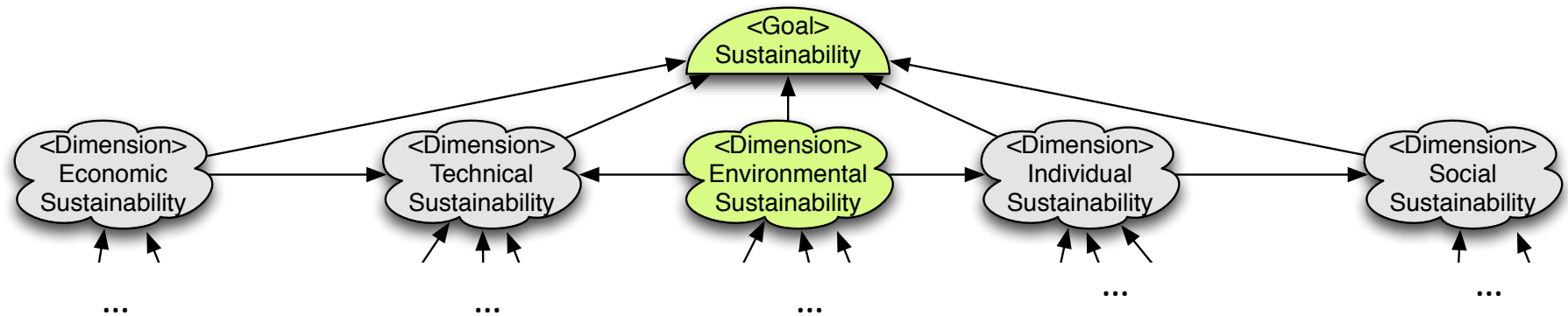


**My 2 cents:
Reference Models
And Car Sharing Case Study**

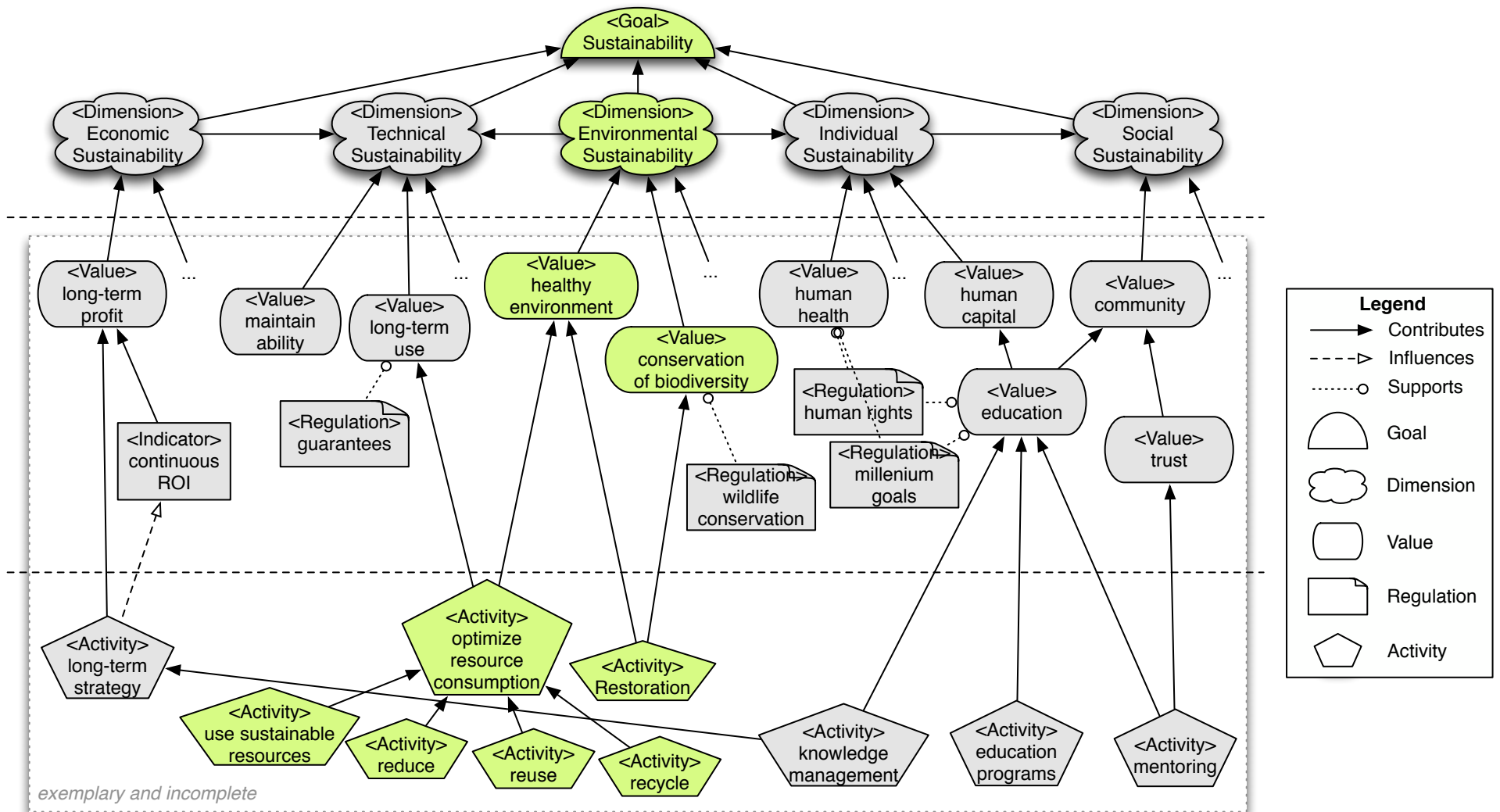
Birgit Penzenstadler
Sustainability Modeling
Barbados, Feb 2016

