

Coupling Business Models with Life Cycle Assessment for 2nd Life Applications: Advantages and Limitations

F. PICARD, N. KROICHVILI, K. CABARET, UTBM

J.L. AMAYA, T. REYES-CARILLO, N. TROUSSIER, UTT



2014 [avniR] Conference, *Life Cycle in Practice*
Lille, 5-6 November 2014



- Rising environmental concerns since the 1990s (Kyoto Protocol, IPPC's conclusions, negotiations of a global agreement on greenhouse gases emissions reduction)
 - ↳ Increasing attention on environmental impacts of production activities and search for sustainable development models
 - ↳ Fostering product reuse, second life applications and recycling
- **LCA and BM approaches may support the reflection towards more sustainable models of production**

1- Weaknesses of BM approach



Traditional BM approach describes how value is created and captured

However:

1. Environmental value is not taken into account in value (product or use)
 - ↳ *Environmental impacts of production activities are scarcely analyzed*
2. Analysis mainly done at a company level
 - ↳ *2nd applications are not necessarily produced by the same firm that provided the first ones*
 - ↳ *2nd applications need to introduce new actors, sometimes a completely new branch of activities into the analysis*

NB: Interesting new perspectives offered by open BM

2- Weaknesses of LCA approach



The LCA approach enables to identify environmental impacts through the identification of resource and energy consumption as well as waste production and elementary flows

However:

1. A restricted view of economic impacts
 - ↳ The economic dimension of activity is reduced to costs
2. A fuzzy perimeter of activities and of the actors' network, due to the introduction of 2nd life applications
 - ↳ The functional unit, at the core of LCA, becomes difficult to define
3. A difficult allocation of environmental impacts between several product lives

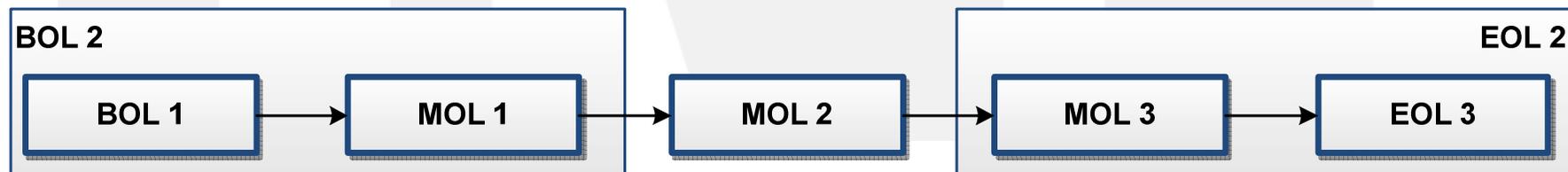
3- A BM approach to improve LCA



- A deeper analysis of economic issues
- A contribution of open BM to identify actors involved in 2nd life applications
- A new conception of the life cycle model, able to allocate environmental impacts to several product applications



(a) Life Cycle Model in LCA, usual



(b) Life Cycle Model in LCA including BM analysis

4- Using LCA in BM approach



- Internalizing the environmental impact of economic activities by introducing environmental value
- Introducing a global vision of the product life cycle in and going beyond a linear vision of sequential BMs in favor of a systemic and circular vision

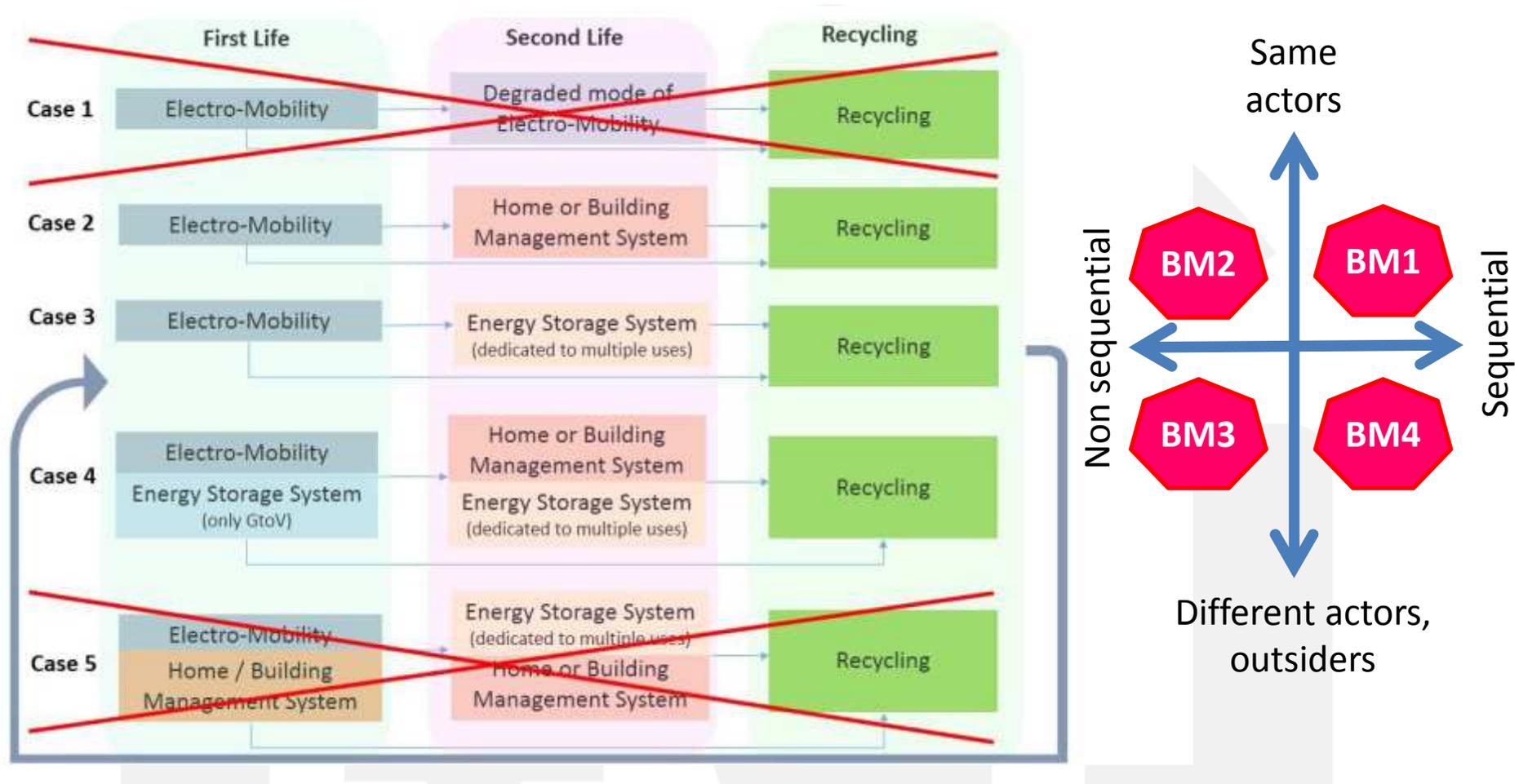
Consequences:

1. Embracing potentially different fields of application, different actors
2. Challenging actors of the 1st life and questioning their ability to capture the 2nd life value of a product partially created in the 1st life

Conclusion



5 scenarii of Sustainable BM



Thank You

