

Lecturer's Notes and Instructions on  
**Corporate Sustainability & Green  
Cities**

Lecture 4: Innovation for Sustainability

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## INTRODUCTION

This fourth session concentrates on how business can innovate to provide both firm competitive advantage and solutions to urban sustainability problems. The lecture characterizes sustainability oriented innovation, gives insight to the process of innovation and walks through sustainable business model innovation for greener cities. The session first introduces innovation and the basic elements of innovation management. The concept of sustainability oriented innovation is then explored, including its differentiated types and implementation challenges. In the final part of the session attention is given to what may constitute a sustainable business model and the archetypes available to companies.



## CONTENT

The fourth session is divided into three constituent parts (recommended proportion of session time given in brackets): (1) Introduction to Innovation (10%); (2) Sustainability Oriented Innovation (55%); and (3) Sustainable Business Model Innovation (35%).

### *Instructions*

#### **(1) Introduction to Innovation**

The first section of this session provides the basics of innovation management. Innovation is defined and the important differences versus invention are explained. Students are subsequently introduced to the main phases of the innovation process moving from search to capture. The tension between management and creativity/ experimentation should be highlighted (slide with innovation funnel cartoon).

#### **(2) Sustainability Oriented Innovation**

The second section focuses on sustainability oriented innovation (SOI). It is introduced with reference to innovation being a process or waves of 'creative destruction'. It is advised to begin this section with an open discussion challenging students to consider what 'innovation for sustainability' is and how it may be different from conventional market-driven innovation. In this discussion students will consider what 'sustainable' actually may mean in practice. For instance, are sustainable products required to improvement against market incumbents on social, ecological and economic dimensions? How do companies know the market incumbent as some

products take years before they can be realized to the consumer?

A definition of SOI is given and at this point it is advised to engage with compulsory reading: Nidumolu, R., Prahalad, C., and Rangaswami, M. (2009). Why sustainability is now the key driver of innovation. Harvard Business Review, September 2009: 57-64. Using the organizational stage model of this paper, students should be invited to think of examples of the 5 levels (the slides gives 3 good examples).

Students are then introduced and led through an alternate categorization model, comprising of three stages: operational optimization, organizational transformation and systems building. Optional engagement with recommended reading: Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2015). Sustainability-oriented innovation: a systematic review. *International Journal of Management Reviews*. 18 (2): 180-205.

To conclude the section students are challenged to consider innovation opportunities at each of the three levels for a company in their city, what challenges may be faced and the factors required for success. Answers drawn from the literature are then provided.

### **(3) Sustainable Business Model Innovation**

The final section of this session concentrates going beyond the 'technological fix' of SOI to consider innovating business models. First, the business model concept is introduced as essentially how a firm converts resources into value. Second, the session discusses what a 'sustainable' business model is and students are challenged to consider what a business model for a sustainable city may constitute. Optional engagement with recommended reading: Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, 45, 9-19.

The session then introduces students to sustainable business model archetypes. At this point it is advised to engage with compulsory reading: Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. Journal of Cleaner Production, 65, 42-56. The lecture highlights two of the eight archetypes: (1) selling functionality, not ownership; and (2) Circularity. First, 'selling functionality, not ownership' is explained through eight differentiated product-service system types:

1. Product related service: Sale of product + extra service (*i.e.: maintenance contract for product*)
2. Product related advice: Sale of product + extra advice (*i.e.: course on product use*)

**\*Use-oriented:** No ownership of product

3. Product lease: Exclusive use of product without ownership (*i.e.: car leasing*)
4. Product renting/sharing: Non exclusive use of product without ownership (*i.e.: car renting*)
5. Product pooling: Non exclusive use of product by several parties without ownership (*i.e.: city bikes*)

**\*Result-oriented:** Result focused. Product used is irrelevant

6. Activity management: Third party owns product and provides product related service (*i.e.: taxi companies*)
7. Pay-per-service unit: Pay for output of product according to use level without ownership (*i.e.: pay-per-copy printers*)
8. Functional result: Provider agrees with client on a result. The type of product is secondary (*i.e.: public transport network*)

An example is provided of a firm in the Netherlands leasing jeans to consumers (product leasing) to show how companies are considering sustainable business models that are new to industries. A second example is provided of a company called 'UPTOP' which uses processed textile waste as material. Consumers pay a small deposit which get back on return of the top.

