

CGR The Value Gap | Sweden (2025)

C:G:R

The Value Gap

Assessing the value
lost in the Swedish
linear economy

 **CIRCLE
ECONOMY**

Behind the cover

The aerial view of Malmö, with the Turning Torso overlooking its parks and canals, captures a city known for design, innovation, and sustainable thinking. This image reflects Sweden's broader commitment to circular solutions—where growth, creativity, and environmental care go hand in hand.



Circle Economy is driving the transition to a new economy. In this economy we help businesses, cities and nations leverage business opportunities, reduce costs, create jobs and inspire behavioural change. As a global impact organisation, our international team equips business leaders and policymakers with the insights, strategies, and tools to turn circular ambition into action.

Circle Economy has been at the forefront of the circular economy transition since 2012. Our annual *Circularity Gap Report* sets the standard for measuring progress and we manage the world's largest circularity database, encompassing data from over 90 nations, 350 cities, and 1,000 businesses.



RISE is Sweden's research institute and innovation partner. Through its international collaboration programmes with industry, academia and the public sector, it ensures the competitiveness of the Swedish business community on an international level and contributes to a sustainable society. Its 3,300 employees engage in and support all types of innovation processes. RISE is an independent, State-owned research institute, which offers unique expertise and over 100 testbeds and demonstration environments for future-proof technologies, products and services.



RE:Source is one of 17 strategic Swedish innovation programmes. The programme is funded by the Swedish Energy agency, the innovation agency: Vinnova, and the agency for research: Formas. RE:Source supports research and innovation leading to the sustainable use of materials and, since its launch 2016, the programme has funded close to 300 different projects. The *CGR The Value Gap: Sweden* is initiated and funded by RE:Source.

Table *of contents*

Executive summary	5
1 Introduction Rethinking value in a circular economy	8
2 Sizing the value gap Measuring value creation and losses	11
3 The value gap by sector Assessing value loss and recovery across six key sectors	17
4 The way forward Conclusions and call to action	31
Endnotes	36
Acknowledgements	37

Executive summary

The Circularity Gap Report (CGR®) The Value Gap: Sweden explores the links between circularity and economic value, offering a new perspective on how linear practices lead to economic inefficiencies. As the first study of its kind, it makes three major contributions: a quantification of Sweden's 'Value Gap', a methodology that can be further developed, and recommendations for advancing circularity through research, policy, and business action. Building on the global and national CGR legacy of mapping material flows, this report expands the frame to ask a critical question: What is the economic value of the materials we use, the products we consume, and the systems we build—and where is value lost or not created?

Sweden's Value Gap stands at 19%, revealing that nearly one-fifth of potential economic value is lost due to linear practices. This translates to almost SEK 600 billion annually (equivalent to 57% of the national state budget) across six sectors where economic value that could be created is either never realised or prematurely lost. The findings highlight a systemic issue: current economic models leave substantial value untapped. Closing this gap presents a powerful opportunity to strengthen Sweden's circularity, enhance economic resilience, and better meet societal needs.

The misalignment between material intensity and economic value creation remains a central barrier to circular progress. Value creation tends to occur downstream—closer to consumers and less material-intensive activities—while upstream stages such as extraction and manufacturing remain resource-heavy and generate lower economic value. Our findings reflect this pattern: the Mining & Extraction sector shows relatively small value losses, whereas sectors like Construction and Consumables experience much higher losses. This imbalance underscores the need to redesign systems that currently depend on high material throughput for relatively low value gains.

Preventing premature disposal and overconsumption represent Sweden's greatest opportunities for value retention. Each year, goods worth an estimated SEK 420 billion unnecessarily reach end-of-life without being reused, refurbished, or repaired, resulting in major economic losses and wasted resources such as materials, energy, labour, and infrastructure. In addition,

overconsumption—spending that exceeds actual needs or offers minimal benefit—amounts to SEK 200 billion annually. Tackling these losses through circular design, business model innovation, and behavioural change could significantly improve resource efficiency while meeting societal needs more sustainably.

Understanding where and how value is lost remains difficult due to limited data on material flows and circular activities. The complexity of the analysis and lack of consistent national statistics required carefully scoped assumptions, supported by expert validation. Improved data collection, better circular economy metrics, and enhanced methodological rigor are therefore essential for future analyses and policy design.

The findings point to four strategic actions to close Sweden's Value Gap:

- 1. Leverage data to inform circular solutions** by standardising definitions, improving statistics, and supporting further methodological research.
- 2. Expand value definitions and correct market failures** through policies that recognise environmental and social value, such as repair subsidies, tax incentives for reuse, and circular procurement rules.
- 3. Foster cross-sectoral collaboration** to scale circular business models like product-as-a-service, reuse platforms, and industrial symbiosis, supported by research on data- and value-sharing mechanisms.
- 4. Promote need-based consumption** by embedding sufficiency and circularity into education, culture, and regulation, while making reuse, repair, and sharing more attractive through incentives and campaigns.

By reframing how value is defined, created, and retained, Sweden can transform its linear economy into one that is circular, competitive, and resilient—capturing lost value while advancing environmental and societal goals.

Sammanfattning

The Circularity Gap Report (CGR®) Värdegapet: Sverige utforskar sambanden mellan cirkularitet och ekonomiskt värde, och erbjuder ett nytt perspektiv på hur linjära metoder leder till ineffektivitet i ekonomin. Som den första studien i sitt slag gör rapporten tre viktiga bidrag: en kvantifiering av Sveriges "värdegap", en metodik som kan vidareutvecklas, samt rekommendationer för att främja cirkularitet genom forskning, policy och affärsinitiativ. Med utgångspunkt i det globala och nationella CGR-arvet av att kartlägga materialflöden, breddar denna rapport perspektivet och ställer en kritisk fråga: Vad är det ekonomiska värdet av de material vi använder, de produkter vi konsumerar och de system vi bygger – och var förloras värde eller uteblir det helt?

Sveriges värdegap uppgår till 19 %, vilket visar att nästan en femtedel av det potentiella ekonomiska värdet går förlorat på grund av linjära principer.

I pengar är detta nästan 600 miljarder kronor årligen (motsvarande 57 % av statsbudgeten) inom sex sektorer där ekonomiskt värde antingen aldrig skapas eller förloras i förtid. Resultaten belyser ett systemproblem: dagens ekonomiska modeller lämnar ett betydande värde outnyttjat. Att minska detta gap innebär en stor möjlighet att stärka Sveriges cirkularitet, öka ekonomisk resiliens och bättre möta samhälleliga behov.

Obalansen mellan materialintensitet och ekonomisk värdeskapande är fortfarande ett centralt hinder för cirkulär utveckling.

Värdeskapande tenderar att ske nedströms i värdekedjan – närmare konsumenten och genom mindre materialintensiva aktiviteter – medan de tidiga stegen, såsom utvinning och tillverkning, är resurskrävande och genererar lägre ekonomiskt värde. Våra resultat bekräftar detta, med relativt små värdeförluster inom sektorn för gruvdrift och utvinning, och större värdeförluster till exempel inom sektorn för konsumtionsvaror. Denna obalans understryker behovet av att omforma system som idag är beroende av hög materialgenomströmning för att skapa relativt små värdeökningar.

Att förhindra att produkter når ett för tidigt slut på sin livscykel utgör Sveriges största möjlighet till värdebevarande. Varje år når varor till ett uppskattat värde av 420 miljarder kronor slutet av sin livscykel

utan att återanvändas, renoveras eller återvinnas. Detta leder till stora ekonomiska förluster och slösar bort de material, den energi, arbetskraft och infrastruktur som är inbäddade i dessa varor. Även om förlusterna registreras vid avfallshanteringsstadiet, ligger de verkliga lösningarna tidigare i värdekedjan – genom cirkulär produktdesign, innovation i affärsmodeller och system som förlänger produkternas livslängd.

Att förebygga överkonsumtion erbjuder en kraftfull möjlighet att förbättra möjligheten att fånga värde i ekonomin. Studien uppskattar att onödiga utgifter – konsumtion som överstiger faktiska behov eller ger minimal nytta – uppgår till 200 miljarder kronor per år. Att ta itu med detta problem skulle inte bara minska avfall och utsläpp, utan också öka den ekonomiska effektiviteten genom att bättre anpassa konsumtionen till verkliga samhällsbehov.

Att omdefiniera och fånga värde på nya sätt är avgörande för att påskynda Sveriges cirkulära omställning. Värde kopplar samman naturresurser, socialt välbefinnande och ekonomisk utveckling – men dagens ekonomi underskattar ofta eller förlorar stora delar av detta värde. För att hantera Sveriges höga materialkonsumtion, låga återvinningsgrad och ökande miljöbelastning krävs ett skifte i fokus: från enbart material till de ekonomiska strukturer som styr deras användning. Denna rapport undersöker var och varför värde går förlorat – genom linjära metoder - i den svenska ekonomin och hur det i stället kan bevaras eller återskapas.

Att förstå var och hur värde går förlorat är fortfarande svårt på grund av begränsad tillgång till data om materialflöden och cirkulära aktiviteter. Komplexiteten i analysen och bristen på konsekvent nationell statistik krävde noggrant avgränsade antaganden, som validerades av experter. För framtida analyser och utformning av policy är därför förbättrad datainsamling, bättre mätmetoder för cirkulär ekonomi och ökad metodologisk noggrannhet avgörande.

Resultaten förstärker och vidareutvecklar rekommendationerna från CGR Sverige, och betonar att cirkularitet kan vara en källa till både miljömässigt och ekonomiskt värdeskapande.

Fyra centrala områden för åtgärder framträder: använd data, utvidga definitionen av värde, främja sektorsövergripande samarbete, och stimulera behovsbaserad konsumtion

- **För det första är det avgörande att använda data för att underbygga cirkulära lösningar.** Sverige behöver förbättrad terminologi för cirkulära värden, bättre statistik och mer detaljerade data längs hela värdekedjan. Att utveckla standardiserade definitioner – genom samarbete mellan forskare, experter och myndigheter – kommer att stärka mätbarheten och jämförbarheten. Att ge Statistiska centralbyrån (SCB) i uppdrag att samla in data i linje med EU-lagstiftning, samt att finansiera vidare metodologisk forskning om cirkulärt värde, skulle stödja mer trovärdiga analyser och evidensbaserad policyutövning.
- **För det andra kommer en utvidgning av värdebegreppet och hantering av marknadsmisslyckanden att bidra till att utforma marknader som belönar cirkulärt värdeskapande och värdebevarande.** Policys måste erkänna socialt och miljömässigt värde vid sidan av ekonomiska vinster. Detta kräver ytterligare forskning och standardiseringsinsatser för att kvantifiera värde både i monetära och icke-monetära termer, vilket ger en mer komplett bild av samhällsnyttan. Politiska beslutsfattare kan agera genom att införa olika policyåtgärder, till exempel incitament för återanvändning, reparation och renovering – såsom subventioner eller skatteavdrag – samt att integrera principer för värdebevarande i upphandling och avfallspolitik. Dessa steg bygger vidare på *Sveriges handlingsplan för cirkulär ekonomi* och skapar ett mer rättvist och hållbart marknadsramverk.
- **För det tredje kan sektorsövergripande samarbete öppna upp nya affärsmöjligheter och gemensamt värdeskapande.** Att utveckla cirkulära modeller – såsom produkt som tjänst, delnings- och återanvändningsplattformar samt industriell symbios – kräver samarbete mellan olika branscher. Företag bör identifiera möjligheter till värdeskapande och värdebevarande genom att återanvända material och förlänga produkters livslängd, med stöd av riktad offentlig policy. Partnerskap och kluster kan underlätta industriell

symbios, medan pilotprojekt och forskning kan hantera hinder kopplade till informations- och värdedelning, inklusive immateriella rättigheter och finansiella mekanismer.

