

Outcome Specification:

Digital Sustainability Canvas (DSC)

Within the Erasmus+ Knowledge Alliance ProDiT – Projects for the Digital Transformation

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ProDiT
Projects for the Digital Transformation

1. Summary

Digital transformation can cause sustainability impacts that are important to assess and understand. This, especially before undertaking a digital transformation endeavour to allow the possibility of reducing the negative impacts to the economy, society, and ecology, and maximize the positive effects.

Overall Goal: The digital transformation (DT) is conducted with the goal to develop a new product or service, make a process more efficient, establish a new business model, or to develop an organisation to another level of maturity. The outcome of the project is therefore very relevant for planning a DT project and the outcome is intended to cause an impact. It also can cause a lot of side effects or non-intended impacts. Assessing and determining the impact of a DT project (e.g. with respect to people, planet and profit) is therefore a core issue in sustainable project management. A sustainability canvas helps to reflect on sustainability in a comprehensive way, looking at it from all viewpoints. Hence, the goal is to develop a Digital Sustainability Canvas (DSC) for the planning and assessment of DT projects.

Purpose and Requirement Analysis: The Digital Sustainability Canvas (DSC) is used for:

- Analysing the sustainability of a DT project from different viewpoints
- Support the definition of DT projects with a positive impact
- Controlling DT projects and steering the towards the intended outcome and impact
- Supporting the consideration of sustainability aspects (e.g. the impact on people, planet, profit) in the digital transformation
- Visualizing the sustainability analysis of DT projects in a standardized way

Current State-of-the-Art: Canvas models are intensively researched and used, there is a huge variety of approaches and models. Sustainable project management used canvas models already. Nevertheless, the sustainable digital transformation is not in the focus.

Problem Statement: Existing canvas models do not sufficiently support the analysis of the digital transformation making them unsuitable for sustainably managing DT projects.

Research Plan: Key research questions are: How do we keep the impact of the transformation in mind? How do we guarantee sustainability?

Dissemination & Standardisation: Results are planned to be disseminated and standardized with the IEEE and IPMA.

Quality Evaluation: t.b.d.

Change History & Ownership:

Release V1.0: Initial version of the specification of the CMDT, OpenCoP on Sustainable Digital Transformation, 09.09.2022

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2. Introduction to the Digital Sustainability Canvas (DSC)

The Digital Sustainability Canvas (DSC) is a visual framework and a guideline for the analysis of the sustainability aspects for a digital transformation projects under various viewpoints, e.g:

- Impact of the DT projects, especially on people, planet and profit (PPP)
- Determination of the effect of project factors on sustainability and intended effect
- Assessment and controlling of DT projects under sustainability aspects
- Communicating and visualizing the sustainability aspects in a graphical canvas model
- Leading to a more sustainable digital transformation

For so, it is needed to have a tool for the identification of those sustainability impacts. There are a series of tools already available for the assessment of business models and projects such as:

- Business Model Canvas from Osterwalder and Pigneur
- Triple Layered Business Model Canvas from Joyce and Paquin
- Sustainable Project Management Canvas from Schipper and Silvius
- The Digital Canvas from Schlimbach and Asghari
- Sustainable Business Model Canvas from Gerlach
- Digital Products Ethics Canvas from Gerlach.

The main research topics in this context are:

- Literature review on existing canvas models with the goal to develop an overview
- Literature review on sustainability aspects regarding digital transformation and DT projects
- Concept for a Digital Sustainability Canvas (DSC)
- Concept for a sustainability planning and controlling, e.g. using result-oriented monitoring (RoM) and cause-and-effect-networks like the IOOI system
- Concept for a holistic approach for sustainable DT projects and sustainable digital transformation, using the DSC and the controlling tools
- Validation of the concepts in the use cases of DT projects and digital transformation of products, services, organisations and business models
- Validation of the concepts in consulting

3. Description of the planned research

3.1 Overall Goal

The digital transformation (DT) is conducted with the goal to develop a new product or service, make a process more efficient, establish a new business model, or to develop an organisation to another level of maturity. The outcome of the project is therefore very relevant for planning a DT project and the outcome is intended to cause an impact. It also can cause a lot of side effects or non-intended impacts. Assessing and determining the impact of a DT project (e.g. with respect to people, planet and profit) is therefore a core issue in sustainable project management. A sustainability canvas helps to reflect on sustainability in a comprehensive way, looking at it from all viewpoints. Hence, the goal is to develop a Digital Sustainability Canvas (DSC) for the planning and assessment of DT projects.

3.2 Purpose and Requirement Analysis

The research about projects for the digital transformation covers different views on the topic, especially the project view, the people view, the organisational view, and the impact view. The research on the Digital Sustainability Canvas (DSC) is a relevant part of the impact view, addressing two research questions: How do we keep the impact of the transformation in mind? How do we guarantee sustainability?

