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Potential social impacts of servicizing: an analytical framework for the agri-food sector

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Abstract

Servicizing refers to a shift in the economies towards the satisfaction of customers' needs through the provision of services and the function of products rather than the sale and purchase of products. As such, servicizing involves changes on the production and consumption patterns of a society. The objective of this working paper is to develop a conceptual framework to analyze social impacts of servicizing. Therefore, we focus mainly on those social aspects that are potentially sensitive to the shift to servicizing. In particular, the social impacts are studied for servicizing within the agri-food sector. It is possible to distinguish between direct and indirect impacts. Direct social impacts may be the intended or unintended result of activities designed to influence the social setting. Meanwhile, indirect social impacts are a result of changes in the biophysical environment. Potential social impacts from servicizing in the agri-food sector are related to material well-being, health and gender relations.

Keywords

Servicizing, social impacts, agri-food sector, consumption patterns

JEL codes: O13, Q56

1. Background

Servicizing involves changes in the production and consumption patterns. As such, it must take into account the existence of trade-offs between economic, environmental and social aspects. The objective of this paper is to develop a conceptual framework to analyze social impacts of servicizing. We focus mainly on those social aspects that are potentially sensitive to the shift to servicizing in the agri-food sector, such as material well-being, health and gender relations.

The main conceptual issue that we must address is the definition of social impact. According to Social Impact Assessment (SIA) literature (see e.g. Vanclay, 2002) impacts must be distinguished from social change processes. 'Social impacts' must be experienced by humans in a physical or perceptual sense, whereas 'social processes' are the result of an intervention (project activities or policies). "Depending on the characteristics of the local social setting and mitigation processes that are put in place, social change processes can lead to social impacts" (Vanclay, 2002, p. 192).

Moreover, it is possible to distinguish between direct and indirect impacts. Direct social impacts may be the intended or unintended result of activities designed to influence the social setting. In contrast, indirect social impacts are a result of changes in the biophysical environment (Vanclay, 2002).

The working paper is organized as follows: in the second section the concept of social impact is provided. The third section offers a literature review divided in three subjects: social aspects of servicizing, social sustainability criteria in agri-food studies and other social impacts relevant to the agri-food sector. The fourth section is devoted to analyze the main social categories of servicizing in the agri-food sector, while the last section proposes an analytical framework.

2. Defining social impacts

Academics in the field of social impact agree that it is impossible to identify all dimensions of social impact, as they are context-dependent. Although several typologies of social impacts have been developed, there is not a common understanding of what a social impact is and how social impacts can be categorized.

Vanclay (2002) provides a list of social change processes which comprise demographic, economic, geographical, institutional and legal, emancipatory and empowerment, socio-cultural and other processes. The

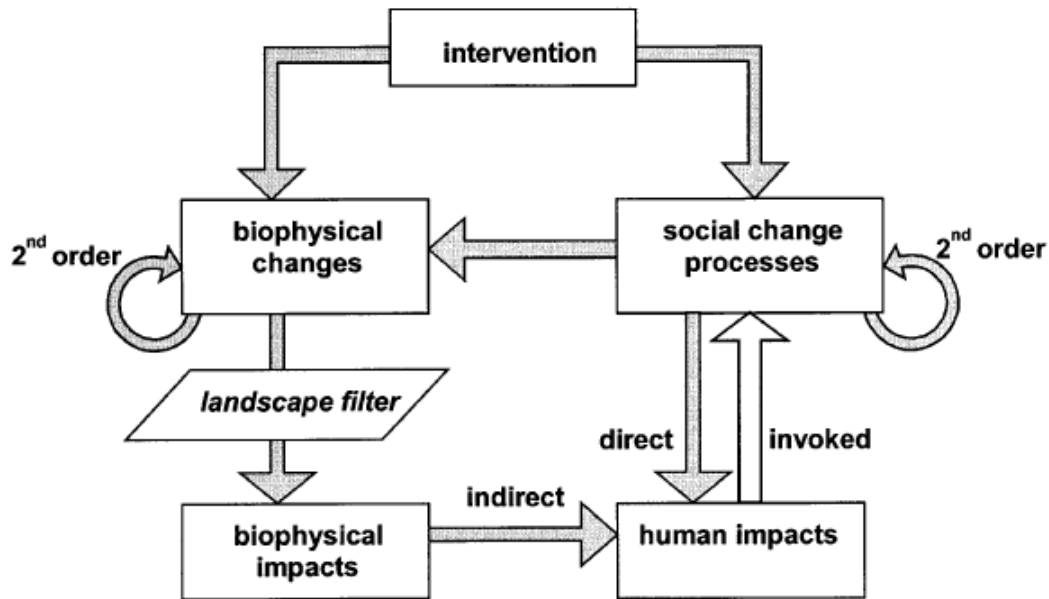
author also proposes a complete list of social impacts,¹ derived from his experience and SIA literature review, conceptualized according to these categories:

