

Assessment of sustainable innovations as a part of social responsibility

Maja Cergol Lipnik, MSc
University of Primorska, Slovenia
maja.lipnik@upr.si, www.upr.si

Aleš Lipnik, PhD
University of Primorska, Slovenia
ales.lipnik@upr.si, www.upr.si

Abstract

According to ISO 26000 (2010) in consideration of an organization one should assess environmental impacts before starting a new activity or project, and use the results of the assessment as a part of the decision-making process. This paper presents the multidimensional “Framework for Assessment and Management of Sustainable Innovation” (CASI-F), a specific tool for assessment of sustainable innovations. The idea of CASI-F tool is a common framework for assessing the advantages, disadvantages, relevance, benefits and risks of sustainable innovation, particularly social, environmental and economic dimensions, while taking into account general public concerns. Its multi-perspectives approach enables various usability in terms of four target groups: national and international policy makers and governance, business actors, researchers and academia, and civil society on different levels of implementation (strategy level, programming level and operational level). The paper is based on empirical research conducted within the project “Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation” (CASI) funded under the FP7 and implemented by the University of Primorska.

Keywords: sustainable innovation, social responsibility, assessment, management

1. Introduction

Interest in innovation and sustainability has become substantially bigger in recent years. As companies and nations have increasingly faced scrutiny to consider sustainable development in the light of social changes and environmental pressures, many have ratcheted up their innovation efforts in order to remain competitive and drive profitable growth (Waite 2013).

According to Nidumolu et al. (2009) sustainability is the mother lode of organizational and technological innovation that yield both bottom-line and top-line returns. There are several reasons why companies can benefit from acting in socially responsible and environmentally aware ways. Companies can achieve competitive advantage, build a strong corporate brand, and win the war for talent (Porter and Kramer, 2006; Bhattacharya et al., 2008; Hillestad et al., 2010).

On the other hand, according to core subjects of international standard ISO 26000 (2010), the environment plays a significant role in social responsibility of an organisation and suggests the assessment as part of the decision-making process. The CASI project developed a coherent methodology for the assessment of sustainable innovation practices, based on a sound conceptual framework and a shared stakeholders' understanding of sustainability in innovation.

The CASI project is implemented within the context of the Europe 2020 Strategy, which aims to achieve smart, sustainable, and inclusive growth. Within this strategy, sustainability was identified as a priority aspect of economic growth for the European Union. Sustainability has three major dimensions - social, economic, and environmental. Europe, along with the rest of the world, faces serious challenges on all three dimensions. While many of the challenges are global in scope, remedies in some cases may be specific for the European continent, or even for particular EU Member States. Since CASI has been developed in order to address the grand challenge "Climate action, environment, resource efficiency and raw materials", the project focuses on technological and social innovation aiming to improve the environmental sustainability of our economies, while at the same time considering the economic and social aspects of sustainability.

This work is divided into two parts. In the first part, the assessment of sustainable innovations based on two standards, the ISO 26000 standard for social responsibility and TS 16555 Innovation Management Standards is presented. The second part of the paper offers the description of the Framework for Assessment and Management of Sustainable Innovation (CASI-F); and a pilot assessment of SI cases is presented. The paper concludes with some reflections and conclusions derived from the experiences.

2. Assessment of sustainable innovations

At the moment widely accepted definition of sustainable innovation does not exist. In the terminology there exist many terms, which are closely connected to sustainable innovation like green or eco-innovation, also environmental innovation, with no clear distinction between them. Built on definition of innovation, the following definition of sustainable innovation is used: "Sustainable innovation is a firm's implementation of a new product, process, or practice, or modification of an existing product, process, or practice that significantly reduces the impact of the firm's activities on the natural environment." (Varadarajan, 2015).

Standardisation of the innovation process is somehow counterintuitive and in contradiction. Despite some argue, that innovation system cannot be standardised; there is a need for systematic innovation in order to successfully deal with more and more complex innovation processes (Karlsson, 2013).

In addition implementation of new standard i.e. quality management standards have significant impact not only on company internal processes, but also on overall level of innovation, as well as companies' competitive advantage level (Terlaak and King, 2006; Mangiarotti and Riillo, 2014; Blind and Thumm, 2004; Terziovski et al., 2003).

