

FRAMEWORK | VALUE CHAIN

Living Lab Concretely Circular

Toni Kuhlmann

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1 INTRODUCTION

This framework focuses on the assessment of the value chains of urban waste streams. The understanding of the value chain of waste streams enables the generation of new valorisation schemes. This allows for the reuse of these urban waste streams in the construction sector. Thereby, the footprint of the construction and demolition sector is decreased the transition towards a circular economy is facilitated. This document presents the guidelines that aid the assessment of a value chain. The overall goal of such an assessment is to predict the most optimal waste-to-product solution based on the assessed value chain. This is done through an analysis of the potential new value chains.

Stage	A	B	C	D
<i>Material</i>				
<i>Weight/Volume</i>				
<i>Geolocation</i>				
<i>Quality</i>				
<i>Composition</i>				
<i>Availability</i>				
Step 2 Stakeholder				
Step 3 Waste activity				
Step 4 Value creation				
Step 5 Interest				

Table 1. Value chain assessment

1.1 DEFINITIONS

Steps: The steps that are used to analyse the value chain.

Stakeholders: Actors that are directly related to the waste stream.

Stages: The different stages of the value chain (from A to B to C to D).

A: Waste production

B: Waste to resource processing

C: Resource use

D: Product use

Material flow: The material flow consists of several properties, which include the material, geolocation, amount, quality, composition and availability.

Value chain: Value chains describe how value is created along material flows, taking into account the interplay of the actors and their stakes, the economic value of the material, activities that take place as well as broader socio-economic and environmental factors.

2 VALUE CHAIN ASSESSMENT

STEP 1 - ANALYSE THE MATERIAL FLOW

For describing a value chain, it is essential to fully understand the material flow. A full understanding of the material flow can be obtained through assessing the following dimensions of the flow: *material, weight/volume, geolocation, quality, composition* and *availability*.

STEP 2 - DETERMINE THE STAKEHOLDER (AND THEIR CATEGORIES)

The material flow analysis of task 3.1, with the addition made in step one of this framework, has identified material flows. Based on this analysis stakeholders can be identified and mapped along these material flows (some of which are already included in task 3.1). This provides information about the stakeholders related to the material flows. Additionally, these stakeholders can be categorised (e.g. municipal government, waste processor, etc.).

There are several ways to find out which stakeholders are present in the value chain, namely

- Ask stakeholders or industry, product or logistics experts
- Ask stakeholders for transparency about their partners and activities

STEP 3 - IDENTIFY WASTE RELATED ACTIVITIES

In this step the activities that are related to the material flow (of waste) are identified. The focus lies on the main value creating activities that take place. Furthermore, the analysis of the links between these value creating activities is identified. This adds clarity later in the process on how to increase the competitive advantage of the value chain.

There are two important aspects of completing this step.

1. Identify activities that create value
2. Establish links between value creating activities

STEP 4 - ANALYSE THE VALUE CREATION

This step further assesses the value creating activities. It analyses the value creating activities in terms of the amount of money that is earned by whom and where in the process it is earned.

There are several ways to find out how value is created, namely

1. Identify how much value is created
2. Understand who creates the value
3. Assess in what stage of the process is value created

STEP 5 - SYNTHESISE STAKEHOLDER INTERESTS

The information collected in previous steps about the stakeholder and the value creating activities is synthesised in this step, in order to gain an understanding of the interest of the stakeholders.

This step is completed by combining the information attained until this point and possibly supplementing it if information is insufficient to sketch a complete picture of the interest of a certain stakeholder. This step yields an overview of the stakeholder interests.

STEP 6 - ANALYSE SOCIO-ECONOMIC AND ENVIRONMENTAL CONTEXT

This step is concerned with the socio-economic and environmental context in which the value chain exists. The PESTLE analysis will generate information about the context in which the waste stream is embedded. This yields location specific challenges. Knowledge of the context is highly relevant to understand a value chain, especially in terms of risk or to explain how certain players might behave or choose to interact.

Key considerations include

- Countries and geographies involved
- Cultural differences
- Prevailing political and economic climates
- End customer changing needs and aspirations
- Environmental considerations

The analysis of the socio-economic and environmental context is accomplished by using the PESTLE analysis. This analysis consists of the following dimensions: political, economic, sociological, technological, legal and environmental. Through the analysis of these dimensions forces, drivers, trends or prevailing conditions that can impact the value chain are considered.

Execute the PESTLE analysis by listing all risks and opportunities relevant to the value chain under each heading. When executing a PESTLE analysis, it is essential that the factors affecting the value chain are not merely identified but are also assessed – for example, what impact might they have on the waste industry?

The outcome of the model should be a description of each dimension (Political, economic, sociological, technological, legal and environmental). The outcomes of this analysis should be assessed to find out what their impact is on the waste industry.

3 POTENTIAL NEW VALUE CHAINS

STEP 1 - IDENTIFY POTENTIAL IMPACT POINTS

The insights gained from value chains generated for the chosen waste streams are used to determine potential impact points for valorising these waste streams into SRM.

In this step the Value Chain Table is used to determine the potential impact points by analysing the interrelations between the various stages and dimensions of the value chain.

A highlight of all the potential impact points for creating a new value chain is the outcome of this step.

STEP 2 - IDENTIFY END MARKET

It is crucial to understand which of the market segments are growing or have growth potential. This implies on what needs to be done in terms of interventions. These markets could act as potential end market for the SRM value chain. Therefore, in this the market(s) on which the SRM can be sold are identified.

The outcome of this step should be an oversight of the different potential new markets for SRM and the residual waste.

STEP 3 - GENERATE CONCEPT OF NEW VALUE CHAIN

With the help of the results of the previous steps new value chain can be created by going through steps described in this guideline. The previous analysis and related insights aid the generation of a new value chain. The deliverable of this step is a new value chain that valorises the analysed waste stream(s) into SRM.

STEP 4 - SWOT ANALYSIS

The SWOT analysis is a simple but useful framework for analysing the value chains strengths and weaknesses, and the opportunities and threats that it faces. It helps to focus on the strengths, minimise threats, and take the greatest possible advantage of opportunities available. In this context, the SWOT analysis is seen a tool to optimise the existing value chain.

During the strengths and weaknesses analysis the internal elements are discussed. With the help of the previous value chain analyses we can fill in the different strengths and weaknesses. The focus of the strengths and weaknesses should be on why an actor or process in the supply chain is a strength or a weakness. During the opportunities and threats analysis the external elements are discussed. With the help of the PESTLE analysis the opportunities and threats can be filled in.

This analysis gives the opportunity to address the different issues between the internal and external elements in order to improve the new value chain. The final conclusion focuses on how current value chains can be transformed and what the potential new value chains are.