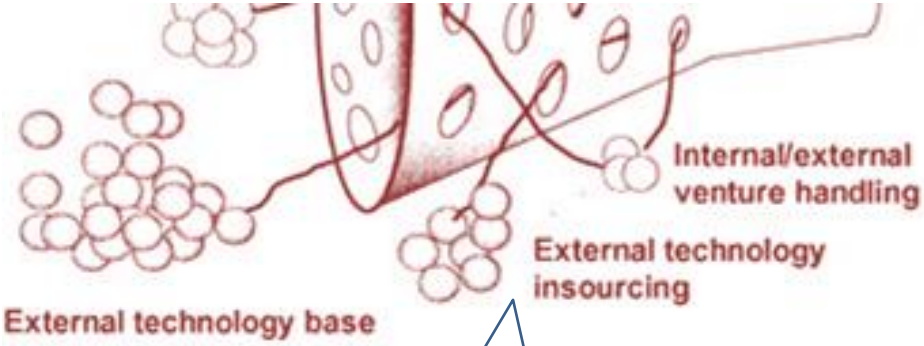
… we focus, instead, on collaboration involving SMEs, and on combining inbound and outbound streams

Open Innovation with SMEs

Combine w/ **B's proprietary** technology

Also licence **B's technology** to others

Enter a new market, using **C's channels**



A builds on some external technology

Open Innovation

Benefits: More effective and efficient innovation

a) Use knowledge and resources of, e.g., experts, suppliers, customers or users ('outside-in')

b) Use sales and distribution capabilities of others, to serve 'new markets' ('inside-out')

c) Opportunities to create a 'new market': collaboration between suppliers and customers

d) Combining one's own competences and resources with others' competences and resources

e) Faster or better innovation process by learning from others ('lessons learned', 'best practices') (not 're-inventing the wheel')

f) More efficient and effective innovation process, e.g. by sharing costs and/or by sharing risks

Open Innovation

Challenges: Communication and collaboration:

a) Less control over the innovation process: development, implementation and marketing

b) More complexity, e.g. regarding management, control, governance, and leadership

c) Resistance… e.g., 'Not Invented Here' ('outside-in') or 'Not Sold Here' ('inside-out')

d) Risk of 'loosing' valuable information or intellectual property to others (unintended)

e) Difficulty of aligning Open Innovation and Closed Innovation in one organization

f) Possible friction, e.g., in trust, commitment, support and (fast) decision making

Examples

In the SSL-erate project, five Lighting Clusters organized Open Innovation in the form of 'Business Development Experiments', involving **industry, customers/users** and **knowledge institutes**:

- Danish Lighting Innovation Network (DLIN)
- Luce in Veneto (LiV)
- Cluster d'il Luminacio de Catalunya (CICAT)
- Groen Licht Vlaanderen (GLV)
- Cluster Lumière (CL)

Several examples on the next slides. *There are many more*

The Window (DLIN)

Goal: To develop a window system that **combines natural daylight and artificial light**, to support people's circadian rhythm

- Dovista, windows manufacturer
- Simplight (SME), technology
- GXN (SME, architect), customer
- Nordic Power Converters (SME)
- Aalborg University, knowledge
- DTU, knowledge

Hygienizing Lamp (LiV)

Goal: To develop a product that produces **better quality light and better quality air**, using UV LEDs, to prevent airborne diseases.

- Fairwind (SME), lighting systems
- Arte Light (SME), prototyping
- University of Bologna, testing
- An industrial food/beverage producer and a health care provider, customers

Lighting Surface (LiV)

Goal: To develop a transparent varnish that can be printed and that **emits light when activated by a LED light source** ('LIT')

- Metalco, outdoor furniture (production and marketing)
- Hikari (SME), lighting systems
- Heliv (SME), optics (patent)
- Municipality of Bassano del Grappa, customer

Street lighting: PC-Amber (CICAT)

Goal: To replace luminaires in the village of Santa Pau with LED lights of amber color: **to save energy and to preserve wildlife** in the Natural Parc of Garrotxa.

- IgniaLight, manufacturer
- Municipality of Santa Pau, custumer

HCL for dementia care (GLV)

Goal: To implement a **human-centric lighting system for dementia care** in hospital room.

- Angoma, manufacturer
- Helbig, manufacturer
- Prizma, installer
- Sint-Jozefskliniek Izegem (hospital), customer
- KU Leuven, knowledge

HCL airport lighting (CL)

Goal: Offer lighting in lounges which **reduce fatigue** of travellers during their stopover in Paris airport

- Airport Authority
- Neuroscience Laboratory
- Lighting Engineering Firm

Critical Success Factors

Reflecting on these, we identified several Critical Success Factors:

a) Partners need clear, short-term goals, aligned with individual goals
b) Partners need to be complementary in skills, resources (no competition)
c) Collaboration with customers and users, to understand their needs
d) Management needs to be involved and supportive, e.g., decision making
e) A multidisciplinary approach, e.g., technology, manufacturing, sales
f) An iterative approach, e.g., early prototyping and testing, improvements

Open Innovation Toolkit

Based on our findings, the Critical Success Factors, and based on literature, we developed the **Open Innovation Toolkit**

‘Relational’

- A. Relationships and cohesion
- B. Open communication and dialogues
- C. Commitment
- D. Trust and safety
- E. Climate for innovation and creativity