- Indicative health and social well-being impacts, which refer to aspects of health and emotional feelings;
- Indicative quality of the living environment (liveability) impacts, which include issues of the liveability of the neighborhood and workplace;
- Indicative economic impacts and material well-being impacts, which are related to the wealth and prosperity of individuals and the community as a whole;
- Indicative cultural impacts, which refer to changes on the cultures in an affected region;
- Indicative family and community impacts, referred to family, social networks and the community in general.
- Indicative institutional, legal, political and equity impacts, which are derived from the implementation of development projects.
- Indicative gender relations impacts, which specifically address gender gaps.

Due to the context-specific features of a social impact assessment, the author suggests using the conceptual framework represented in figure 1, in which the relations and feedback between social change processes and social and environmental impacts are shown.

¹ For further information the readers are suggested to consult the original information source.

Figure 1. Integrated framework for environmental and social impact assessment



Source: Vanclay (2002)

Social change processes or first-order changes that result from an intervention can lead to second- and higher-order change processes.

As we already pointed out, impacts can be direct or indirect. Direct impacts are felt by those individuals, groups and firms directly engaged in the activity being affected (Australian Government, 2005). Typical examples of socio-economic impacts identified in the Socio-Economic Impact Assessment (SEIA) literature look at production output, employment, personal and/or business income, working conditions, psychological well-being, social services, social well-being, etc.

Indirect impacts are generated on a broader level as a result of the impacts felt by those individuals, groups and firms directly associated with the change (Australian Government, 2005). SEIA literature identifies typical socio-economic indirect impacts with impacts on the economic activity in a region as a result of changes to consumption and production spending/activity; changes in employment and income in a region; changes in population in a region including age, employment, length of residence and other demographic characteristics; and changes in levels of service provision and social capital in a community/region.

3. Literature review

3.1 Social aspects of servicizing

Social aspects of servicizing have not been deeply studied in the literature about product-service-systems (PSS). There are only a few references that mention social aspects of servicizing or that try to assess impacts of servicizing in terms of social sustainability which are summarized below.

Mont (1999) identifies some social implications of the shift towards product-service-systems. In terms of production, since services are more labour-intensive, she considers PSS can be a source of new job opportunities. On the other hand, servicizing also provides consumers with the ability of changing their consumption patterns. This can mean changes in the infrastructure (facilities, equipment, logistics, and technologies) needed to make and distribute products and services; in the human structures (well-being of individuals) and in the organizational framework (societal cultures, procedures and traditions) that affects consumption.

In another later report the author also states the need to translate framework conditions of sustainability into the level of PSS (Mont, 2004). She suggests using customer acceptance and added value to customers as proxies or even to include other broader social issues, such as employment and quality of life.

Omann (2003) develops a tool to allow companies to evaluate PSS and to compare it with an already existing reference product, in terms of its impacts on sustainable development. The social dimension includes impacts on the structure of employees, social management, working safety and health, social justice, equal chances, gender equity, human dignity, international justice and customers.

Halme, et al (2004, 2006) who focus on household services, use several indicators as proxies for quality of life, which is a way of measuring social sustainability: comfort, health, safety, freedom/control, social justice, social relations and education and development. They include work and income as economic indicators. The household services that are evaluated comprise heating energy consumption, resource intensity, living space, organic products, food transportation, shopping and recreation transport distances, modes of transport for vocational, shopping and recreation purposes and number of passenger cars.

A report about green servicizing (EPA, 2009) recognized social issues as a key dimension of sustainability. As far as social information and techniques are generally less developed, the study suggests doing a rough screening for significant beneficial and adverse social impacts of the shift towards servicizing.