- **Slutligen kommer ett skifte mot behovsbaserad konsumtion att vara avgörande för att engagera medborgarna i Sveriges cirkulära omställning.** Att utbilda och stärka konsumenter att delta i återanvändning, reparation och delningspraktiker kan minska överkonsumtion och stärka den kulturella acceptansen för cirkulära livsstilar. Offentliga kampanjer och uppdaterade läroplaner kan integrera principer om tillräcklighet i vardagen, medan reglering av reklam och incitament för second hand-, reparations- och delningsföretag gör hållbar konsumtion mer attraktiv och tillgänglig.

1

Introduction

Rethinking value in a circular economy

Sweden now stands at a crossroads. Despite its reputation as a climate leader and welfare pioneer, the country's consumption patterns are largely unsustainable. This challenge is not unique to Sweden—it reflects a global reality and underscores the urgent need to look beyond materials alone toward the deeper economic structures that shape our societies. At the heart of this lies a fundamental question: what do we value, and how do we measure it?

Sweden faces significant pressures, including high material consumption, low cycling rates, and mounting environmental impacts. Yet it also holds immense potential: a highly educated population, strong institutions, and a culture of innovation provide fertile ground for bold transformation. As the *Circularity Gap Report (CGR®)* Sweden demonstrated, carefully designed circular strategies could reduce the country's material footprint by 43% and more than double its Circularity Metric.²

This first-of-its-kind report, *CGR The Value Gap: Sweden*, builds on that foundation. It represents a leading effort to examine the links between resource use and economic value, as well as the economic risks of maintaining a linear paradigm. This is particularly relevant in Sweden, where industry accounts for around 20% of GDP³ and natural resources are abundant—for instance, Sweden produces approximately 95% of the EU's iron ore. Building on the global and national *CGRs*, which map material flows and highlight opportunities for circular strategies, this report expands the frame and asks: systems we build—and where is value lost or not created?



Why focus on value?

This report focuses on where economic value and circular material use already intersect—and where aligning the two can accelerate the transition toward a more regenerative, inclusive, and resilient economy. Value is, as such, a foundational concept in the circular economy—for both practical and strategic reasons:

- **Value signals utility, scarcity, and complexity.** Not all materials are equal: a kilogram of rare metal used in a wind turbine carries far more societal and economic worth than a kilogram of short-lived plastic packaging. By understanding the relative value of goods and services, we can better prioritise which ones to preserve, cycle, or redesign.
- **Value reflects purpose.** Products and systems that meet essential needs—such as housing, food, or mobility—must be judged not only by their cost, but by how equitably, efficiently, and sustainably they deliver societal well-being.

In short, value is a connective tissue between resources, society, and the economy. To scale circularity, we must treat value not just as a financial outcome, but as a guiding concept—one that helps us ask not only *what* flows through the economy, but *why*, *for whom*, *towards which need*, and *to what end*.

Yet despite its importance, the question of where value is lost—not just where it is created—has received far less attention than material losses measured in mass. Much of the economy allows value to slip away through inefficiencies, discarded products, underutilised assets, and missed opportunities across production, consumption, and even in circular resource systems. Identifying these losses is crucial to making a compelling case for both public and private decision-makers.

From material gaps to value gaps

Sweden's Circularity Metric, which measures the share of materials in the economy that come from recycled or reused sources rather than newly extracted ones, currently stands at 3%⁴—well below the global average of 6.9%.⁵ Yet the challenge goes beyond material inefficiency. It points to a systemic issue: resources are over-extracted, materials wasted, products underused, and social and economic opportunities missed. The Value Gap, however, does

not only reflect what is lost—it also represents what was never created. In a more circular system, value could be unlocked through new business models, longer product lifespans, and regenerative practices.

Circular strategies hold the key to closing this Gap. By designing for durability, reuse, and shared ownership, they offer a model in which value is not only preserved but continually created and enhanced. Although this report focuses primarily on economic value—measured in terms of productivity and monetary output—we recognise the need for a broader definition of value. Environmental and social value are equally important, and in some cases, may conflict with economic value. In such instances, economic value should not take precedence. What is most important is that material and economic systems are designed to meet societal needs as efficiently and sustainably as possible.

How the International Organisation for Standardisation (ISO) defines 'value' in a circular economy

'Within the circular economy, value can be complex and difficult to measure, and requires careful consideration. This complexity arises because value represents not only the economic value of a resource or a product but also its environmental and societal value. Very often, economic value does not reflect social or environmental impacts, which can be associated with costs arising outside the system in focus'.⁶

Circular economy value concepts

Value created

The value generated at each step in the supply chain—how much economic value is generated by different sectors as products move from raw materials to final use. At end-of-life, value recovery also accounts for value creation.

Value captured

The total value of goods and services used by people and businesses in a Swedish sector, minus exports. It reflects the economic activity within the country.

Value not created

The additional value that could be captured with circular strategies, like reducing waste, improving efficiency, and extending product lifespans. Represents untapped potential based on current technologies.

Value lost

This is the value of products and materials that become waste instead of being used longer, reused or repaired⁷. It represents the original value of these items before they were discarded, adjusted for how much functional value they still have at end-of-life. Solutions to address these losses lie in earlier stages of the value chain.

Overconsumption

The value of goods consumed beyond societal needs, such as excessive food, living space or oversized vehicles. Highlights wasteful use that doesn't improve well-being.

Aims of CGR *The Value Gap: Sweden*

1. Broaden the scope of circularity by exploring how economic value—not just materials—is impacted by linear practices across the Swedish economy.
2. Identify where value is created and lost throughout key economic processes and sectors, highlighting inefficiencies linked to the current linear system.
3. Quantify the Value Gap across six key sectors of the Swedish economy providing a first number of the present Value Gap.
4. Highlight opportunities for circular strategies that can retain, recover, or regenerate value, strengthening economic resilience and resource efficiency.

2

Sizing the value gap

Measuring value creation and losses

The Value Gap captures the difference between the value Sweden's current linear economy delivers and the greater value a circular system could generate. While the Circularity Gap measures material flows, the Value Gap provides an economic perspective, showing where value is created, lost, or never realised within Sweden's economy. This chapter introduces the Value Hill, the framework that underpins our analysis, and explains how it helps trace value across the supply chain—from production to use and end-of-life. By applying this lens, we find that Sweden could capture up to 19% more economic value—equivalent to SEK 600 billion—through well-designed circular strategies. This highlights circularity not only as a pathway to environmental sustainability but also as a powerful driver of economic opportunity and societal well-being.



The value gap explained

This section introduces the Value Hill, the framework that underpins our analysis and is used to understand the Value Gap. The Value Hill visualises how economic value flows through distinct stages—from upstream material and product imports, through manufacturing, to delivery and use—highlighting both opportunities for value creation and points where value is lost or never generated.⁸

Figure one illustrates this concept, with the value creation phase on the left side of the hill. This phase encompasses both direct and indirect inputs, meaning it accounts for the immediate resources used by each sector as well as the upstream resources required to produce them. In this way, the full chain of economic value embedded throughout production is captured. Within this phase, the Value Gap appears as **value not created**—opportunities where economic value could exist but does not, often due to inefficiencies in existing systems.

At the centre of the Value Hill lies the **use phase** ('consumption'), representing the total value of products consumed by each sector. Here, the Value Gap can be seen in two ways: as **value not created** through underutilisation or inefficient use, and as the hidden costs of **overconsumption**. While overconsumption technically increases sectoral value, it often provides limited societal benefit and contributes to waste, depletion, and environmental harm. This highlights a key distinction between necessary and excessive value creation—central to understanding how the Value Gap manifests.

On the right side of the Value Hill lies **value lost**: what happens after use, when much of the remaining value is discarded. This refers to the end-of-life losses of goods whose worth could have been retained through circular strategies earlier in the value chain. We estimate this loss using sector-specific residual value rates, assessed by the researchers, which approximate the functional value of goods (see Methodology Document for details). Crucially, this goes beyond traditional asset depreciation by focusing on the actual functionality an asset continues to provide. In many cases, there is a disconnect between the book value of goods—how they are recorded in accounting—and their real-world usefulness. In a circular economy, this distinction is critical. Systems that extend product

life through repair, reuse, or remanufacturing retain real value, even if conventional accounting treats these items as fully depreciated. Recognising this gap reframes how value is created and maintained over time and challenges the assumption that value inevitably declines with age.

By mapping this full flow—from value creation to value loss—the Value Hill provides a clear lens for identifying the components of the Value Gap, showing where value is lost along the value chain and revealing inefficiencies and leverage points to increase circularity and retain more value within the economy.

Legend



- Value not created
- ▲ Value created
- ▲ Value captured
- ⊘ Overconsumption
- ▼ Value lost
Value of discarded goods, solutions for value retention lie upstream

