Guidelines for the evaluation of collaborative student-business venturing activities

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PROPOSAL FOR CITATION

THE SCALEUP4SUSTAINABILITY-PROJECT

The Erasmus+ Project "ScaleUp4Sustainability: Innovative Programmes for Student-Business Collaboration in Green Venturing (S4S)"[1] develops new, innovative approaches and tools for teaching and learning sustainable entrepreneurship and collaborative Green Venturing with universities and business partners in Germany, Sweden and the Netherlands. These forms of collaborative Green Venturing are embedded in bachelor and master programmes of Higher Education Institutions and are organized and coached by professors and teaching staff. Collaborative Green Venturing represents an innovative form of multidisciplinary, real problem-based interactive learning and entrepreneurship education. The S4S-project has developed a new approach for the evaluation of collaborative student-business venturing activities. In this guideline the main steps are summarised.

TARGET GROUP: WHO IS THE MANUAL AIMED AT?

Teaching staff and company managers, responsible for the design, planning and implementation of collaborative student-business venturing activities.

OBJECTIVES: WHAT IS THE PURPOSE OF THE MANUAL?

This manual supports formative evaluations/assessments of a specific type of teaching and learning which is focused on the collaboration of students and business partners in developing sustainable business ideas.

There is a clear need to upscale approaches of university support for sustainable entrepreneurship and to introduce and diffuse new forms of student-business collaboration in developing and implementing environmental innovations and starting new green businesses. We refer to this activity as „Green Venturing". Venturing is an integral element of entrepreneurship and emphasizes the creation of new business within an organization (new products or business units) or outside an organization (spin-offs, start-ups). With "green" we refer to the concept of a Green Economy[2] and the notion of a triple bottom line, which seeks to generate economic benefits with products, services and processes that are beneficial for society and the natural environment.

The objectives of this manual are:

- It helps to make the costs and benefits as well as the outputs, outcomes and impacts of student-business collaboration schemes transparent

- It supports the identification of strengths and weaknesses of existing teaching and learning schemes in this field

- It provides insights and data for the improvement of existing schemes and modules in sustainable entrepreneurship and green venturing

- It stimulates innovative new learning units, modules or programmes in sustainable entrepreneurship and collaborative student-business venturing

CONCEPTUAL FRAMEWORK AND KPIs: HOW CAN THE EVALUATION BE FRAMED?

The evaluation investigates how collaborative venturing between students and businesses and the different forms of knowledge spill-overs they create can foster sustainable entrepreneurship that impacts sustainable (regional) development. Given the key role of universities, which are often non-profit organizations, and the emphasis on ultimate impacts, the evaluation can be based on the theory of change which

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1 Project Number 601150-EPP-1-2018-1-DE-EPPKA2-KA / Duration 01.11.2018-31.10.2021: See https://www.scaleup4sustainability.eu (Accessed on 25 May 2020).
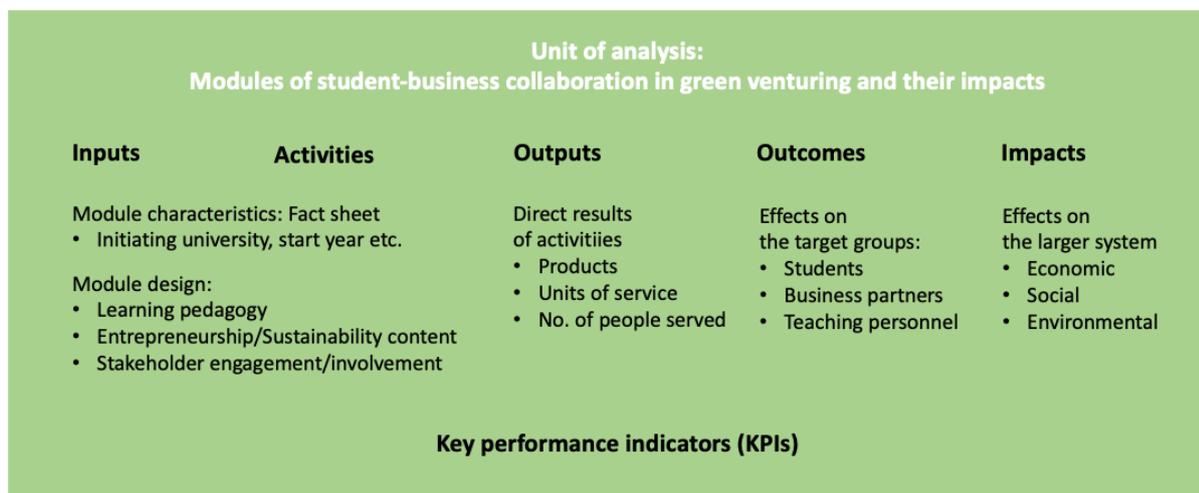
2 See https://ec.europa.eu/environment/basics/green-economy/index_en.htm (Accessed on 25 May 2020).

serves a prominent programme evaluation role in the non-profit sector (Carman, 2010; Funnel & Rogers, 2011). The theory of change draws on defining linear cause and effect chains from programme implementation to societal impact (McLaughlin & Jordan, 1999). It assumes a linear causality between inputs, activities, (immediate) outputs, outcomes and impacts. Although this linear causality is rather a simplification of reality, it helps to reach the objectives of the programme evaluation:

- Input: What resources are dedicated to a particular teaching programme or module (workload of teaching personnel, students, business partners, time, equipment, funding etc.)?