Sustainability Reference Model

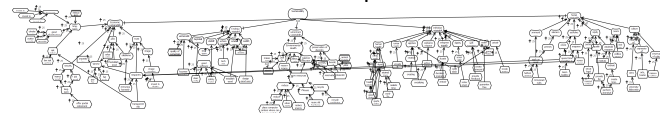


- 5 dimensions of sustainability
- Decompose into values and supporting activities

Sustainability Reference Model



Thumbnail of complete model



Stakeholder Reference Model

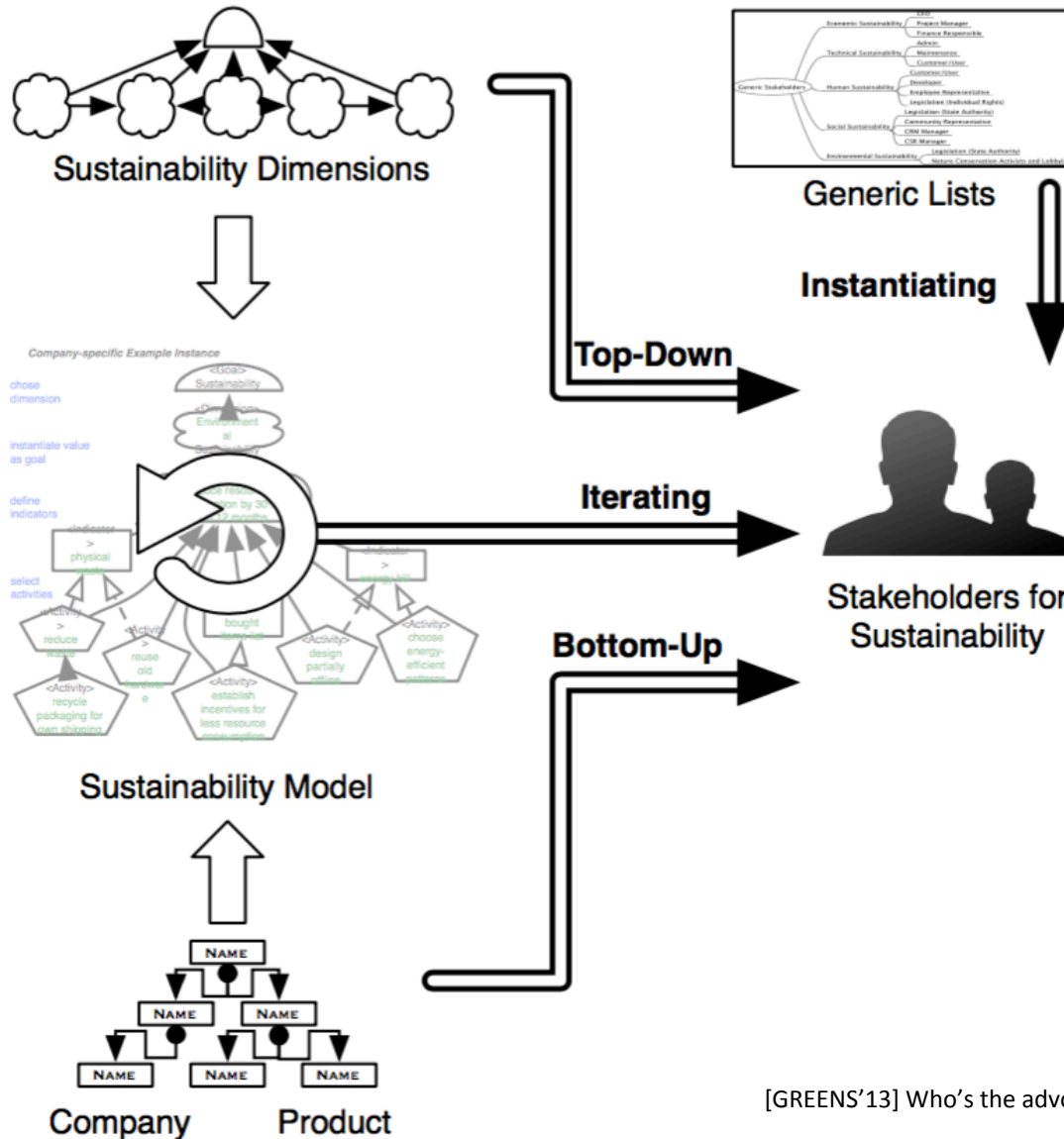
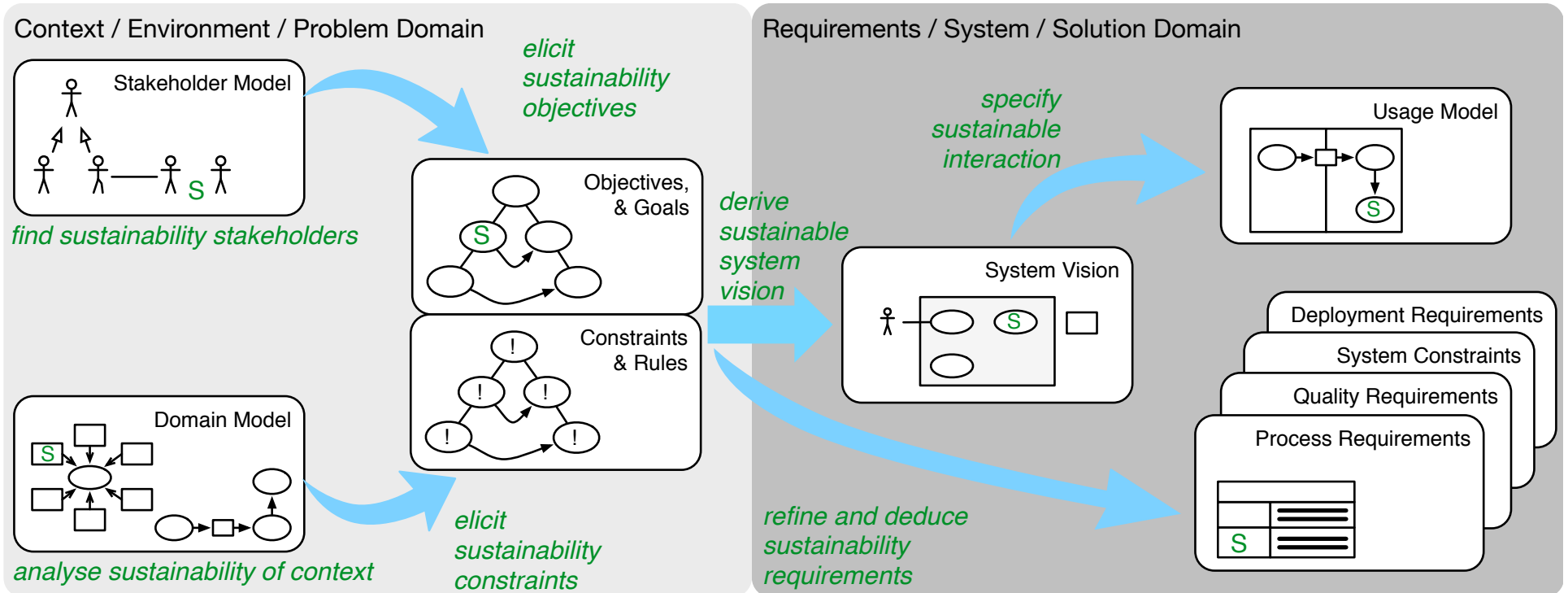