2.1 Iso 26000

International Organization for Standardization passed the standard ISO 26000 with the purpose to regulate the field of social responsibility. Standard ISO 26000 encourages organizations in public and private sectors, encourages commitment to social responsibility and is not intended for certification (Kaker, 2007, 75). ISO 26000 addresses seven basic topics of social responsibility: organizational governance, human rights, labour practices, environment, fair operating practices, consumer business issues, community involvement and development (ISO 2010, 19). All seven topics are related with the concepts of systems theory: holism and interdependence (Mulej and Lebe 2014, 2; Šarotar Žižek and Mulej 2013, 318).

When approaching and practising social responsibility, the overarching objective for an organization is to maximize its contribution to sustainable development (ISO 2010, 10) and to contribute as much as possible to social responsibility. The standard is based on seven core principles for social responsibility, which organizations should respect (ISO 2010, 10):

- Accountability,
- Transparency,
- Ethical behaviour,
- Respect for stakeholder interests,
- Respect for the rule of law,
- Respect for international norms of behaviour and
- Respect for human rights.

ISO 26000 (2010) recommends also the assessment of sustainable actions. According to the standard an organization should assess environmental impacts before starting a new activity or project and use the results of the assessment as part of its decision-making process.

2.2 CEN/TC 16555 Innovation management standard

CEN/TS 16555 present a new international standard for innovation management. Under this general title, the standard covers seven parts of innovation cycle, namely: innovation management system, strategic intelligence management, innovative thinking, intellectual property management, collaboration management, creativity management, and innovation management assessment. Standardisation of innovation process helps owners to commercialise the research and innovation findings. This was also recognised and supported by the European Commission in H2020 programme (CEN CENELEC, 2016).

The main purpose of innovation assessment is one's identification of growth drivers. Taking into consideration the specific position of each involved organisation, as well as its relation toward stakeholders, innovation assessment standard does not provide specific tools, but indicates possible impacts of innovation assessment. TC 16555 approach toward innovation assessment includes several steps of innovation assessment, beginning with establishing the

base line, which actually shows the current status of organisational innovation process. Lead needs for changes make the second step, in which the level of ambition is defined. Identification of gaps in innovation management process shows the priorities and urgencies of changes. Process continues with development and implementation of action plan, followed by follow up activities (CEN CENELEC, 2016). In general, this approach is followed also in CASI-F.

3. CASI-F TOOL

3.1 Framework for Assessment and Management of Sustainable Innovation

University of Primorska is a Slovenian partner in the research project “Public Participation in Developing a Common Framework for Assessment and Management of Sustainable Innovation” (CASI), which is an EU-funded research project under the FP7 Program. The aim of this project is to develop a methodological framework for assessing and managing sustainable innovation within the scope of climate action, environment, resource efficiency and raw materials (one of the grand societal challenges defined by the EU).

The CASI project enables the EU-wide cross-sectoral partnership on innovation-related challenges and considers not only the impacts of social and technological innovation, but also the types of actors involved and their inherent interests. It thus effectively integrates the perspectives of civil society, SMEs, industry, policy stakeholders and leading academics. This collaboration investigates the scope of sustainable innovation as a societal phenomenon and enables the elaboration of an assessment framework of sustainable innovation practices whose application can be successfully integrated into the public policy developments.

CASI is based on the understanding of innovation as a key driver of societal progress in the age of technology and of imminent uncertainties about the future. Sustainable innovation, on the other hand, further enhances this understanding by introducing sustainability as a focal core of the innovation process. At the same time, this is not an attempt to introduce yet another distinctive type of innovation. CASI fosters debate on conceptual dimensions, policy boundaries, and good practices combining innovative pursuits with sustainability objectives.

CASI explores the impacts of innovative practices as well as of specific technological and social innovations in relation to the persisting challenges of climate change adaptation and resource depletion, and the societal effects thereof. Thus, it makes a more thorough inquiry into the balance between the social, economic and environmental impacts of innovations, and will help humans determine the scope and priorities for national and EU policymaking (CASI, 2016).