To conclude the section the tools required to innovate business models are given consideration.

### **Homework: Elevator Pitch**

The elevator pitch for this session focuses on sustainable business model innovation. Students are challenged to consider a firm's current business model and analyze its relative sustainability. Students are then required to use the sustainable business model archetypes to consider what new model may be possible.

It is expected that students apply the ideas of both compulsory readings and the lecture material to a business operating in their city.

## REFERENCES

### *Compulsory Reading:*

Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42-56.

Nidumolu, R., Prahalad, C., and Rangaswami, M. (2009). Why sustainability is now the key driver of innovation. *Harvard Business Review*, September 2009: 57-64.

### *Recommended Reading:*

Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2015). Sustainability-oriented innovation: a systematic review. *International Journal of Management Reviews*. 18 (2): 180-205.

Boons, F., & Lüdeke-Freund, F. (2013). Business models for sustainable innovation: state-of-the-art and steps towards a research agenda. *Journal of Cleaner Production*, 45, 9-19.

Osterwalder, A., and Pigneur, Y. (2010). *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons.

## LECTURER'S PROFILE

Steve Kennedy is an Assistant Professor researching corporate sustainability, climate change and sustainability-oriented innovation within the Centre of Corporate Eco-Transformation at Rotterdam School of Management, Erasmus University. Dr Kennedy's current research focuses on how corporate sustainability strategies are translated into successful innovation and the formation of future-ready sustainable business models. In recognition of its academic contribution his thesis on the challenges of operationalizing sustainability at the local-level was highly commended at the prestigious Emerald/EFMD Outstanding Doctoral Research Awards 2010. Dr Kennedy is the Academic Director of the MSc Global Business & Sustainability and teaches courses such as 'Climate Change Strategy Role-Play' and 'Sustainability Leadership and Planetary Boundaries'. His research is published in journals such as *Journal of Management Studies*, *Long Range Planning*, *Journal of Cleaner Production* and *Management Learning*. Email: [skennedy@rsm.nl](mailto:skennedy@rsm.nl)

## MODULE DEVELOPER:



### ABOUT ROTTERDAM SCHOOL OF MANAGEMENT

Rotterdam School of Management is one of Europe's leading and largest business schools among the 1% of schools worldwide with Triple Crown accreditation. The school is a world leader in research and teaching on sustainability ranking 3<sup>rd</sup> in Europe and 19<sup>th</sup> globally according to The Aspen Institute's Beyond Grey Pinstripes Report.

Project participation is from the Centre for Corporate Eco-Transformation which broadly aims to reach a clearer understanding of the management challenges of corporate sustainability. The Centre conducts high-level research and education on management issues related to sustainability and provides accessible and up-to-date information on cutting-edge research, ideas and works published on the subject of corporate eco-transformation.

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## **ABOUT SUSTAIN PROJECT**

The SUSTAIN project aims to improve the quality of tertiary education in Sustainable Urban Development in Europe and partner universities in Asia; develop standardized education modules related to SUD and furthermore enriching them with international perspectives and academic and vocational skills and competencies; promote collaboration and international cooperation between European and Asian Higher Education Institutions in SUD but also collaboration and sharing between Erasmus Mundus programmes; establish links and bridge European Higher Education and practice in SUD; increase the visibility and access to European Higher Education in Asia in the field of SUD, attracting prospective Asian and international students.

The SUSTAIN project is co-ordinated by the Institute for Housing and Urban Development Studies (IHS) with the Dutch Research Institute for Transitions, the Netherlands, the Rotterdam School of Management, the Netherlands, Darmstadt University of Technology, Germany; National Technical University of Athens, Greece; European Academy of Bolzano, Italy; Ca' Foscari University of Venice, Italy; Gadjah Mada University, Indonesia; Centre for Environmental Planning and Technology, India; Beijing University of Civil Engineering and Architecture, China; and International Council for Local Environmental Initiatives, Germany.

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