‘Structural’

- F. Clear strategy and goals for collaboration
- G. Selection of relevant and appropriate partners
- H. Structure and governance for collaboration
- I. Contractual arrangements
- J. Evaluation of process and results

SSL-erate

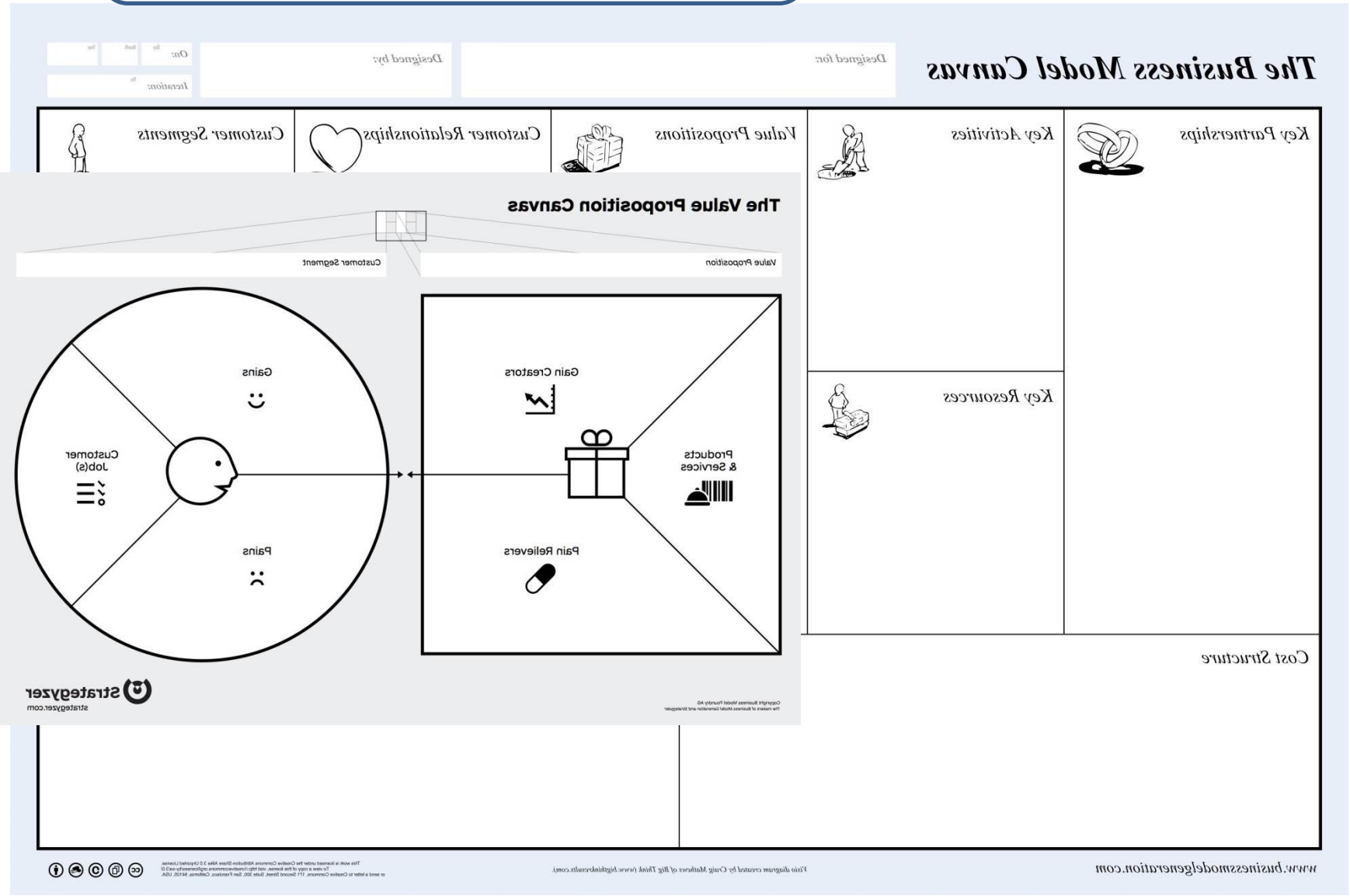
Open Innovation Project Canvas

At the heart of it is the **Innovation Project Consortium Canvas**, which focuses on:

- **Collaboration** in a consortium
- Going **from idea to prototype**
- **Project results**, e.g., a prototype
- Identifying **customers** for these

- Complementary to, e.g., *Business Model Generation* and *Value Proposition Design (which typically focus on one company)*

We mirrored these canvases, because we start with the customers' needs, and we work left to right



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

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Role
Bring
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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**

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SEVENTH FRAMEWORK PROGRAMME

lightingforpeople
CONNECTING OPPORTUNITIES FOR INNOVATION

SSL-erate

Thank you

More on Open Innovation:

- **Marc Steen**, TNO, The Netherlands, marc.steen@tno.nl
- **Wim Vanhaverbeke**, professor at University of Hasselt, and visiting professor at ESADE Business School and National university of Singapore

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- **Antonella Venza and Alberto Sozza**, Luce in Veneto, Italy
- **Jessica Kamps**, Cluster d'il Luminacio de Catalunya, Spain
- **Peter Bracke**, Groen Licht Vlaanderen, Belgium
- **Marc Fontoynont**, Cluster Lumière, France