Challenge

The key ambition of the project is to develop a coherent methodology for the assessment of sustainable innovation practices based on a sound conceptual framework and a stakeholders’ shared understanding of sustainability in innovation. It defined the context of sustainable

innovation as well as introduced sustainability as an objective of innovation diffusion through social and market opportunities.

CASI includes a rich and intensive set of activities carried out across the EU. Based on a carefully designed methodology, CASI wants to identify and describe sustainable innovation cases through a collaborative analytical process. More than 160 innovative practices from around the EU provide a rich qualitative perspective and serve as the basis for focused analysis, comparison and contrasting.

CASI provides rich opportunities and various venues for stakeholders to engage in focused debates on sustainable innovation – on the role of innovation for sustainability, enhancing the understanding of sustainability within the innovation context as well as on policy developments that ensure opportunities for continuing innovation in the context of sustainability.

Actions are planned to keep track of national and EU-level policy debates on innovation and sustainability. This effort supplements the mapping processes of innovation cases. It will further provide grounds for comparison between opportunities for innovation adoption and trends in policymaking as well as the balance between the two.

CASI emphasizes dialogue and participation, and relies on highly participatory methods of engagement when it comes to integrating citizens’ inputs. Based on such input and results from the CASI’s internal analyses, the EU-wide policy recommendations will be elaborated with the ambition to improve the integration of sustainability and innovation support actions into addressing the underlying issues embedded into the “Climate action, resource efficiency and raw materials” grand challenge (CASI, 2016).

Under the CASI project a complex and multidimensional “Framework for Assessment and Management of Sustainable Innovation” (CASI-F) has been developed. CASI-F assesses the opportunities, risks, drivers and barriers of sustainable innovation (SI), particularly the social, environmental and economic dimensions, to support sustainable innovation management decisions through actionable advice. The main target users of CASI-F are the sustainable innovation intermediaries, i.e. innovation agencies, technology transfer firms, industrial associations, some NGOs, civil society organisations (CSOs), regional programmes etc. The system is also open to individual firms, municipalities, NGOs, citizens etc. Systematic use of CASI-F helps them to attain a better structure and intelligence on sustainable innovation practices for various stakeholders and creation of according action plans.

Table 1: CASI-F matrix

SI evidence: [CASE STUDY NAME]	GOVERNANCE [government’s actions that support innovation or innovator’s initiatives in	BUSINESS (including Social Enterprises) [actions developed by the innovator or	CIVIL SOCIETY [any action, conversation, interaction targeting	RESEARCH & EDU [initiatives aiming to establish relationships with research
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	which government is involved]	by other competitors/ collaborators]	societal actors]	and education institutions]
LEVEL 1: Strategic actions [IDEA Sustainable demand Sustainable challenges Systematic change this is the strategy level the overall aim and objectives to address]	What Dilemmas encountered by the market/sector can be addressed? Policy addressed. Technology Economic Environmental Political Social Ethical	What barriers or factors for success have been identified? How can this be translated at vision or internally Mission/ strategic coherence	How is the civil society affected and how this could change or shape their vision?	How is the research/education/uni cooperating with businesses to improve/develop SI?
LEVEL 2: Tactical actions [INTERVENTION Concepts, methods, structures this is showing an action plan or list of actions]	How is this translated in terms of plan and feasible actions/tactics? Examples: Tools, financial incentive, tax break, grants, incentives, awards...	How can this be addressed and implemented at programming level? What need to be done to improve this? Capabilities, skills, education Mobilisation Financial capacity productiveness	How the civil society could be involved in this action and would improve the outcome? How to attract them and what is in it for them?	How is the Research/education/uni cooperation translated/initiated? Examples: funding, access to expertise, access to knowledge, access to laboratories...
LEVEL 3: Operational actions [IMPLEMENTATION Process barriers, cycles, role of stakeholders this is showing	What action can be actually implemented to start improving this issue?	What action can be actually implemented to start improving this issue?	What action can be actually implemented to start improving this issue?	What action can be actually implemented to start improving this issue?

the actual action to be carried out]				
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Using CASI-F

The CASI-F tool is focused on one of the H2020 Grand challenges focused on four themes: climate change, environment, resource efficiency and raw materials addressing it on two interactive ‘tracks’: SI Assessment and SI Management. Despite its primary focus on 28 EU member states, one is dealing also with some case studies from the rest of the world.