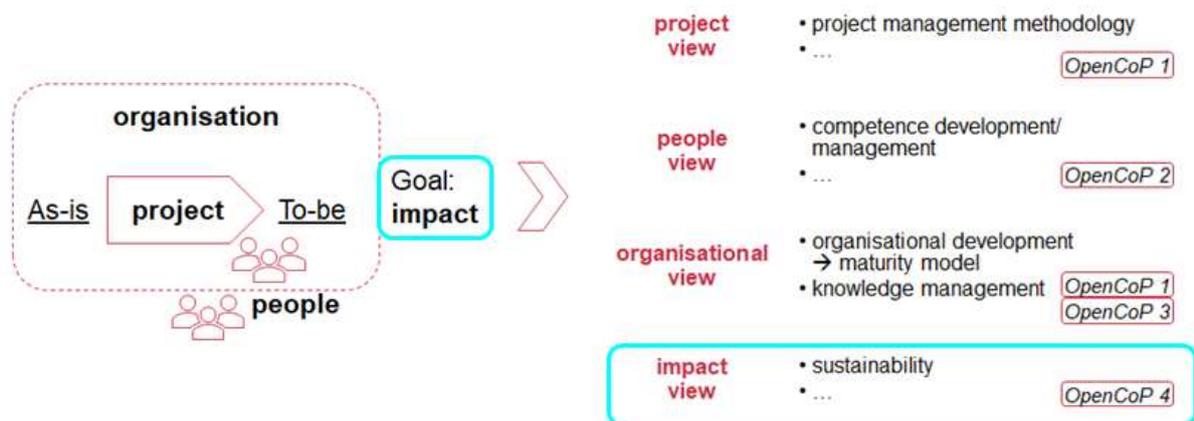


Figure 1: Impact (goal) focus of the research on managing the digital transformation with projects

The Digital Sustainability Canvas (DSC) is a visual framework and a guideline for the analysis of the sustainability aspects for a digital transformation projects under various viewpoints, e.g:

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3.3 Current State-of-the-Art

[1] provide a literature review and impact analysis of sustainability in project management and conclude with three shifts that characterise the integration of sustainability and project management. [2] present a maturity model that assesses the level of consideration of sustainability in projects, and the same authors present a sustainable PM canvas to help PM practitioners to develop a sustainability management plan [3]. [4] propose a design tool, that structures sustainability issues in business model innovation by adding environmental and social layers based on a lifecycle and stakeholder perspectives, respectively. [5] present a model to support the design and assessment of business models with a sustainable perspective, as well as authors propose an evaluation method to assess the model.

[6] identify the disruptions driven by DT in the environmental sustainability domain, and present a framework focusing on transformations in pollution control, waste management, sustainable production, and urban sustainability; authors also propose different research agenda points, including those on DT strategy and environmental sustainability.

The concept of sustainable development was first introduced in 1987 by the World Commission on Environment and Development in their report named Our Common Future commonly known as the Brundtland Report [7]. There, the World Commission on Environment and Development defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [8]. So, being a topic spoken of since 1987, sustainable development is not an emerging subject but one that remains relevant until today. Furthermore, [8] mention that it is imperative when taking a decision, to consider how the present actions will affect the economy, society, and environment, not only today but also in the future, and the effects this might cause in the surroundings. The aforementioned economy, society, and environment constitute the three pillars of sustainable development [8].

Digital Transformation

Organizations are going through a digital transformation process by transitioning towards new business models in which emerging technologies play a key role [10]. For [11] digital transformation is “sustainable, company-level transformation via revised or newly created business operations and business models achieved through value-added digitization initiatives, ultimately resulting in improved profitability”. In addition, [11] consider that the implemented technologies must not only create added value for the organization but also for the involved stakeholders.

There are five main challenges to overcome when performing transformation projects [12]:

- organisational resistance to change
- lack of a clear vision for a digital customer journey
- ineffective gathering and leveraging of customer data
- inflexible technology stack and development processes

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- real success in digital is rarely about providing the exact same products and services through a digital pipe

Taking this into account, it is important to consider the theory of change management when undertaking a digital transformation project.

Digital Transformation and Sustainability

Digital transformation can cause sustainability impacts that are important to assess and understand. This, especially before undertaking a digital transformation endeavour to allow the possibility of reducing the negative impacts to the economy, society, and ecology, and maximize the positive effects. For so, it is needed to have a tool for the identification of those sustainability impacts. There are a series of tools already available for the assessment of business models and projects such as:

- Business Model Canvas from Osterwalder and Pigneur
- Triple Layered Business Model Canvas from Joyce and Paquin
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3.4 Problem Statement

Nevertheless, none of the previously mentioned tools were made for the specific purpose of assessing digital transformation projects from a sustainable development perspective. Ergo, as part of ProDiT a suitable tool must be developed, being the "Digital Sustainability Canvas". The main objective of the DSC is to provide an understanding of how the organization creates and delivers value through a DT project and to create consciousness of the sustainability impacts that entail with them.

3.5 Research Plan

A) Research Questions and Hypotheses

Form the overall project goal, the following research questions are derived:

- How do we keep the **impact** of the transformation in mind?
- How do we **guarantee** sustainability?

The Digital Sustainability Canvas (DSC) should support:

- Analysing the sustainability of a DT project from different viewpoints
- Support the definition of DT projects with a positive impact
- Controlling DT projects and steering the towards the intended outcome and impact
- Supporting the consideration of sustainability aspects (e.g. the impact on people, planet, profit) in the digital transformation

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- Visualizing the sustainability analysis of DT projects in a standardized way

B) Research Methods

The following research methods are applied:

- Systematic Literature Reviews
- 8-step approach for conducting a systematic literature review adopted from (Okoli & Schabram, 2010)
- Delphi method
- (semi-) structured interviews
- Analysis of case studies
- Surveys
- Experiments

C) Research Plan

t.b.d.

3.6 Additional Considerations

t.b.d.

3.7 Dissemination & Standardisation

Results are planned to be disseminated and standardized with the IEEE and IPMA, e.g.:

- IEEE ETEMS conference series
- IPMA World Congress
- AIEPRO (IPMA) conference series

3.8 Quality Assurance - Evaluation

Quality Assurance and Evaluation are done via the following mechanisms:

- Quality surveys among participants
- Review and release of results via Internal Evaluation Board (IEB)
- Publication in peer-reviewed conferences and journals
- Test in selected case studies

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