In a recent background paper, the OECD (2012) explores some innovative business models and finds first order and second order impacts of servicizing. The report states that the creation of immediate social values,

such as flexibility, convenience and green image, is limited to some models, in particular to sustainable mobility, functional sales and innovative financing models.

Second order or systemic effects can emerge if the conditions are present for larger diffusion and application of the model and they refer, in the social and cultural dimension, to job creation, knowledge diffusion, improved quality of life and change of attitudes and values.

From the review of servicizing literature it can be deduced that there is not a clear understanding of what a social impact is, which categories it includes and how to evaluate them. Moreover, the focus agent of the assessment may be the provider of the service, i.e. the company that adopts product-service-system as a business strategy and its employees, the customer of the product-service –i.e. another company (business-to-business) or the final consumer (business-to-consumer); or the society as whole.

Since our aim is to analyze the social impacts of servicizing in the agri-food sector, it will be useful to look into the social dimension of sustainability in the agri-food sector.

3.2 Social sustainability criteria in agri-food

Social aspects constitute one of the key dimensions in sustainability studies. Although it is also complex to define what social sustainability means in the agri-food sector and social indicators are not very developed in agriculture literature, there are some developments that try to address this question. We report their basic features in this subsection.

The MESMIS (Marco de Evaluación de Sistemas Manejo incorporando Indicadores de Sostenibilidad) (Masera et al, 1999) is a methodological tool to empirically assess the sustainability of different projects, technologies or agro-ecosystems, specifically designed for resource management in agriculture. It is a holistic and participative approach that promotes discussion and feedback between evaluators and evaluated.

According to this framework, sustainable agriculture management systems have seven attributes: productivity; stability, reliability, resilience; adaptability; equity; and self-reliance (self-empowerment).

Sustainability is assessed in a comparative fashion. There are two general options: a) to compare the evolution of the same system across the time; or b) the comparison of one or more alternatives or innovative management systems.

The MESMIS offers a generic set of social indicators for the assessment of projects or agro-ecosystems (see table 1):

Table 1. Generic set of social indicators

Attribute	Diagnostic criterion	Indicators	Measuring method
Equity	Allocation of costs, benefits and decision-making	System beneficiaries	Number and type of beneficiaries by gender, age, social sector, ethnic group
		Degree of democratization	Mechanisms for distribution of decision-making power
Stability, resilience, reliability	System fragility	Capability for sorting severe eventualities	Survival of project after conflicts, sever problems or lack of funds
		Mechanisms for conflict resolution	Type, complexity and effective enforcement of penalties for not complying with obligations
	Living standards	Standard of living indices	Nutrition indices, health indices, education level, life expectation
Adaptability	Capability for change and innovation	Generation of knowledge and training sessions	Type and frequency of training, mechanisms for disseminating knowledge among members
		Assimilation of innovation	Adoption or adaptation of changes in the various aspects of community life; appropriation of changes by the community
Self-reliance (self-empowerment)	Participation	Producers' involvement in system design, implementation and monitoring	Number and frequency of participants' involvement in each phase

	Control	Recognized property rights (individual or collective)	Kind of land tenure regime, rules for the use and availability of resources
		Decision-making power vis-à-vis critical aspects of the management system	Local control over prices and supply of inputs and products; access to machinery
	Organization	Type, structure and permanence of local organizations	Existence of associations for input acquisition or product sale, co-operative, credit unions Rules and sanctions for collective decision making

Source: Masera et al (1999)

The MESMIS suggests using these indicators to evaluate the impacts on the production unit and the organization. The information is gathered through literature review, surveys and interviews with key stakeholders.

Another framework for social sustainability assessment is provided by the Food and Agriculture Organization (FAO), which has recently published the Sustainability Assessment of Food and Agriculture Systems (SAFA) Guidelines (FAO, 2012). This report constitutes a sustainable performance index of each company in the agri-food value chain. The guidelines specify the principles, procedures and minimum requirements to develop a SAFA.

The indicators measure to what extent companies' activities are coherent with sustainability aims. This methodology is partly based on ISO 14040:2006 Life Cycle Assessment; therefore, it can adopt the life-cycle perspective.