Unit: MSEK/Year

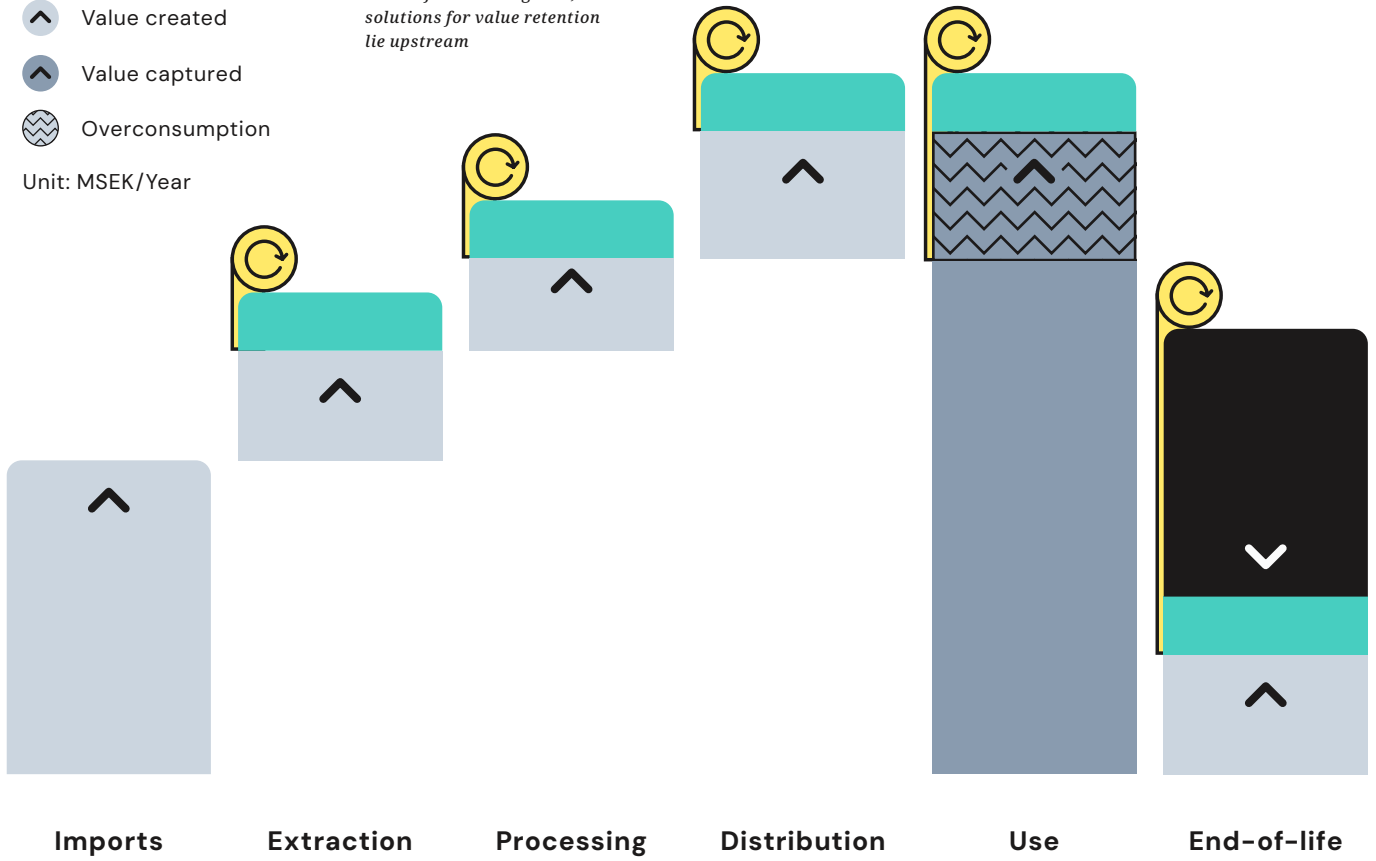


Figure one depicts the Value Hill concept.⁹

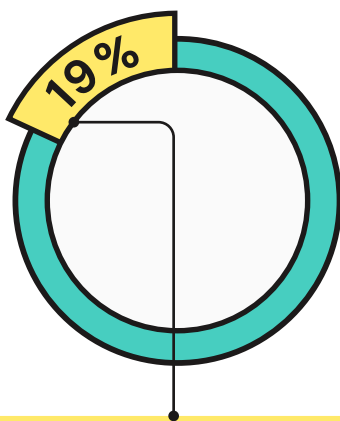
Inside Sweden's value gap

According to the *CGR Sweden*, only 3% of Sweden's economy is circular, leaving a Circularity Gap of 97%. Our study complements this finding by introducing the concept of the Value Gap, which we estimate at 19%.

Unlike the Circularity Gap, which measures material flows, the Value Gap provides an economic lens on circularity by capturing the value that disappears through waste and end-of-life losses or is never created in the first place. This means that Sweden could generate and retain an additional 19% of economic value through circular solutions. In other words, out of the SEK 3.25 trillion created annually across the six key sectors studied, circular strategies could unlock roughly SEK 600 billion in additional value that is currently unrealised.

How we calculate the value gap

We calculate the Value Gap by summing all value that is lost or never created, then subtracting the value recovered at end-of-life through waste management. This figure is divided by the total value society actually captures, excluding overconsumption (see Figure two). A **lower Value Gap** signals that more value is retained through design, efficient systems, and circular strategies, while a **higher Value Gap** exposes systemic inefficiencies, waste, and lost opportunities for value creation.



$$\text{VALUE GAP} = \frac{\text{value not created} + \text{value lost} - \text{value recovery}}{\text{consumption} - \text{overconsumption}}$$

Figure two shows the formula of value flows that make up Sweden's Value Gap

Mapping value across the chain

To understand where value is lost—or can be retained—we analyse flows across five stages of the value chain. Each stage represents a point where value is either created, lost, or recovered:

- 1. Extraction:** The sourcing of raw materials from nature through activities such as mining, drilling, agriculture, and forestry. Outputs include resources like timber, petroleum, and ores.
- 2. Processing:** The transformation of raw materials into usable inputs and finished goods, such as metal refining, cement production, and food processing. This also includes product assembly and construction.
- 3. Distribution:** The delivery and provision of goods and services to end users. This includes wholesale and retail trade, logistics, transport, and access to infrastructure and utilities—enabling sectors like housing, mobility, and consumer goods.
- 4. Use:** The phase where products and services are actively used by households, businesses, or public sector, also called consumption. This stage often involves wear, maintenance, and underutilisation.
- 5. End-of-life:** The stage after use, where products and materials are discarded and their value subsequently lost. At this stage, materials are recycled, downcycled, incinerated or landfilled.

This breakdown is a useful way to visualise how value moves through the economy, though in reality these flows overlap and interact across complex networks. What matters is that the Value Gap reveals where inefficiencies occur along the chain—and where circular strategies can intervene to preserve or create additional value.

Closing the value gap

By quantifying Sweden's Value Gap, we can identify leverage points along the value chain where circularity can both improve resource efficiency and unlock economic gains. A circular economy aims to create more value with fewer resources, by minimising losses and maximising recovery across the system. Based on our analysis, we identify four strategic objectives:

1. Maximise value capture upstream:

Improve circularity at the early stages of the value chain—extraction, processing, and distribution—to increase the total value entering the system. More efficient production and smarter material use help reduce losses from the start.

2. Minimise value losses downstream:

Products often lose value prematurely due to inefficiencies in upstream processes. Extending product lifetimes through reuse, repair, and design for durability helps retain that value and prevent unnecessary losses.

3. Maximise value recovery: Even in a well-designed system, some products reach end-of-life. Strategies such as recycling, refurbishment, anaerobic digestion, and composting ensure materials retain economic value beyond their first use.

4. Align consumption with societal needs:


Overconsumption adds to the Value Gap without improving well-being. Value must be directed toward fulfilling needs rather than fueling waste.


Dynamics influencing the value gap


Sector definitions


In this report, when we refer to the Swedish economy, we are speaking specifically about the six sectors defined below, considered together. This framing follows the approach of *CGR Sweden*, which modelled circular 'what-if' scenarios for these same six sectors. Here, we build on that foundation: instead of focusing on material circularity alone, we analyse how these sectors together shape Sweden's Value Gap.


The six sectors reflect core societal needs and economic activity clusters.¹⁰ They have been adapted slightly from *CGR Sweden* to clarify boundaries and better capture value dynamics:


 **Construction:** Includes both construction and real estate activities. The manufacturing of construction materials (such as concrete, timber, steel) is classified under Manufacturing and is excluded from this sector.

 **Agrifood:** Covers agricultural activities such as crop production, animal husbandry, and fishing, as well as food manufacturing and food services (that is, restaurants and catering). Food retail could not be separated from general retail and is therefore included under Consumables.

 **Manufacturing:** Encompasses all manufacturing activities in Sweden, excluding those that are treated separately in this report (such as food products and vehicles).

 **Mining & Extraction:** Combines mining and forestry activities, focusing on the extraction of raw materials.

 **Mobility:** Covers both freight and passenger transport, across all modes (cars, trucks, planes, boats), as well as fuels and related infrastructure.

 **Consumables:** Includes products such as textiles, electronics, plastic goods, and furniture, as well as wholesale and retail activities.

Together, these six sectors form the core of this study's analysis. The next chapter provides an in-depth exploration of each sector's role in shaping the Value Gap, highlighting where value is lost, not created, or could be recovered through circular strategies. For a more detailed explanation of this classification, refer to the accompanying Methodology Document.

Methodological considerations

The use of mixed data sources and methods to calculate the value gap was decided as a practical approach given data availability.

Value creation was calculated using 2019 Swedish statistics¹¹ in basic prices—that is, the value received by producers before taxes and subsidies. We define this as the value captured through final use by Swedish society, including imports but excluding exports. These values were adjusted to account for both direct and indirect inputs across sectors and then reconstructed by value chain stage using EXIOBASE's structure. Full details are provided in the Methodology Document.

Value not created and **overconsumption** were estimated through desk research, supported by expert input and secondary studies. Sector experts at RISE helped identify relevant resources, data, and assumptions for their domains. In addition, a reference group of circular economy specialists—including academics, thought leaders, and industry representatives—reviewed the method, data sources, and assumptions. Their feedback and additional references were incorporated into the final results.

Value lost was estimated using 2019 Swedish waste statistics, with an average price per tonne allocated to each sector. This price, derived from *CGR Sweden's* analysis, was adjusted to reflect the residual functional value of goods reaching end-of-life. Losses from imports are excluded from this part of the analysis because of the difficulty in estimating losses abroad and to focus on measures that can be taken within Sweden, leading to an underestimation of the Value Gap. We also quantified **value recovery** by identifying value-creating treatment pathways and assigning values to each waste stream.

This report builds on the analytical foundation of *CGR Sweden*, particularly its approach to defining and clustering economic sectors. Here, sectors are conceptualised as systems that group related activities under a single umbrella, rather than narrow industries. This systems-based framing provides a more holistic perspective on material flows, environmental impacts, and opportunities for circular strategies.

3

The value gap by sector

Assessing value loss and recovery across six key sectors

This chapter presents the findings of a comprehensive assessment of six key sectors within the Swedish economy, examining how value is created along supply chains up to the point of consumption—and, crucially, where it is lost at end-of-life or never created at all. These insights uncover significant untapped potential and highlight sector-specific dynamics that shape Sweden’s economic flows. Taken together, the findings offer a powerful depiction of the country’s economic metabolism, revealing a total Value Gap of 19% or SEK 600 billion. Most of this value loss originates in the Construction sector (SEK 180 billion) and in the Consumables sector (SEK 88 billion).

Building on the framework introduced in the previous chapter, we now apply the concept of the Value Gap to real-world economic data. This analysis estimates where and how value is created, lost, or unrealised—first at the macroeconomic level, and then within each of the six sectors. By doing so, we identify both the scale of inefficiencies and the opportunities for value retention across the economy. The results offer a data-driven foundation for understanding how a shift away from linear practices could unlock substantial economic potential for Sweden.



Applying the value gap framework across sectors

Building on the previous chapter, our analysis focuses on six key sectors that together account for the majority of Sweden's material use and economic activity. These sectors provide a representative picture of how value is created, lost, and potentially retained in a circular economy. By quantifying the flows of value across them, we can begin to measure the scale of inefficiencies and opportunities in Sweden's current economic system.

As illustrated in Chapter two, this analysis reveals a Value Gap of 19%. Out of the SEK 3.25 trillion generated by the six sectors, close to SEK 600 billion is either lost or never created due to the dominance of linear practices. In addition, around SEK 200 billion (6%) of generated value stems from overconsumption—spending that exceeds actual need or delivers marginal utility. These figures should be understood as minimum estimates, as our assessment of unrealised value was based on desk research and restricted to a defined scope of activities. Additional losses beyond those quantified here are likely.