TABLE I
A GENERIC LIST OF SUSTAINABILITY STAKEHOLDERS

Dimension	Stakeholder	Description/Rationale
Individual	User	The user is affected by the system in various ways. For example, users of online learning courses educate themselves through software.
	Developer	The developer is heavily involved in creating the system. Aspects like sustainable pace and growth of the developer must be considered.
	Employee represent.	The mental and physical safety of individuals needs to be maintained. Employee representatives watch rights of employees involved.
	Legislation (indiv. rights)	Systems must respect the rights of their users. A legislation representative is a proxy for privacy and data protection laws.
	Legislation (state authority)	The state has a strong interest in understanding a system's influence on the society. In contrary to the individual rights legislation representative, the state authority representative speaks from the perspective of the state as a whole.
Social	Community represent.	In addition to the state authority, other communities such as the local government (e.g. the mayor) or non-government clubs might be affected by a software system. A complete analysis must take their views into account.
	CRM	The Customer Relationship Manager (CRM) is in charge of establishing long-term relationships with their customers and creating a positive image of the company.
Economic	CSR manager	Some companies created the dedicated position of the Corporate Social Responsibility (CSR) manager, who develops a company-specific vision of social responsibility.
	CEO	The chief executive officer integrates sustainability goals into a company's vision.
	Project manager	It is very important to have the project manager agree in what ways the project should support sustainable aspects as he decides on prioritization with conflicting interests.
Environm.	Finance responsible	As sustainable software engineering often also affects the budget, many financial decisions have to be made to implement a sustainable software engineering model in a company.
	Legislation (state authority)	Environment protection laws are in place to ensure sustainability goals. These laws must be reflected in the model.
	CSR manager	The CSR manager is often also responsible for environmental aspects.
Technical	Activists /Lobbyists	Nature conservation activists and lobbyists (e.g., WWF, Greenpeace, BUND)
	Admin	The administrator of a software system has a strong motivation for long-running, low-maintenance systems, making his work easier.
	Maintenance	The hardware maintenance is interested in a stable, long-term strategy for installation of hardware items.
	Customer	Users are interested in certain longevity of the systems they are using. This refers to user interface and required soft- and hardware.

[GREENS'13] Who's the advocate?