According to the SAFA Guidelines, social well-being is a key dimension of sustainability, together with economic resilience, good governance and environmental integrity. Social well-being refers to human development issues, in particular, to those themes and sub-themes shown in table 2:

Table 2. Social well-being

Sustainability theme	Sustainability sub-theme
Decent livelihood	Wage level; Capacity building
Labour rights	Employment; Forced labour; Child labour; Freedom of Association and bargaining: working hours
Equity	Non-discrimination; Gender equality; Support to vulnerable people
Human health and safety	Physical and psycho-social health; Health resources; Food security
Cultural diversity	Indigenous knowledge; Food sovereignty

Source: FAO (2012)

Most frameworks on sustainable agriculture are focused on agriculture in developing countries. Although it is an important view due to the globalization of the agri-food sector many of the indicators do not make sense in order to analyze servicizing applied to agriculture in European countries.

3.3 Other social aspects in the agriculture literature

Two social aspects that we consider relevant from the perspective of the farmer who adopts servicizing are quality of life and gender relations. We summarize below the insights from some papers:

Quality of life

El-Osta (2008) developed a quality of life indicator based on the attributes of farm operator households. It is compounded by 10 variables related to four socioeconomic domains that characterize the quality of daily life in the place of residence: the labour market condition, neighborhood quality, public and/or private services, and social interaction. The operator was asked to report whether each characteristic is: Major problem=1, Minor problem=2, Not a problem / does not apply=3.

Bogue and Phelan (2005) defined quality of life as “the perception and feeling about one’s current life experience (including family, social, economic/work, personal development/success)”. They undertake a study on farm families in Ireland focusing on practices and behaviour and attitudinal scales. The focus of the questionnaires was on the personal, farm/job and household characteristics, social interaction & behaviour, and attitudes of families. Finally, a quality of life index was built based on these variables: social activities,

involvement in organizations, attitudes towards incomes, expenses and borrowings, hours of work, life and quality of life.

Coughenour and Swanson (1992) studied how farmers' perceptions of work life and psychological states mediated external conditions and their feelings of overall satisfaction. Their survey included questions referred to:

- Subjective well-being: respondents were asked to value “satisfaction with my farm work” in a 7 point scale from “very dissatisfied” to “very satisfied”;
- Farm structure: farm size measured as gross farm sales;
- Off-farm work days: none, under 100 days, from 100 to 24 days, more than 250 days;
- Farm and family income: dollar value of net farm income, and total family income in a six category array;
- Personal characteristics: age, number of years as farm operator, education;
- Large farm optimism / small farm pessimism: measured by a factor weighted scale of six attitudinal items.

Gender issues

The gendered division of relations in the agri-food sector from the field to the table has been largely studied by sociologists during the years (see e.g. Allen and Sachs, 2007). And, although important differences exist between countries, the literature shows that there is a connection between conventional agriculture and gender segregation. The presence of women in the agri-food sector, in particular in agriculture, declined with the adoption of the conventional “productivist approach”. In general, increased farm sizes, specialization, mechanization and commercialization led to a subsidiary role of women in farm production (Hall and Mogorodoy, 2007).

Moreover, there is also evidence that hegemonic masculine constructs and gendered attribution of professional skills and merits, together with the persistence of patriarchal ideologies within the farming household constitute important obstacles for women entrepreneurship in rural areas (Anthopoulou, 2010).

On the contrary, alternative agriculture, based on more sustainable practices and therefore defined as opposed to the productivist approach offers, according to some authors, the chance to facilitate a greater involvement of women in decision-making (Hall and Mogorodoy, 2007). However, the authors point out that

“women cannot make significant progress on this front [widespread equality] unless there are changes taking place at the points of production that open spaces for involvement and power sharing” (op. cit., 2007, p. 313).

4. Some potential impacts derived from previous analysis of servicizing in the agri-food sector

As a previous work for the identification of potential case studies we maintained interviews with managers of several initiatives that we take as servicizing examples: cooperatives for the use of farm machinery, fodder production and heifer rearing; provision of integrated pest management services; home-delivery service of fruits and vegetables based on box schemes; and marketing of fresh milk through vending machines.

On this basis, we carried out a rough identification of potential social impacts of servicizing. They are summarised below, distinguishing by the main affected stakeholder:

Farmers

- a) **Changes in the use of time:** since servicizing means externalising some jobs, farmers have more time to do other activities. This may mean a better organization of in- and off-farm work, with consequences on quality of life and even on gender equality.
- b) **Working conditions:** servicizing means that some specific activities are undertaken by professional workers, so the farmer avoids some potential risks, such as physical or environmental accidents. It may translate in better quality of life and also have consequences in gender equality (most mechanized farm work is generally developed by men rather than women).
- c) **Autonomy/decision-making:** farmers have to give up some decision-making and trust in an external partner for a final result; that may increase their uncertainty and therefore negatively affect their subjective well-being.