Figure three breaks down the SEK 3.25 trillion captured by Swedish society: approximately 20% originates from imports, 7% from domestic extraction, 32% from processing, and the remaining 39% from the distribution and sale of products and services. Despite this substantial value creation, significant losses occur at various points along the value chain. Upstream—during extraction, processing, and manufacturing—an estimated SEK 67 billion in value is never realised due to material inefficiencies, waste generation, and suboptimal production processes.

During the use phase, an additional SEK 108 billion is lost due to underutilisation and inefficient product use. At end-of-life, goods worth approximately SEK 420 billion exit the economy each year, with only SEK 42 billion recovered through waste management processes such as recycling and energy recovery. This makes premature end-of-life the single largest source of value loss. Extending product lifespans through strategies like reuse, refurbishment, and remanufacturing therefore offers far greater potential for preserving economic value than recycling or energy recovery, which are inherently limited to recovering raw material or calorific value. Circular approaches retain much more of the embedded value in products—including the energy, labour, design, and

manufacturing effort already invested—maximising the economic and environmental benefits of keeping products in use.

Overconsumption represents another layer of systemic inefficiency. Roughly SEK 200 billion—around 6% of annual consumption in these sectors—delivers little or no additional well-being. Examples include underutilised floor space, food consumption beyond nutritional needs, and oversized vehicles. While perceived value is subjective, such patterns highlight a disconnect between consumption and actual utility. They impose environmental burdens while diverting resources away from more meaningful contributions to well-being. Addressing overconsumption through smarter design, targeted policy, and behavioural shifts could unlock substantial value—economically, socially, and environmentally—without compromising quality of life.

Together, these findings illustrate the scale of missed opportunities and market failures embedded in today's linear economy. By quantifying the Value Gap, we create a foundation for identifying where targeted interventions could deliver the greatest impact. The following sections explore how these dynamics unfold within each of the six sectors, revealing specific patterns of value creation, loss, and potential recovery.

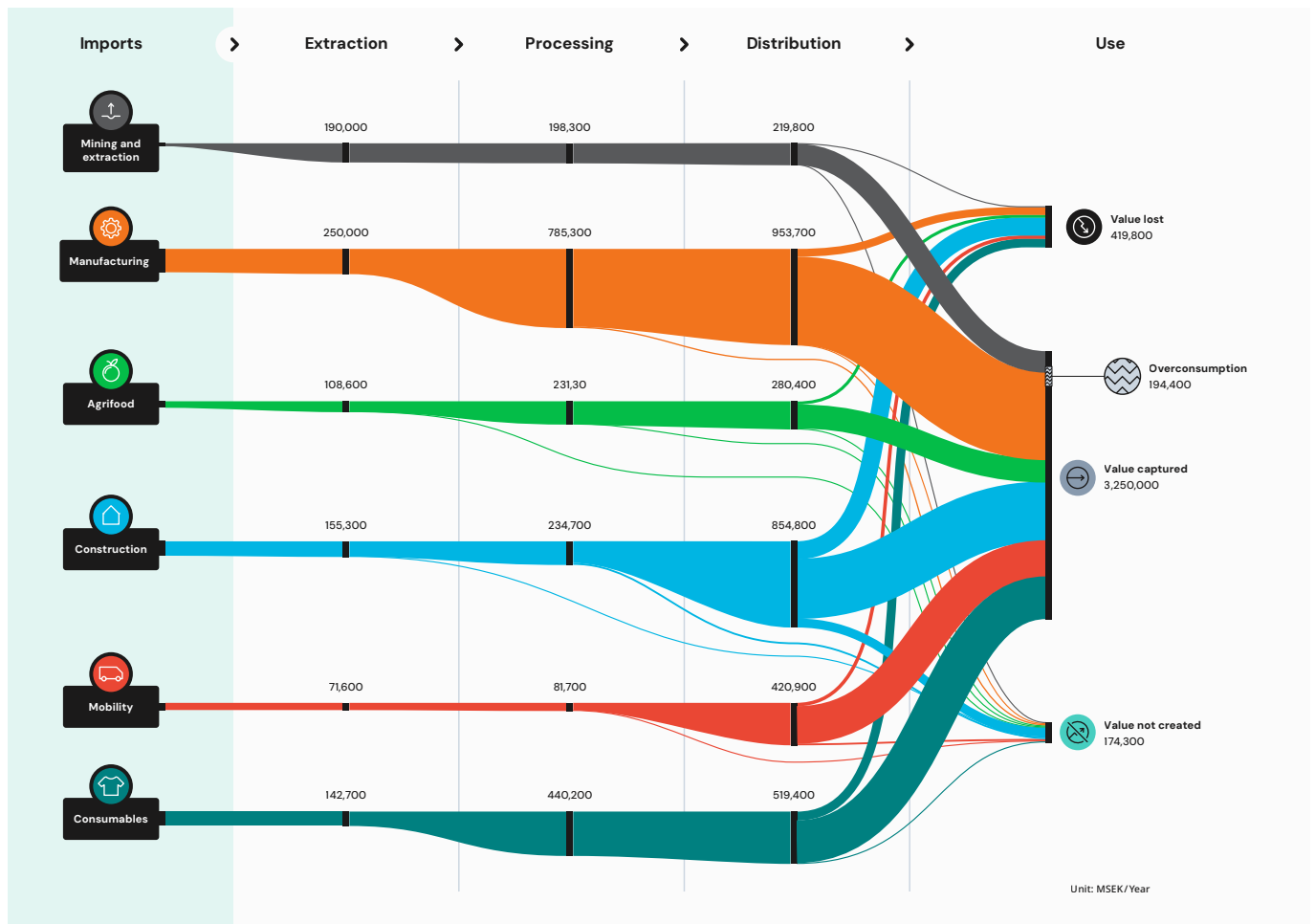


Figure three illustrates yearly value creation and losses across six key sectors.

Mining & extraction

The Mining & Extraction sector—ranging from metals and minerals extraction to forestry—plays a foundational role in Sweden’s economy. Sweden’s production of iron ore represents approximately 90-95% of the production in the EU. The country further extracts approximately 265.3 million tonnes of natural resources annually, supported in large part by its vast, actively managed forests, which cover around 70% of the national land area. This abundance makes Sweden an EU as well as global leader in some basic industry sectors.¹²

Mining & Extraction account for approximately 5% of the total Swedish economy. While the transition to a circular economy may reduce reliance on virgin materials, extraction will remain necessary to meet both current and future demands. Importantly so, for example, for a green transition. As the earliest link in many supply chains, extractive industries

provide essential inputs for a range of material- and emissions-intensive sectors. Forest products, for example, are a key input for biofuel production—powering transport and heating systems—and help meet growing demand for bio-based materials in manufacturing.

This sector differs markedly from others examined in this report. Unlike Construction or Agrifood, where consumption is primarily driven by households or government, Mining & Extraction function primarily as a supplier to other industries. To capture this upstream role, the reported consumption figures include intermediate consumption by other sectors. The extractive sector also diverges from the Value Hill framework used elsewhere in the report. Here, processing and distribution play a minimal role, and most waste—and therefore value loss—occurs during extraction, before any consumption takes place. In this context, the concepts of ‘value not created’ and ‘value lost’ overlap. For clarity, the value losses from the sector only include losses from the extraction phase,

such as metals left in tailings or other unrecovered materials. These are referred to as end-of-life losses in this context, even though they occur before the production and use stages, differing from how the term is typically used for consumer products.

Where value is lost in mining & extraction

As shown in Figure four, Sweden’s Mining & Extraction sector generates approximately SEK 220 billion in consumption value. Of this, an estimated SEK 6 billion—or 3%—is lost at end-of-life, primarily through metals left behind in tailings. Currently, only SEK 300 million—around 6% of this lost value—is recovered through waste management processes, highlighting a significant opportunity for improved resource recovery.

Unlike other sectors examined in this report, the Mining & Extraction sector operates entirely upstream, providing raw materials that are not yet linked to a specific end use. As such, it does not serve final demand directly and is excluded from the overconsumption analysis. Overconsumption, by definition, applies to sectors where products and services are delivered to end users—typically households or the public sector. In the case of Mining & Extraction, value creation is agnostic to how or where materials will ultimately be used. That said, circular strategies targeting overconsumption in downstream sectors can still have a meaningful impact on extraction. By extending product lifespans, increasing reuse, and reducing material throughput further down the value chain, the demand for newly extracted resources can be significantly reduced.



Figure four shows yearly value creation and losses in the Mining & Extraction sector.

Unlocking value through higher yields

The Mining & Extraction sector generates vast quantities of waste—almost 90 million tonnes annually—accounting for roughly 90% of Sweden’s total waste generation, with much of the activity concentrated in remote northern regions.¹³ Currently, waste rock and tailings, the two largest waste streams, are not considered economically viable resources, which helps explain why the sector’s identified economic losses appear relatively small today. However, ongoing technological development offers significant potential for future value recovery, suggesting that current low losses primarily reflect limitations in technology and product innovation rather than the absence of recoverable value.

While this analysis does not quantify the potential value from legacy tailings or other waste streams such as waste rock and slags, these represent important opportunities for the mining industry. Emerging research indicates that waste rock could be used for carbon capture, while mine tailings (such as silica) may have applications in civil engineering,¹⁴ unlocking new pathways for resource valorisation. In addition, significant deposits of phosphorus exist alongside iron, copper, zinc, and other valuable minerals, representing further opportunities for value creation.

Beyond mining, the forestry sector also holds substantial potential for higher yields and increased value. Extending forest growth periods, reducing thinning, and replacing small-dimension timber with larger, higher-quality trees can generate greater economic returns. These strategies also enhance carbon storage and support positive biodiversity outcomes, offering benefits that go beyond immediate financial gains.

Manufacturing

Sweden’s Manufacturing sector includes the production of industrial machinery, steel and metal processing, and the pulp and paper industry. The manufacturing industry is a key driver of the national economy, known for its innovation, efficiency, and sustainability but it’s also a major driver of material demand, consuming 35.7 million tonnes of resources annually—equivalent to 13% of the country’s total material use.¹⁵ This demand fuels significant extraction activity, both domestically and abroad, as raw materials are processed into intermediate and

final goods. However, an estimated SEK 13 billion in potential value is lost each year due to energy inefficiencies and material waste during production.

Despite a broader shift toward a more service-based economy in recent decades,¹⁶ Manufacturing remains a cornerstone of Sweden’s economy. The sector accounts for 22% of total economic output and is pivotal for employment and trade, generating around three-quarters of the country’s export value. Unlike sectors where consumption is primarily driven by households or the public sector, manufacturing plays a foundational role in supplying other sectors. To reflect this industrial interdependence, this analysis also includes intermediate consumption, capturing the full scope of material and value flows across the Manufacturing cycle.

Where value is lost in manufacturing

As shown in Figure five, Sweden’s Manufacturing sector generates around SEK 954 billion in consumption value. Yet 9% of this is lost or never created due to linear and inefficient practices, these losses represent both materials and energy lost in the process. Each year, the sector discards materials and products worth approximately SEK 71 billion, with only SEK 3 billion—or 4%—currently recovered through recycling or other value-retaining processes. This makes the sector a significant point of value erosion in Sweden’s economy.