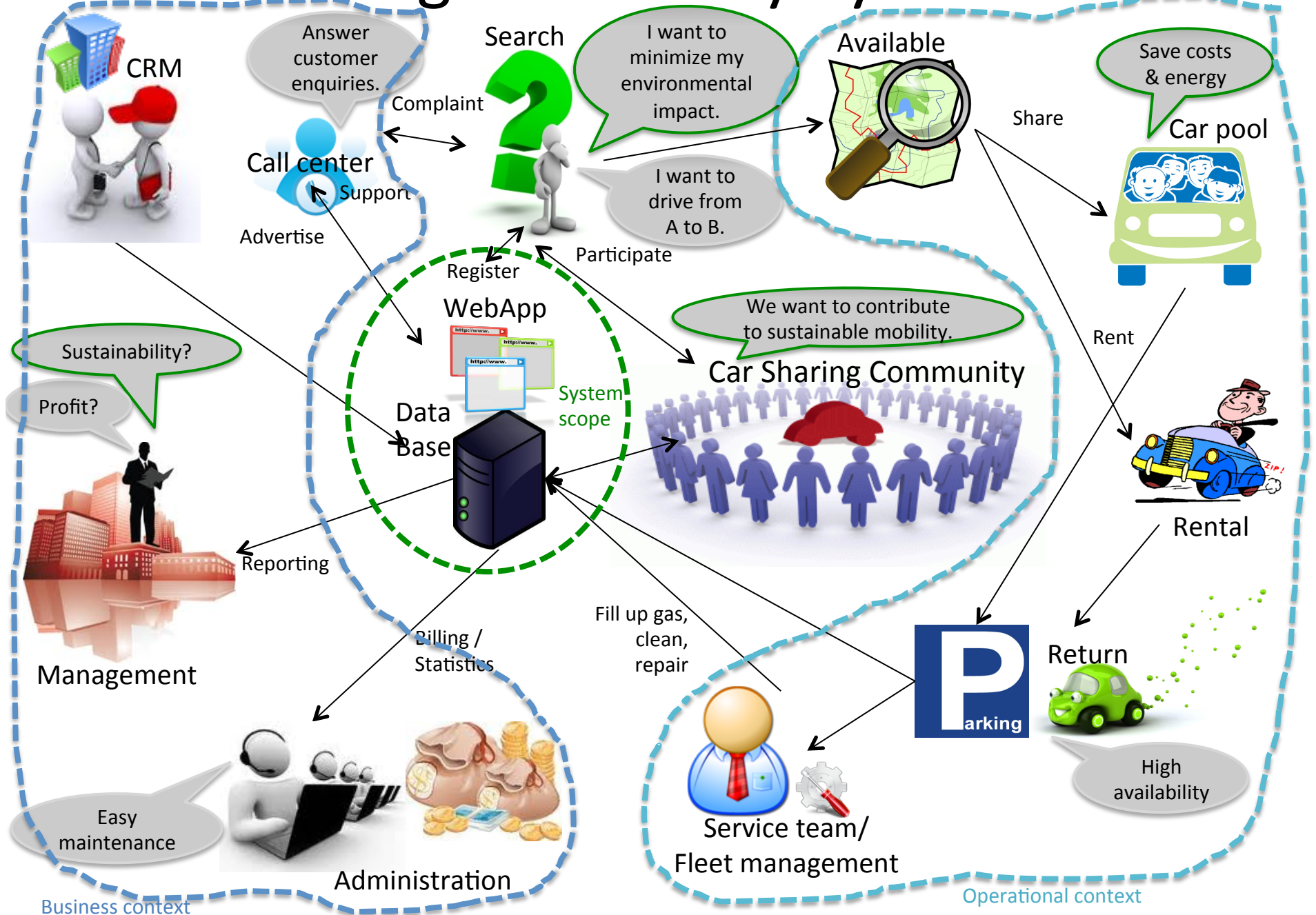
How-to with artifacts: Steps & Results



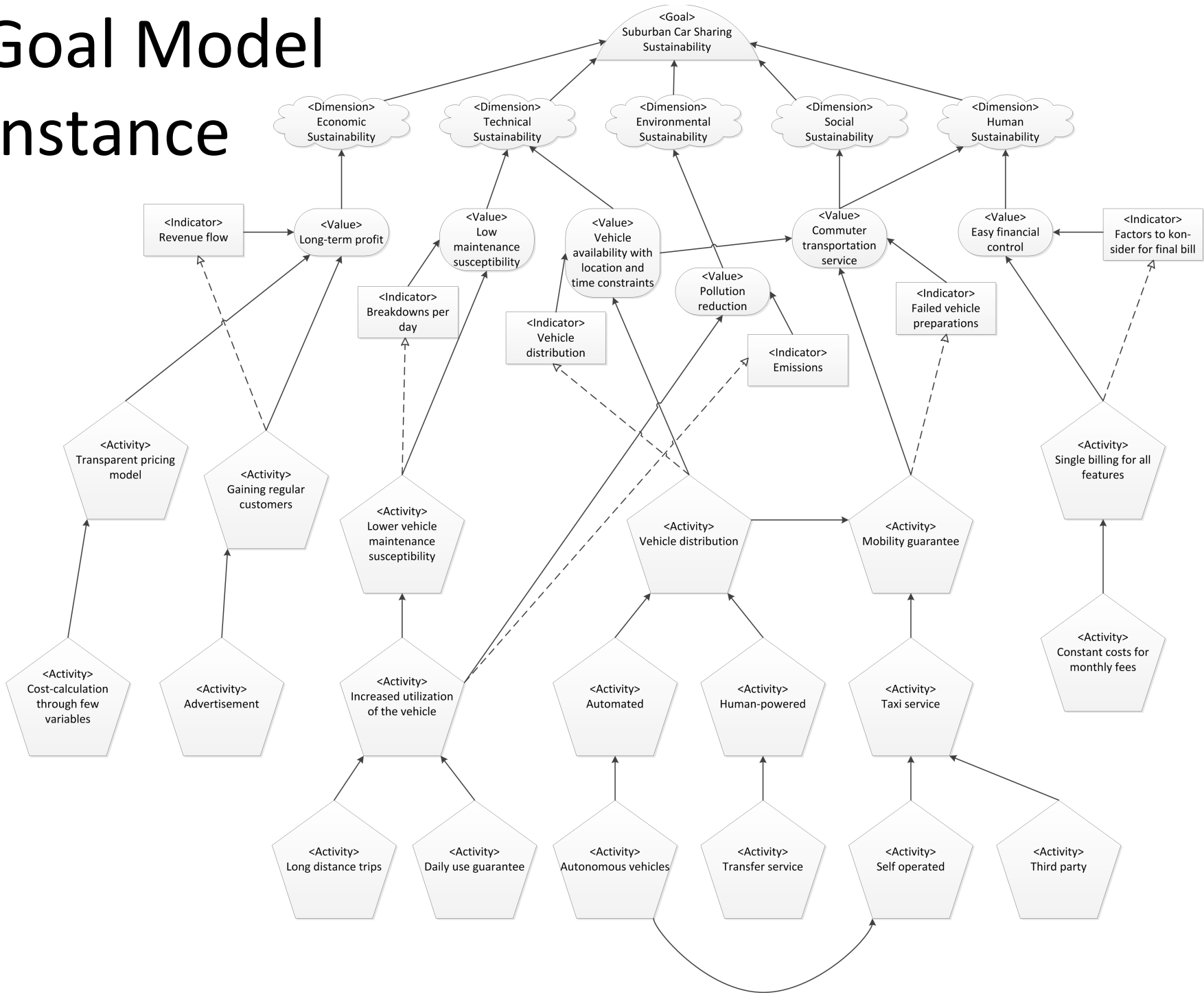
Guiding Questions for Green RE:

1. Does the system have an explicit sustainability purpose?
2. Which impact does the system have on the environment?
3. Is there a stakeholder for environmental sustainability?
4. What are the sustainability goals and constraints for the system?

Car Sharing Case Study System Vision



Goal Model Instance



Stakeholder Model Instance