- Activities: The thing the module does with the inputs and resources provided. The activities can be considered interventions that are aimed at bringing intended change.

- Outputs: Direct products of the activities in the module, often expressed in terms of units of service or number of people served.

- Outcomes: Positive and negative effects on target groups (students, business partners, teaching personnel) caused by the activities and outputs, direct change in knowledge, attitude, values or behaviours.

- Impacts: They describe the contribution that the outcomes have beyond the target group, in the larger system, e.g. on the market, on society and, on the environment. Impacts can be positive and negative, intended and unintended. For example, on the impact level environmental benefits like the reduction in greenhouse gas emissions resulting from an environmentally friendly product or service of a new green venture which has participated in a collaborative student-business venturing exercise are measured. Next to environmental indicators also economic indicators (e.g. jobs created in a specific region) or social indicators (e.g. solved problems of customers) should be considered in regard to the impact dimension. The effects on the impact level can be seen as a result of the improved performance of a company that has participated in a collaborative green venturing exercise.

Figure 1: Conceptual framework for the evaluation of collaborative student-business venturing

Unit of analysis:
Modules of student-business collaboration in green venturing and their impacts

| Inputs | Activities | Outputs | Outcomes | Impacts |

Module characteristics: Fact sheet
- Initiating university, start year etc.

Module design:
- Learning pedagogy
- Entrepreneurship/Sustainability content
- Stakeholder engagement/involvement

Direct results
of activitiies
- Products
- Units of service
- No. of people served

Effects on
the target groups:
- Students
- Business partners
- Teaching personnel

Effects on
the larger system
- Economic
- Social
- Environmental

Key performance indicators (KPIs)

GUIDING EVALUATION QUESTIONS

- What are the interests and motivations of participants (teaching personnel, students, business partners) and other stakeholders (e.g. central staff of the university)?

- Who have been the key persons/promoters in setting up and implementing the module?

- What have been the success factors, drivers and barriers for the implementation of the module?

- Are there any unique elements in the design and implementation of the module?

- What are the strengths and weaknesses of the module?

- Is there a need for improving and expanding existing modules or programmes?

- To what extend are the modules scalable and transferable to other programmes and units of the university, to other HEIs and regions?

- What are the outputs, outcomes and impacts of the modules, how effective are they?

KEY PERFORMANCE INDICATORS: HOW TO MEASURE THE EFFECTIVENESS OF A MODULE?

Key performance indicators (KPIs) are helpful to assess, measure and manage teaching programmes and single modules. Therefore, the evaluation should use selected KPIs to assess existing modules of student-business-collaboration. It seems useful to cluster the KPIs according to the theory of change alongside the effect chains from programme implementation to impacts on the larger system.

The development of useful KPIs is an iterative process. You should start with defining some selected KPIs prior to the first investigation. The first evaluation generates insights on the usefulness of selected KPIs and on the need to use additional KPIs. Table 1 displays examples of KPIs that can potentially be used in the evaluation.

You should be aware of the fact that reliable data for KPIs on outcomes and impacts is hard to obtain. Nevertheless, you should explore to what extent data are available and how they can be related to the activities and outputs of collaborative green venturing. It is likely that you cannot measure outcomes and impacts precisely, but you should try to assess the linkage between activities and outputs on the one hand and outcomes and impacts on the other hand by using ordinal scales, e.g. from "no contribution" to "very high contribution".

Table 1: Examples of KPIs, which can be used in the evaluation of collaborative green venturing

Input	Activities	Output (direct results of activities)	Outcomes (effects on target groups)	Impact (effects on the larger system)
▪ Teaching personnel: Total workload for preparing, implementing and follow-up of the module (in hours) ▪ Students: Actual workload/working hours in relation to the credits points of the entire module ▪ Business partners: Total workload for preparing and implementing the module	▪ Total no. of teaching personnel and number of universities/professorships involved ▪ Total no. of participating students (incl. background and education level) ▪ Total no. of business partners involved (possible characterizations: age, size of companies FTE, sales, branches) ▪ No./ percentage of (sustainable-oriented) methods and tools used for collaborative green venturing ▪ Number of used (green) tools and methods for green venturing ▪ Number of direct interactions student-business/ use of collaboration tools	▪ Degree of satisfaction of students, business partners, teaching personnel ▪ Degree of improvement of entrepreneurship / sustainability competencies ▪ Increase of entrepreneurial spirit by students ▪ Increase in interest to start a green business (in the long run) ▪ Number of significantly improved green business ideas or elaborated business models	▪ President, deans, no. of professors who rate the module as "very important" for the university ▪ No. of business partners with significantly improved performance (after 1, 2, 3 years) ▪ No. / percentage of venture ideas still persued or on the market ▪ No. / percentage of students or business partners who rate the module to be important for their career/ their business ▪ No. / percentage of students who have an increased level of interest in innovation and/or entrepreneurship and/or sustainability ▪ No. / percentage of students who work in a green venture / started their own green business ▪ No. / percentage of students who started their own (green) business ▪ No. / percentage of teaching personnel who is highly motivated and interested in collaborative green venturing	Economic ▪ No. of jobs created by business partners 1, 2 or 3 years after the module Social ▪ Number of significant contributions to social SDGs ▪ Number of people served Environmental ▪ Reduction in greenhouse gas emissions by sold green products/ services ▪ Number of significant contributions to environmental SDGs

LEVEL AND SCOPE OF EVALUATION: HOW TO USE THE MANUAL EFFECTIVELY?