Final consumers

- a) **Changes in the use of time:** depending on the case, servicizing may mean more or less free time. For instance, receiving food by subscription at home allows a better planning of family meals and avoiding moving to buy some foodstuff. This can also impact gender equality.
- b) **Responsible consumption:** servicizing allows consumers to maintain a more direct contact with producers/providers and to take informed decisions about food. Trust relationships and responsible decisions may impact subjective well-being (improvement of environmental, social or economic aspects of the community).

- c) **Giving up purchasing choices:** when servicizing means a limited offer of foodstuff, some consumers' subjective well-being will be negatively affected by the limitation to see and decide which food products acquiring.

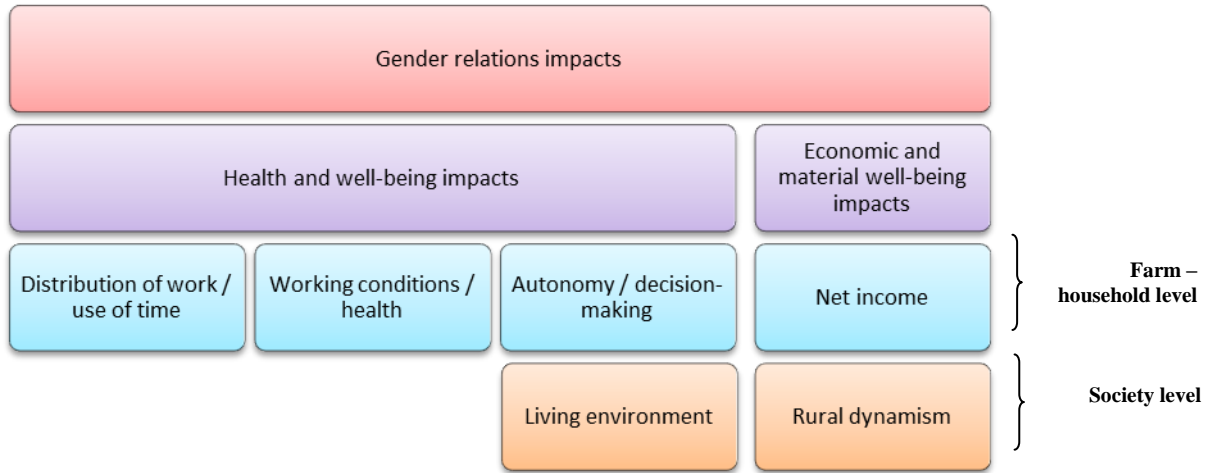
Sector/society

- a) **Structural change in terms of employment:** a further step in the servicizing of agriculture. It is an actual phenomenon in Western countries in terms of the development of service companies for agriculture. Servicizing may foster this trend in depth meaning changes in the employment structure of agriculture. It would be possible to find a complete decoupling between farm owners and farm operators. New possibilities for rural employment emerge, with the development of new companies providing innovative services.
- b) **Linked to the first impact, the diffusion of innovations may go faster.** Servicizing allows having access to the last technological advances in the sector. However, it also may mean substituting context-specific and tacit knowledge of farmers.
- c) **Changes in the relation of consumers with food.** There is a chance for affecting the global agri-food system by introducing more localised patterns of food consumption through servicizing. The impacts on diet, food sovereignty, food safety and food security would have to be explored.

5. Proposal of analytical framework

Based on the literature review, the combination of social sustainability criteria and servicizing in the agri-food sector, we suggest an analytical framework that focused on three main impact categories (based on Vanclay (2002)): economic and material well-being; health and well-being; and gender relations (see Figure 2).

Figure 2. Social impacts of servicizing in the agri-food sector



Economic and material well-being impacts include those aspects that affect farmers and consumers' objective quality of life, such as the net (farm) income –which is related to the cost of contracting servicizing and that works as a proxy for standard of living-. For the society as a whole, it refers to changes in the structure of employment and to new job opportunities (rural dynamism).