Unlike sectors that deliver goods and services directly to end users, Manufacturing primarily serves as an upstream supplier to other industries. As such, the concept of overconsumption does not apply in the same way. Similar to the extraction sector, Manufacturing provides intermediate goods not yet tied to specific use or application, and therefore falls outside the scope of end-use-driven overconsumption analysis. Nonetheless, the scale of discarded material highlights the untapped potential for greater circularity and improved resource efficiency across the production process.



Figure five shows yearly value creation and losses in the Manufacturing sector:

Unlocking value through material efficiency, circular design and remanufacturing

The manufacturing sector holds substantial untapped potential for value creation by improving efficiency across the production process. A key opportunity lies in prioritising material efficiency early in the value chain, using innovations that achieve the same functionality and performance with less material—such as lightweight materials—without compromising the technical lifetime of products. This approach not only reduces resource intensity but also streamlines material flows throughout the system.

Reducing scrap and offcuts generated during conventional industrial processes—such as machining, forming, or casting—offers another avenue to enhance operational efficiency and reduce reliance on virgin raw materials. By adopting circular design principles, remanufacturing, and closed-loop recycling, manufacturers can retain more value, lower costs, and contribute to a more resource-efficient economy. Furthermore, developing durable machinery and equipment is essential for advancing Sweden’s circularity while capturing additional value, ensuring that the resources invested in production continue to deliver benefits over the long term.

Agrifood

Sweden imports roughly twice as much food as it exports, although exports are steadily increasing. At the same time, consumption patterns lean toward the unsustainable, with emissions-intensive meat, dairy, and processed foods making up a large share of diets. Just over half of the adult population is overweight, aligning with the EU average.¹⁷

The Agrifood sector encompasses a wide range of activities, including crop and animal production, fishing and aquaculture, food and beverage manufacturing, and services related to accommodation and food. These interconnected sectors form the backbone of Sweden's national food system, generating economic value while also driving significant environmental and social impacts. Overall, the Agrifood sector accounts for approximately 6% of the Swedish economy.

To fully assess the value created—or lost—within this system, it is essential to consider the entire food life cycle, from production to waste management. This analysis therefore includes waste generated not only from agriculture, forestry, and fishing, but also from food manufacturing and households, capturing the broader scope of the Agrifood system.

Where value is lost in agrifood

As shown in Figure six, Sweden's Agrifood system generates approximately SEK 280 billion in consumption value, yet 14% of this is lost or never created due to linear and inefficient practices. The largest share of this loss where households, restaurants, and canteens produce significant amounts of edible food waste. This represents not only a loss of nutrients but also of the economic resources invested in growing, transporting, and preparing the food. Of the estimated SEK 33 billion in food wasted annually throughout the entire value chain, only SEK 1.5 billion—just 5%—is recovered through waste management, highlighting a key point of value erosion that could be addressed through upstream interventions.

In addition to edible food waste, overconsumption represents another major form of value loss. Around 7% of food consumption, or SEK 20 billion, comes from eating beyond nutritional needs. Closely linked to rising rates of overweight and obesity among adults,¹⁸ this 'invisible waste' often goes unmeasured

in food system analyses. The economic value lost through overconsumption is comparable to that of edible food waste during the use phase. Both types of loss reflect avoidable use of resources that provide little or no meaningful social or economic benefit and place additional pressure on public health and the environment—for example, the societal costs of adult obesity in Sweden are estimated at SEK 125 billion per year (not included in the Value Gap calculation).¹⁹

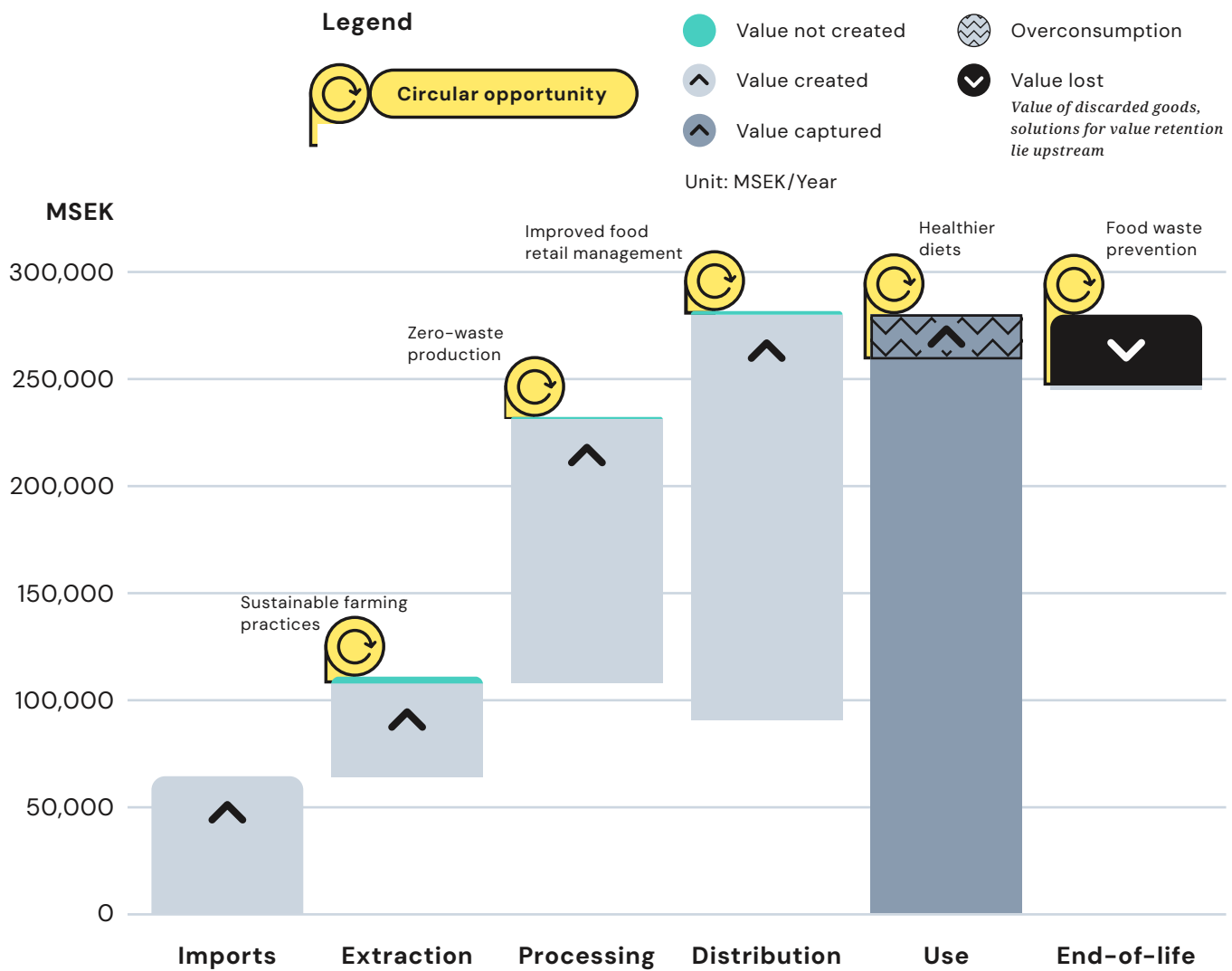


Figure six shows yearly value creation and losses in the Agrifood sector:

Unlocking value through food waste prevention and healthier diets

The high percentage of value lost—whether through discarded food or unnecessary consumption—represents a major opportunity for circular solutions. Improving food waste prevention and promoting healthy, sufficient eating could substantially increase the efficiency, sustainability, and overall economic value of Sweden’s Agrifood sector.

Reducing edible food waste has been a national priority in Sweden for several years, supported by government strategies, research initiatives, and cross-sector collaboration. Targeted action plans focus on households, schools, healthcare, and retail, aiming to halve food waste by 2030. These efforts are reinforced by public awareness campaigns and educational resources designed to influence consumer behaviour and promote better food management practices.

While the early stages of the Agrifood system—crop and livestock production, processing, and distribution—account for a smaller share of economic value losses, they involve substantial losses by mass. Much of this comes in the form of inedible or lower-value materials, such as crop residues and by-products. These materials offer important opportunities for value retention through innovative reuse, upcycling, and valorisation strategies. Inedible food parts can often be repurposed as animal feed or other higher-value non-food products, with energy production only considered as a last option.²⁰

Construction

The Construction sector is one of the most resource- and carbon-intensive parts of the Swedish economy, contributing significantly to the country's material footprint, waste generation, and emissions profile. It holds the largest material footprint of any sector, accounting for 82.2 million tonnes—or 32% of Sweden's total material use.²¹ As the population grows, so does demand for new housing, schools, and healthcare infrastructure, further intensifying the sector's environmental and resource impact.

In this analysis, the Construction sector also includes real estate, reflecting the full scope of activities from building to long-term property management. Together, these activities represent approximately 19% of the total Swedish economy, underscoring the sector's economic importance alongside its environmental challenges.

Most value creation in Construction occurs during the distribution phase—once buildings are completed and in operation. In contrast, the extraction phase, while highly material-intensive, contributes relatively little to economic value. This imbalance reflects a broader pattern seen across industrial value chains, where large volumes of raw materials are handled at low economic value until they are transformed into intermediate or final products.

Where value is lost in construction

As shown in Figure seven, Sweden's Construction sector generates approximately SEK 855 billion in consumption value, yet 39% of this is either lost or never created.²² The majority of this loss occurs at the end-of-life stage, where buildings are demolished and their embedded value—amounting to SEK 180 billion—is discarded. This makes end-of-life a critical point of value erosion in the built environment. The most impactful interventions for reducing the sector's value losses are those that slow resource flows and enable reuse and material cycling. Strategies such as renovation and refurbishment can extend the lifespan of buildings, reduce the need for new construction, and keep materials in use at their highest possible value.

Significant losses also occur during the use phase, where inefficiencies such as unnecessary renovations driven by aesthetic preferences, flawed design, and underutilised building space—including vacant or

partially used properties—result in losses of about SEK 89 billion. Overconsumption adds to this picture: around 14% of construction-related consumption, equivalent to SEK 123 billion, stems from excessive living space. This estimate is based on excessive aesthetic renovations and excess living space (see Methodology Document for details).

By contrast, the early stages of the Construction value chain contribute smaller economic losses. Although these phases deal with lower-value materials and generate lower-value waste, they still represent an untapped opportunity worth SEK 37 billion.

Finally, it is important to note that this analysis represents a one-year snapshot. For long-lived assets such as buildings, the true Value Gap compounds over decades, magnifying the potential impact of circular interventions.