CASI-F works as a pan-European online platform, providing also resources and guidance on SI. CASI-F follows three basic components, dealing with innovations, policies and citizens’ visions. Resources for innovations derive from the 500+ mapped innovations from which 193 were selected and fully mapped. Policy aspect includes policy briefs on national and EU levels prepared during the life of the CASI project. Finally, it includes 50 participative citizens’ visions, prepared during public panels in 2015.

The ‘Actions’ are targeted on four different types of users: Governance, Business, Civil society, and Research and education. Each user plays different and sometimes multiple roles: innovator, enabler, sponsor, and/or beneficiary. Users are invited to give feedback on these actions, regarding the actions feasibility and importance. This user feedback bridges the gap between ‘assessment’ and ‘management’ – i.e. users provide assessments on the management of innovations and policies.

3.2 Pilot testing of sustainable innovation cases

One of the activities of the project has been the pilot testing of CASI-F with the purpose to (i) identify and then (ii) make adjustments and, if necessary, corrective changes to the CASI-F methodology. Cases have been selected according the following two main steps, which made the process coherent:

- (i) Innovation cases have been nominated by categorising as being social or technological, but also per availability of the innovators for the subsequent assessment steps. This was meant to guarantee both a good geographical spread and guarantee that the selected cases will have the support of the innovators/team for each case study. The cases were selected from the nominated cases by partners from a total nomination of partners of 77 Social cases and 57 Technology cases.
- (ii) The rating and the selection of cases was done by both teams following the process of selection considering:
 - Geographical spread,
 - Different types of innovation,
 - Different scales of innovation,

- At least one case being piloted with both social and technical innovation aspects.

After the results of analysing all the cases, 44 of them have been chosen for the final pilot testing: 23 social cases, 15 technological cases and 6 cases that are both technological and social. For a total of 44 pilots (N=44) the aim of the pilot tests were:

- (i) To verify the SI practice assessment, complement the information, and suggest further developments/improvements of the assessment pillar of CASI-F, considering the 3 dimensions of sustainability, as well as public engagement and Grand Challenge 5 “Climate action, environment, resource efficiency and raw materials”.
- (ii) To validate the eight critical issues of each SI case and present new ones, if such critical issues are identified by the innovators.
- (iii) To use the CASI-F matrix to discuss and present potential actions [according to (a) three levels of the actions – strategic, tactical and operational actions, (b) four selected stakeholder perspectives – government, business, civil society and research & education actors] in order to support the management of sustainable innovation versus the critical issues and the overall assessment of the SI practice.
- (iv) In cases of the integration of stakeholders in the pilots - to integrate a multi-stakeholder perspective.
- (v) End up the pilot with a matrix of possible actions (3 levels, 4 stakeholder perspectives) focused on SI management, validated and agreed by the innovator.
- (vi) To identify 2-4 points from CASI-F that they feel are the most important/feasible. Innovators were asked to score each action for its importance, feasibility and Social / Economic / Environmental impact (ranges from 1 to 5).

After the pilots, action plan were prepared for each SI case. The action plan was based on the corresponding matrix of actions, by elaborating the most relevant (from the innovator’s perspective) actions within a time horizon of 2-3 years.

4. Concluding insights

Assessment of sustainable innovation helps companies and organisations to fully exploit their innovation potential, by improvement of their performance. Sustainable innovation potential therefore cannot be something exceptional. Sustainable innovation, addressing H2020 Grand challenge Climate action, environment, resource efficiency and raw materials, is in direct connection with the corporate social responsibility.

CASI-F presented in this article is a tool for comprehensive assessment of SI on strategic, tactical and operational levels. It present a tool for creation of action plans in relation to widest groups of stakeholders (government/administration, business, R&D, general public). CASI-F assesses SI with comprehensive resources (innovations/policies/visions) with use of double (action and management) track approach. CASI-F follows the recommendation of CEN/TC16555 Innovation management standard and indirectly addresses the ISO 26000

standard which recommends the assessment of sustainable actions. Widely used CASI-F has potential to become an important tool for companies.

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