Health and subjective well-being impacts are indicated by the distribution of work, the working conditions and the autonomy or decision making at the level of farm or household. For the whole society, this category is represented mainly by the living environment.

Finally, we suggest analyzing gender relations as a framework impact category, taking into consideration the existent gaps between men and women in all the other impact categories.

How to measure the impacts

Measuring social impacts of servicizing in the agri-food sector is a difficult task due to the differences existing across regions, time and types of crops grown. Based on the conceptual framework proposed, we suggest to define a specific case and to use several tools such as questionnaires, interviews and focus group to get the case-specific data.

Example

Focusing on a business-to-business case: servicizing integrated pest management

For the farm, servicizing integrated pest management (IPM) means the adoption of a sustainable technology. Integrated pest management usually requires preventive measures and timing optimization, so more specific skills and knowledge, time and/or more labour are needed to implement this technology. Since not all farms

are prepared to adopt this technology, servicizing may boost its broader diffusion. Servicizing IPM means that a company specialized in this technology offers the farmer a complete service of crop protection. The company is responsible for the crop and used the tools and products that it considers necessary in order to satisfy the client's need, i.e. protecting the crop.

Contracting servicizing IPM may have several impacts in the farm-household system:

- The farm needs less labour to develop a specific farm task. What are the implications in terms of the household system, i.e. what are the costs and benefits of the new distribution of work? Does it affect gender equality? Does it increase the time devoted to other activities? Are those other activities related to farm-work, to in-house work, to pleasure...? What are the consequences for the farm workers?
- The farmer avoids doing a specific job, so (s)he also avoids some potential risks, such as environmental or physical incidents. Does it translate into a better quality of life for farmer? Does it mean better health or greater life expectancy?
- The farmer entrust to an external company part of the responsibility for his/her product. What does it mean in terms of the farmer's autonomy? How does it affect his/her subjective well-being?
- Contracting servicizing involves paying for a service. How much does it cost in comparison with alternatives? Does it affect net farm income?

In order to measure these impacts we consider necessary to develop a survey based on a questionnaire addressing specifically these aspects and a focus group to get a deep understanding of farmers' view.

The general diffusion of servicizing IPM might also have consequences on the whole society:

- Does it mean a structural change in agriculture employment? Does it promote servicization of agriculture, i.e. substituting services to farm for farmers' work?
- Does it allow a greater dynamism of rural areas, i.e. does it attract new companies and young people?
- Does it improve the environmental quality of farming areas, i.e. does it reduce air, water and soil pollution? What consequences does it have in social well-being?

Indirect social impacts of servicizing IPM may be difficult to estimate in advance. We suggest preparing interviews with experts with socio-economic background in agriculture and rural studies and a focus group of rural population.

6. References

- Australian Government. (2005). Socio-economic Impact Assessment Toolkit. A guide to assessing the socio-economic impacts of Marine Protected Areas in Australia.
- Bogue, P., & Phelan, J. (2005). Exploring the quality of life of farm families in Ireland: implications for extension. *Fall*, 12(3), 79–90. doi:10.5191/jjaee.2005.12307
- Coughenour, M., & Swanson, L. (1992). Determinants of farmers' satisfactions with farming and with life: a replication and extension. *Southern Rural Sociology*, 9(1), 45–70.
- EI-Osta, H. S. (2008). The Determinants of a Quality of Life Indicator for Farm Operator Households: Application of Zero-Inflated Count-Data Models. *Applied Research in Quality of Life*, 2(3), 145–163. doi:10.1007/s11482-007-9035-1
- Halme, M., Jasch, C., & Scharp, M. (2004). Sustainable homeservices? Toward household services that enhance ecological, social and economic sustainability. *Ecological Economics*, 51(1-2), 125–138. doi:10.1016/j.ecolecon.2004.04.007
- Masera, O., Astier, M., & López-Ridaura, S. (1999). Sustainability and natural resource management. The MESMIS Evaluation Framework.
- Mont, O. (2004). *Product-Service Systems: Panacea or Myth?*
- Omman, I. (2003). Product Service Systems and their Impacts on Sustainable Development. A multi-criteria evaluation for Austrian companies. *Frontiers*, 1–34.
- Vanclay, F. (2002). Conceptualising social impacts. *Environmental Impact Assessment Review*, 22(3), 183–211. doi:10.1016/S0195-9255(01)00105-6

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