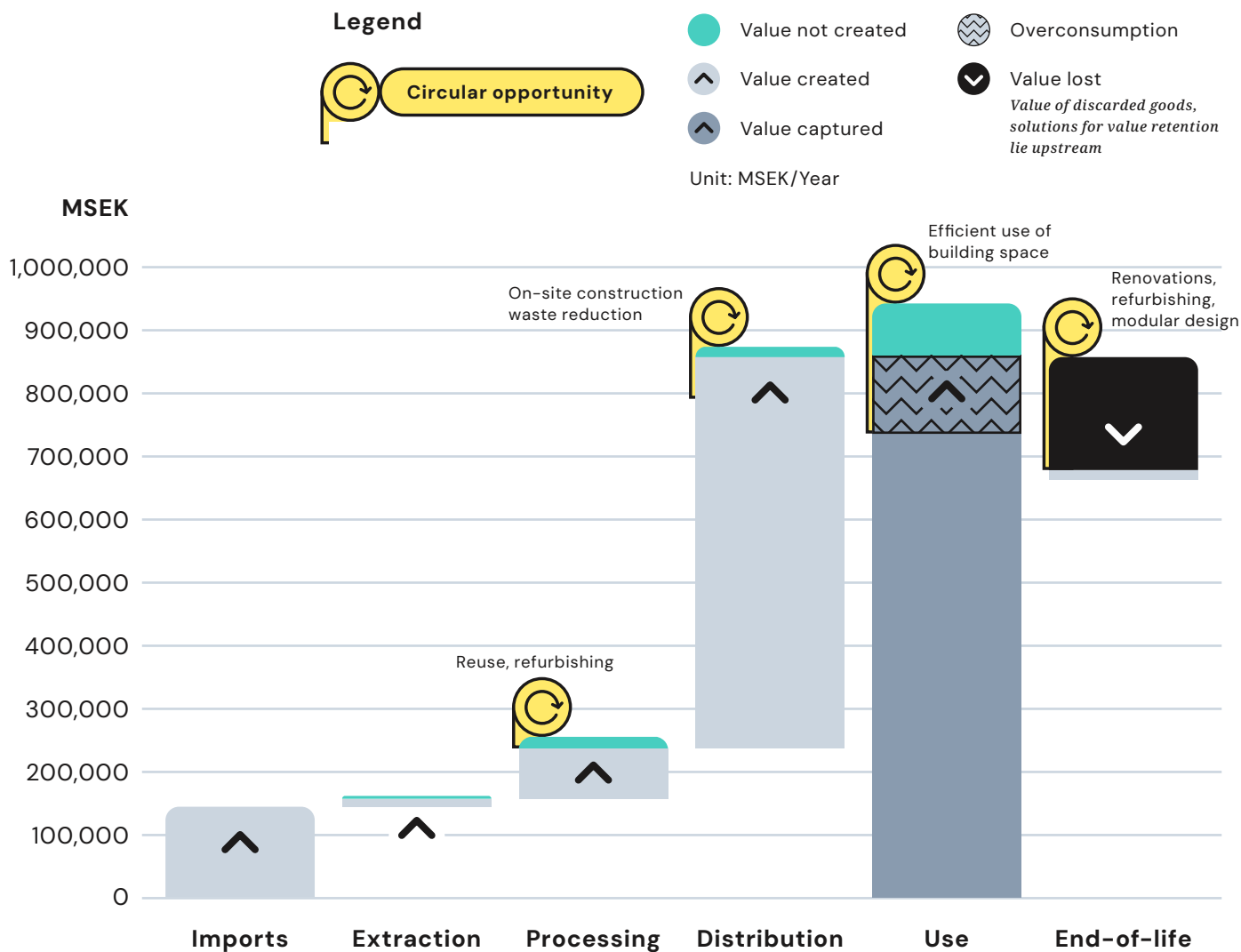


Figure seven shows yearly value creation and losses in the Construction sector:

Unlocking value through better use, renovation, and construction processes

The high percentage of value lost—whether through demolition or unnecessary consumption—highlights a significant opportunity for circular solutions. Extending the lifespan of buildings through better design, smart renovations, and increased utilisation of existing spaces offers the most effective pathway for retaining value. At the same time, this approach is the most promising strategy for reducing the sector’s material footprint.²³

Upstream losses also stem from the use of non-durable materials and poor design, which often lead to avoidable renovations. In addition, inefficient planning, over-ordering of materials, and improper storage or handling contribute to unnecessary waste. Addressing these issues through circular practices—such as design for durability, modular construction, and improved logistics—can help prevent value loss before it occurs.

Mobility

Although Sweden has a well-developed transport system, Mobility remains one of the country's most resource- and emissions-intensive sectors. Transport accounts for the largest share of national emissions,²⁴ and mobility demands contribute significantly to material use—amounting to 24.6 million tonnes, or 9.2% of Sweden's total material use. Sweden's large geographical area and relatively small population create unique mobility challenges, spanning personal car travel, freight logistics, and long-distance connections.

The Mobility sector encompasses a wide range of activities, from vehicle and fuel manufacturing and retail to passenger and freight transport by road, air, and sea. Together, these activities represent around 9% of Sweden's economy. A large share of the sector's economic value is generated during the distribution stage of the value chain, primarily through passenger travel, freight logistics, and commercial shipping. While these services are essential for moving people and goods across the country, they are not directly tied to material flows and therefore fall outside the quantified losses in this analysis. Nonetheless, they represent a substantial share of the sector's economic and environmental footprint.

To understand the sector's full value dynamics, it is necessary to consider the entire life cycle of Mobility—from vehicle production and fuel supply to transportation services and end-of-life disposal. However, due to data limitations, this study quantifies value losses only in relation to land vehicle use. The actual scale of value loss across the sector is therefore likely higher than reported.

Finally, as with other long-lived assets, it is important to recognise that this analysis provides only a one-year snapshot. For vehicles, the Value Gap compounds over decades, amplifying both the challenges and opportunities for circular interventions.

Where value is lost in mobility

As shown in Figure eight, Sweden's Mobility sector generates approximately SEK 420 billion in consumption value each year, yet at least 15% of this is lost or never created due to linear and inefficient practices.²⁵ The largest share of these losses occurs at the end-of-life stage, where an estimated SEK 35 billion worth of goods—primarily vehicles—are

discarded each year. Of this, just SEK 2.6 billion (8%) is currently recovered, though existing technologies could enable material recycling of up to SEK 5.5 billion. Additional losses occur during the manufacturing and use phase, though limited data availability—particularly beyond car usage—means the total Value Gap is likely underestimated.

Overconsumption in the Mobility sector can take several forms: over-ownership of vehicles, underutilisation, choosing high-impact modes (such as flying instead of taking the train), and using oversized vehicles. While this study quantifies oversized vehicles—estimated at SEK 8 billion—the impact of other forms is likely even more significant and should not be overlooked.

Even when considering only losses related to land vehicles, we estimate a Value Gap of 16% in the sector. Beyond this, key inefficiencies arise from the use of resource and emissions-intensive transport modes that could be avoided. Though harder to quantify, these losses represent a critical area for further research and circular intervention.

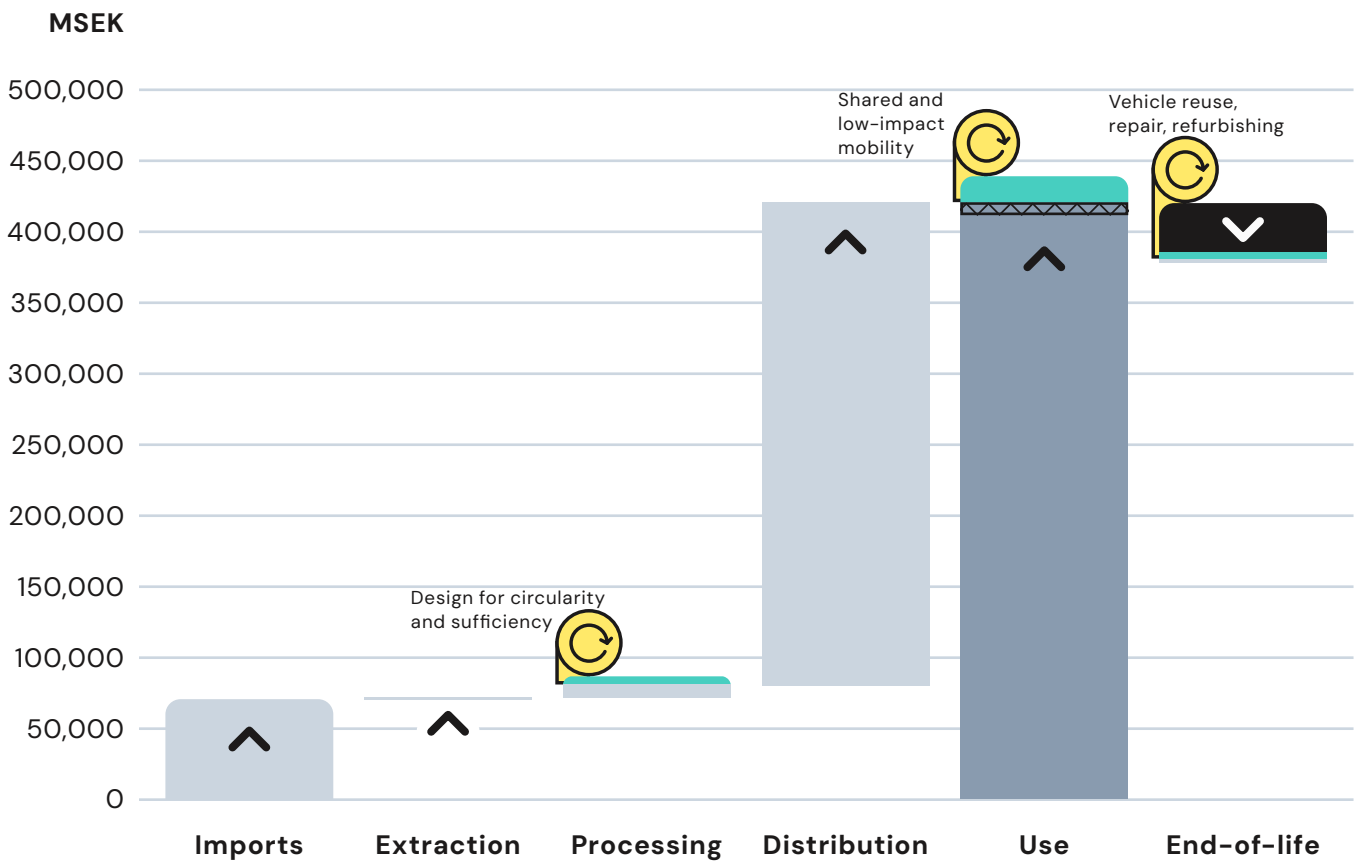
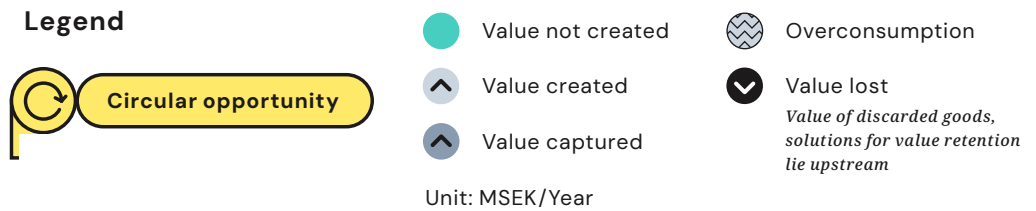


Figure eight shows yearly value creation and losses in the Mobility sector.