It is important to clarify the purpose and context of the evaluation first. Basically, three levels and scopes of evaluating a module of collaborative student-business venturing can be distinguished:

▪ *Focal picture (Lean evaluation)*: The evaluation is focused on students and selected business partners and is limited to selected Output KPIs and selected Outcomes KPIs. This lean-type evaluation is useful each time the module is conducted. It supports continuous improvement.

▪ *Larger picture (Medium evaluation)*: The evaluation comprises all groups directly involved in the module (students, business partners, teaching personnel) and uses Input, Output and Outcomes KPIs. This

type of evaluation is useful for medium-term revisions of the module (e.g. every three years) and helps to identify strengths and weaknesses and module efficiency.

- *Full picture (Extensive evaluation)*: The evaluation comprises all groups directly involved in the module (students, business partners, teaching personnel) as well as relevant stakeholders (e.g. head of educational programmes, transfer offices, top-management of involved business partners). It comprises Input, Output, Outcomes as well as Impact KPIs. This type of extensive evaluation is useful for a fundamental revision of a module or programme, e.g. for the preparation of re-accreditation or strategic discussions for the redesign of existing or the development of new modules and programmes.

PROCEDURE: WHICH STEPS TO GO?

(1) Decide on the level and the key purpose of the evaluation

(2) Collect key facts: Update or revise the fact sheet /syllabus

(3) Collect data on KPIs:

Lean evaluation: Investigate outputs and outcomes using selected KPIs, surveys and feedback exercises

Medium evaluation: Additionally, investigate inputs and efficiency of the module

Extensive evaluation: Additionally, other relevant stakeholders and collect data on impacts

(4) Assess strengths and weaknesses and need for improvement and redesign

(5) Develop measures for improvement

(6) Implement improvement measures and/or fundamentally redesign the module/programme

TOOLS FOR EVALUATION: WHICH TOOLS AND METHODOLOGIES ARE HELPFUL AND AVAILABLE?

The methodologies and tools for evaluation were developed and tested in the S4S project. An evaluation toolkit and a report on the evaluation of leading approaches and tools in collaborative Green Venturing are available on the S4S project website: https://www.scaleup4sustainability.eu.

Table 2: Tools for evaluation of modules for student-business collaboration

Level and scope of evaluation	Scope: Actors involved	Effects covered	Fact sheet	Survey	Competence Progress Assessment	Interviews
Focal picture	Students and selected business partners	Outputs, selected Outcomes	Produced or updated	Evaluation questionnaire for students		
Larger picture	All groups directly involved (students, teaching staff, business partner staff)	Input, Output, Outcomes	Produced or updated	Evaluation questionnaire for students and business staff	Questionnaire „Sustainable Entrepreneurial Competencies"	
Full picture	All groups directly involved (students, teaching staff, business partner	Input, Output, Outcomes,	Produced or updated	Evaluation questionnaire for students	Questionnaire „Sustainable	Interviews with selected students, business partners,

	staff), plus relevant stakeholders	Impacts		and business partners	Entrepreneur-ial Competen-cies"	teaching staff and stakeholder
Available tools			Fact sheet template	Template "Modul evalua-tion question-naire for stu-dents"	Template for Questionnaire „Sustainable Entrepreneur-ial Competen-cies"	Interview guidelines for students, teach-ing personnel, busi-ness partners Code list for coding student interviews, lecturer interviews and business part-ner interviews

SOURCES OF AVAILABLE EVALUATION TOOLS

Evaluation toolkit	Source
Fact sheet template	https://www.scaleup4sustainability.eu/toolkit/
Questionnaire „Sustainable Entrepreneurial Competencies"	https://www.scaleup4sustainability.eu/toolkit/
Interview guidelines for students	https://www.scaleup4sustainability.eu/toolkit/
Interview guidelines for teaching personnel	https://www.scaleup4sustainability.eu/toolkit/
Interview guidelines for business partners	https://www.scaleup4sustainability.eu/toolkit/
Code list for coding student interviews	https://www.scaleup4sustainability.eu/toolkit/
Code list for coding lecturer interviews	https://www.scaleup4sustainability.eu/toolkit/
Code list for coding business partner interviews	https://www.scaleup4sustainability.eu/toolkit/
Modul evaluation questionnaire for students	https://www.scaleup4sustainability.eu/toolkit/
Data base of methods and tools for collaborative green venturing	https://www.scaleup4sustainability.eu/toolkit/

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