Unlocking value through circular design and more resource efficient mobility choices

A major opportunity to retain and recover value in the Mobility sector lies in improving the design and use of transport assets. First, extending the lifespan of vehicles through durable, repairable, and upgradeable design can help preserve value over time and reduce the demand for new production. Second, designing for ‘sufficiency’—such as optimising vehicle size and weight—can reduce material use and prevent overconsumption.

At the same time, increasing the utilisation rate of existing assets is critical. Private cars, for example, are parked for the vast majority of their lifespans. Shifting towards shared mobility, public transport, or active travel can ensure that fewer vehicles are needed to meet the same demand—helping to narrow material flows. Reducing reliance on high-impact transport modes—such as flying or driving when lower-impact alternatives exist—offers a significant but underused opportunity to minimise value loss across the sector. Finally, there is significant potential to reduce overall mobility demand through technological advancements—for example, remote work, which decreases the need for commuting and business travel.

Consumables

Consumables encompass a diverse and complex range of products—including electronics, clothing, furniture, personal-care items, and packaging—that typically have short to medium lifespans in society.

The Consumables sector covers a wide array of activities, from the manufacturing of furniture, textiles, and packaging to retail and wholesale operations. Together, these interconnected activities form an essential part of Sweden's economy, accounting for approximately 12% of the country's consumption.

Where value is lost in the consumables sector

As shown in Figure nine, Sweden's Consumables sector generates approximately SEK 520 billion in annual consumption value, yet 23% of this is lost. Most of these losses occur during the use phase, where products such as textiles, electronics, plastic packaging, and furniture are discarded despite retaining potential value. Each year, an estimated SEK 88 billion worth of goods is destroyed—items that could have remained in circulation within a more circular economy. Of this, SEK 24 billion is considered recoverable through existing circular practices, yet only SEK 8 billion—just 9%—is currently recovered.

This assessment of unrealised value focuses on textiles, electronics, plastic packaging, and furniture—major product streams within the sector—due to data availability. However, the Consumables sector is much broader, encompassing retail, wholesale, and a wide range of other products, meaning the actual Value Gap is likely underestimated. Upstream inefficiencies are particularly difficult to capture, such as unsold or discarded goods before they reach consumers. Available estimates suggest that pre-sale textile waste alone accounts for SEK 6 billion in lost value. In addition, overconsumption represents another significant form of value loss. Approximately 8% of total consumables consumption—equivalent to SEK 42 billion—is tied to the excessive purchase and use of textiles, electronics, and furniture.

Unlocking value through circular products and business models

The high share of value lost—particularly at end-of-life—underscores the potential for circular solutions in the Consumables sector. A central strategy is to prioritise better product design. Manufacturers have a critical role to play by creating products that are long-lasting, non-toxic, repairable, and recyclable. Embedding these principles into design processes is essential for retaining value across the sector's wide range of product categories.

Given the diversity of consumable products, strategies must be tailored to each stream. Some products should be designed to minimise use, while others should be made more durable to slow material flows. Circular business models such as take-back schemes and product-as-a-service can further extend product lifespans, support repair and reuse, and enable material cycling—keeping goods and resources at their highest value for longer.

Ultimately, reducing overall demand for consumables will be critical. By coupling smarter design with circular business models, the sector can address both upstream inefficiencies and downstream value losses.

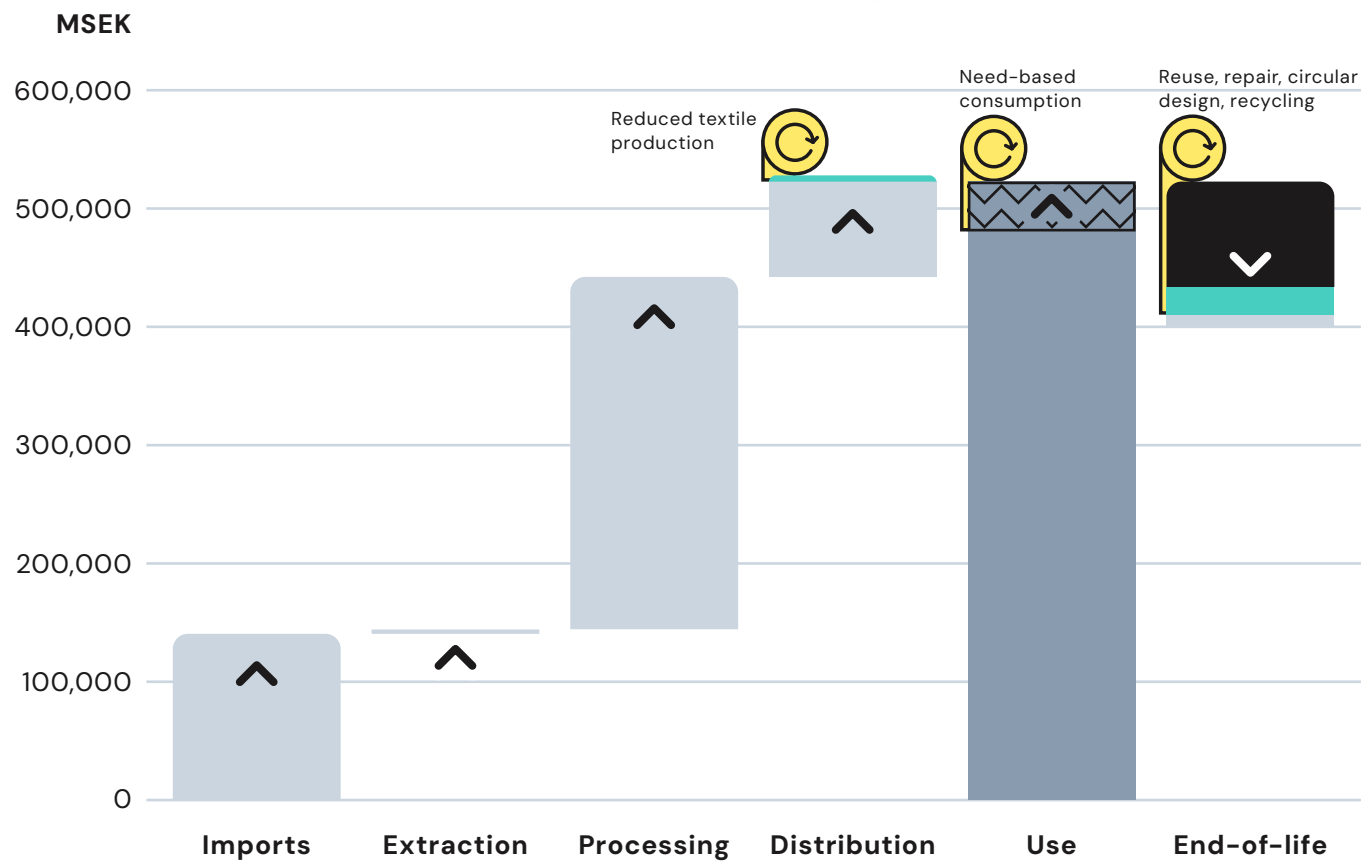
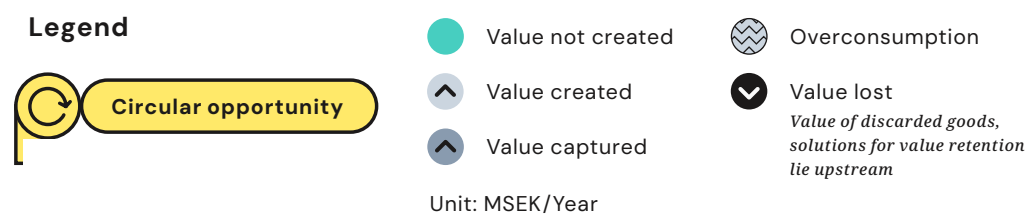


Figure nine shows yearly value creation and losses in the Consumables sector.

4

The way forward

Conclusions and call to action

This analysis demonstrates that Sweden is missing out on substantial economic value by maintaining linear economic models and practices. Each year, nearly SEK 600 billion—equivalent to almost 57% of Sweden’s state expenses—is lost through inefficiencies and missed opportunities, leaving the overall Value Gap of the Swedish economy at 19%.

A key driver of this gap is the premature end-of-life of goods. Products worth SEK 420 billion are unnecessarily discarded every year, despite retaining functionality that could enable reuse, refurbishment, or recycling. Preventing these losses represents the single largest opportunity for value retention, with solutions spanning the entire value chain—from circular product design and extended use to repair, remanufacturing, and smarter resource management.

Overconsumption adds another layer to the challenge, amounting to SEK 200 billion annually. Aligning resource use more closely with human needs, rather than excess demand, will be essential for reducing waste and retaining value.

Much of Sweden’s economic value is generated in the least materially intensive stages of the economy. This misalignment between material intensity and value creation highlights one of the central barriers to advancing towards circularity: the sectors driving the most environmental impact often deliver the least direct economic return. Addressing this imbalance is crucial for building a more resource-efficient and resilient economy.

Yet, the Value Gap also represents a massive opportunity. The shift towards circular business models would not only contribute to several policy initiatives in Sweden, such as the Swedish climate policy goals²⁶ the Swedish environmental goals²⁷ and Agenda 2030²⁸, but it would also enable companies and market players to tap into

an undervalued market and unlock new forms of growth. These findings mark an important step in strengthening the economic and financial case for circularity in Sweden. Closing the Value Gap is not just an environmental imperative but also a major economic opportunity.

Bringing together insights from both the *CGR Sweden* and the *CGR The Value Gap: Sweden*, we identify four priorities for the way forward:



1

Leverage data to inform circular solutions

This report represents the first analysis of an economy from a circular value perspective. In doing so, it has revealed several key needs to make future assessments more accurate, consistent, and actionable—specifically regarding nomenclature, data, and methods.

Nomenclature: A clear and shared terminology is essential for collecting, interpreting, and presenting data on circular value. Current nomenclature in the circular economy is largely geared toward measuring volumes of resource flows, but economic value losses and gains vary widely in nature, scale, and who they affect. Without common definitions, analyses risk being misunderstood, limiting their impact on policy and business. This report contributes novel input toward such a framework, drawing as far as possible on existing circular economy standards from the International Organisation for Standardisation (ISO). Importantly, ISO standards emphasise that circular measures must be sustainable across social, environmental, and economic dimensions. However, further work is needed to better incorporate the concept of circular value within these standards.

Data: The project has shown that current data is insufficient to assess circularity in Sweden from an economic perspective. While Statistics Sweden (SCB) has begun to track circularity, these efforts need to be expanded with a clearer economic focus and greater sectoral granularity. More robust data is essential to understand the value of resources embedded in society, identify market failures, and provide a sound basis for designing and evaluating policy instruments. Weak data risks undermining trust in results and limiting their influence on decision-making. New EU regulations on sustainability reporting and traceability can provide a valuable foundation for improving data availability and quality.

Methods: Circular value analysis would benefit from further methodological research. This report applied specific methods, assumptions, and system boundaries. Applying the same approach with different sectoral scopes or alternative methods would allow for comparison, validation, and refinement, helping to identify methodological strengths and weaknesses. Greater methodological diversity would strengthen the overall evidence base and improve the robustness of future insights.

Actions needed

- **Collaborate on circular value nomenclature to establish a stronger foundation for statistics, methods, and analysis.**
HOW: Extend ISO standardisation, engaging researchers, experts, and government bodies.
- **Improve statistics and data on circular activities and losses across value chains, to enable credible analyses that support both business and policy decisions.**
HOW: Government assignment to SCB, leveraging data from EU legislation.
- **Advance methodological research on circular value, including implementation costs and externalities, to enhance the reliability of findings.**
HOW: Increased funding from EU and Swedish research bodies.

2

Expand value definitions and address market failures

This study adopts an economic framing of value in a linear versus circular economy, offering new insights into market failures and how to address them. It demonstrates that economic value creation is often concentrated in the least materially intensive stages of the value chain. By contrast, resource extraction and manufacturing—stages with high material throughput—generate comparatively lower economic value. This misalignment between material intensity and value creation is a key barrier to advancing a circular economy.

Current economic metrics often overlook the broader environmental, social, and systemic value embedded in production and consumption. As a result, many positive and negative sustainability impacts go unaccounted for, narrowing economic analyses and reducing their relevance for policymaking. This means that material-intensive processes may be labelled as 'low economic value', even though they can generate significant non-monetised benefits. At the same time, conventional economic models tend to prioritise consumption over alternative ways of fulfilling societal needs, undervaluing practices such as sharing, repair, maintenance, and service-based business models.

These gaps result in market failures, where circular opportunities are not implemented despite their potential. Both the public and private sectors must act to create a level playing field for circular solutions and address systemic misalignments across sectors.

Actions needed

- **Expand definitions of value. More research and standardisation are needed to measure value in and beyond monetary terms, integrating environmental and social impacts into economic frameworks.**

HOW: Additional EU and Swedish research funding, coupled with global standardisation efforts.

- **Design policies that correct market failures. Policymakers should promote the creation and retention of social, environmental, and economic value. For example, with subsidies for repair, tax incentives for reuse and refurbishing, embedding value-retention in procurement rules and waste policy.**

HOW: Government adoption of circular incentives in line with, e.g., the Swedish Circular Economy Action Plan (2020).²⁹

3

Move towards cross-sectoral collaboration

When analysing value chains in isolation, we risk overlooking opportunities that emerge from a broader value network perspective. In a circular economy, resources often move between different value chains—for example, through market actors that collect, test, and resell materials. Industrial and urban symbiosis provides a clear illustration, where materials as well as energy resources like heat, steam, or cooling are shared more efficiently across networks. Similarly, scrapyards and material brokers create circular opportunities by redistributing resources. Expanding these resource intermediaries—such as symbiosis catalysts or collaboration platforms—on a larger, more coordinated scale could unlock further value.

Circular economy value networks are interconnected systems in which businesses, and sometimes other actors, collaborate to maintain the value of products, components, and materials throughout their lifecycle, minimising waste and maximising resource use. Unlike traditional linear value chains, these networks emphasise loops, feedback, and multi-directional flows of resources, materials, and information. They are essential for enabling business models such as take-back schemes, repair and refurbishment, remanufacturing, and product-as-a-service.³⁰

A defining feature of circular value ecosystems is the need for a shared customer value proposition across the network. This requires deliberate and sometimes complex decisions about how value is created and distributed among participating actors.

This study focused on value chains independently to identify Value Gaps in the six priority sectors. However, as Sweden moves toward a more circular economy, cross-sectoral

symbiosis will become increasingly important. Mapping and leveraging interactions between sectors will be critical for capturing and retaining economic value, ensuring that opportunities are not missed by examining sectors in isolation.

Actions needed

- **Identify cross-sector opportunities for value retention. Explore circular business models such as product-as-a-service, refurbishment, and repair, as well as platforms for trading reusable goods and surplus materials.**
HOW: Business-led initiatives supported by relevant policy interventions.
- **Build synergies and partnerships between actors. Encourage resource sharing in clusters, for example through industrial symbiosis.**
HOW: Business initiatives enabled by supportive policy frameworks.
- **Address challenges in information and value sharing. Investigate intellectual property and financial hurdles that hinder collaboration in circular business ecosystems. More research and pilot projects are needed to develop effective solutions.**
HOW: Additional funding from EU and Swedish research bodies.

4

Promote a shift in mindset toward needs-based consumption

Sweden's high consumption levels highlight the need to better understand consumer behaviour, particularly the concept of value. Our study shows that significant value losses occur during the use phase of materials and products. While these losses are not solely a 'consumer problem'—and solutions at the macro and micro levels have been discussed—consumers play an important role in advancing a value-preserving circular economy. By choosing circular products and services, and making deliberate decisions at the end-of-life phase, consumers can drive circular solutions. In many cases, these choices are also cost-effective, helping individuals save money while reducing waste.

Consumer understanding of the distinction between price and value is essential. Our research highlights patterns of overconsumption, such as underutilised living space, excessive food intake, and the use of oversized vehicles. These behaviours reveal a weak link between consumption and actual utility, even though perceived value varies across individuals. Similar considerations apply across a wide range of products.

Moving forward, broader conversations and actions are needed to challenge consumption habits and encourage sufficiency. Stakeholders should foster a value-driven mindset—one that prioritises function, longevity, and shared use over accumulation.

Actions needed

- **Raise awareness of overconsumption. Leverage campaigns, education, and cultural initiatives to highlight unsustainable consumption patterns, from living space and vehicle size to food intake. Integrate circularity and sufficiency into schools, vocational training, higher education, and popular culture.**
HOW: Government-led initiatives, including updated curricula and public campaigns.
- **Regulate drivers of overconsumption. Limit activities that encourage excess, such as certain public advertisements.**
HOW: Governmental regulations and oversight.
- **Make circular options attractive. Support second-hand markets, repair, and sharing schemes for products such as textiles, furniture, vehicles, and tools. Economic incentives, such as selective VAT adjustments, can encourage these behaviours.**
HOW: Business initiatives supported by targeted policy interventions.

Endnotes

1. [Handlingsplan cirkulär ekonomi](#)
2. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy. Retrieved from: [CGRI website](#)
3. Statistics Sweden, Sweden's GDP, Retrieved from Statistics Sweden's website
4. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy. Retrieved from: [CGRI website](#)
5. Circle Economy. (2025). *The Circularity Gap Report 2025*. Amsterdam: Circle Economy. Retrieved from: [CGRI website](#)
6. International Organization for Standardization. (2024). *Circular economy — Vocabulary, principles and guidance for implementation (ISO Standard No. 59004:2024, IDT)*.. Retrieved from [ISO Website](#)
7. According to Swedish and EU regulation, materials cannot be recycled before having been classified as waste. [Avfallsförordning \(2020:614\) | Sveriges riksdag](#)
8. Note: This assessment focuses on losses that can be prevented within Sweden and does not account for value lost abroad in the production of imports.
9. Note that this is not a summary of the analysis's results.
10. It's important to note that the term 'sector' is used here in a broad, functional sense. The grouping of activities is based not only on standard economic classifications, but also on how these sectors serve key societal needs. Some refinements were made to the CGR classification to better delineate sector boundaries and reflect where value is created or lost across the economy.
11. Statistics Sweden (SCB), Input-Output table 2019
12. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
13. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
14. Circle Economy (unpublished). *The Circularity Gap Report Norway – Mining spotlight chapter*. Amsterdam: Circle Economy.
15. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
16. Ekonomifakta. (2025). Strukturförändringar i sysselsättningen. [Strukturförändringar i sysselsättningen](#)
17. Eurostat. (2021). *Overweight and obesity - BMI statistics*. Retrieved from: Eurostat website
18. Eurostat. (2021). *Overweight and obesity - BMI statistics*. Retrieved from: Eurostat website
19. The Public Health Agency of Sweden (2021). *Overweight and obesity*. Retrieved from: The Public Health Agency of Sweden webpage
20. European Commission (2025), *Food waste measurement*, Retrieved from: European commission website
21. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
22. It is important to note that this assessment reflects a one-year snapshot of Sweden's construction sector, for practical reasons and for the numbers to align with the other sectors. However, because buildings typically remain in use for several decades, stock dynamics play a central role in shaping long-term material flows and value retention. The construction sector's Value Gap should therefore be interpreted with this temporal dimension in mind.
23. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
24. Circle Economy. (2022). *The Circularity Gap Report Sweden*. Amsterdam: Circle Economy.
25. This assessment represents a one-year snapshot of the sector, for practical reasons and to align with the numbers of the other sectors; however, given that vehicles typically remain in use for many years, stock dynamics are essential to understanding longer-term flows and impacts. As with Construction, the Value Gap for Mobility should be viewed in this broader temporal context.
26. [Sveriges klimatmål och klimatpolitiska ramverk](#)
27. [Sveriges miljömål](#)
28. [Agenda 2030 för hållbar utveckling - Regeringen.se](#)
29. [Handlingsplan cirkulär ekonomi](#)
30. Buildings as Material Banks (BAMB). (n.d.). Circular value networks. Retrieved from: [BAMB website](#)

Acknowledgements

Circle Economy and RISE would like to thank the funder, authors, contributors, the reference group and interviewees for their contribution to the preparation of this edition of the *CGR The Value Gap: Sweden*. Authors and contributors and interviewees have contributed to the report in their individual capacities. Their affiliations are only mentioned for identification purposes.

Project and funding partner

The strategic innovation programme RE:Source

Lead authors

Carl Jensen (RISE), Andrew Keys (Circle Economy), Julie Lebreton (Circle Economy), Ann-Charlotte Mellquist (RISE), Megan Murdie (Circle Economy), Marc de Wit (Circle Economy), Peter Stigson (RISE)

Contributors

Joost van Barneveld-Biesma, Johan Bergström (RISE), Filip Ericsson (RISE), Matthew Fraser (Circle Economy), Sara Janhäll (RISE), Kristina Mjörnell (RISE), Karin Östergren (RISE), Shyaam Ramkumar, Jan Suchorzewski (RISE), Jack Vahnberg (RISE), Cecilia Wästerlid (RISE)

Reference group

Jan Agri (RE:Source), Andreas Anderholm Pedersen, Anki Cronberg (Federation of Swedish farmers-Horticulture), Klas Cullbrand (RE:Source), Carl Dalhammar (IIIEE, Lund University), Sebastian Holmström (Inrego), Mattias Lindahl (Linköping University), Karin Lindow (The Swedish Board of Agriculture), Cecilia Mattsson (Jernkontoret), Birgitta Öjmertz, Anders Wijkman

Communication

Luba Glazunova (Circle Economy), Amy Kummetha (Circle Economy)

Design and layout

Alexandru Grigoras (Circle Economy), Lauren Zemerling (Circle Economy), Sophia Chou (Circle Economy)

Version 1.0 (Oct 2025)

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License



How to cite this report: Circle Economy. (2025). *The Circularity Gap Report (CGR®) Sweden: The Value Gap*. Amsterdam: Circle Economy.



circle-economy.com