

Upscaling True Pricing Impact in the Netherlands

An Ecosystem Framework for Intervention and
Applied Research



Purposeful Marketing Research Group
Faculty Business, Finance and Marketing
Research Platform: Transition towards Sustainability
October 2024

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Upscaling True Pricing Impact in the Netherlands

An Ecosystem Framework for Intervention and Applied Research

This report was prepared by the Purposeful Marketing Research Group at The Hague University of Applied Sciences. Our mission is to help create authentic societal value. For that, we develop and share practical marketing knowledge and tools for organizations and reshape marketing education through applied research activities that connects the work field and educational programs.

This project was commissioned by the Ministry Landbouw, Visserij, Voedselzekerheid en Natuur (LVVN).

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Acknowledgements

The authors would like to thank all participants who have helped shape and contribute to the project.

Datum

October 2024

Type project

Contract Research and Recommendation

VersionFinal

The Hague University of Applied Sciences, 2024

Executive Summary

It is widely acknowledged that there is not only a necessity but also an urgency for the food system transition to balance food production and consumption, so that it is aligned with the earth's carrying capacity. Among many efforts in driving the food system transition, True Pricing (TP) and True Cost Accounting (TCA) have been specifically initiated to account for the impact of food production on environmental, social, and health conditions, and integrate these “externality”, i.e. the cost of these impact, to the price of the products.

In the past years, multiple initiatives and programs have been executed related to True Price and True Cost Accounting, which has generated interesting learnings. Having been supporting these initiatives, The Ministry of Landbouw, Visserij, Voedselzekerheid en Natuur (LVVN) of The Netherlands would like to seek a way to scale up the impact of TP and TCA by engaging more active participation of businesses and citizens/consumers, which has been limited in the experiments and pilots so far. It has therefore commissioned this project to the Purposeful Marketing Research Group at The Hague University of Applied Sciences, to provide a fresh review of the related work and the learnings gained and to develop a framework as the base for possible interventions and applied research to scale up the impact of True Pricing in The Netherlands.

The project “Upscaling True Pricing Impact in The Netherlands” was conducted in April-October 2024. It consists of multiple steps: desk research of 70+ academic papers, project reports and research reports and other publications; qualitative in-depth interviews among 11 experts from the existing Dutch TP/TCA community; qualitative research among key actors, including in-depth interviews with 11 people from businesses in the food system, investment institutions, government and consumer organisation, as well as 2 consumer focus groups discussions; and a framework co-creation workshop with representatives of the organisations participating in the project.

Conclusions:

Based on the work described above, the project has concluded that True Price could be a very useful tool to effectively support the societal transition as it could bring transparency to enable responsible business decisions, help create awareness of hidden costs and behaviour impact among consumers, and inform policy-making instruments.

After more than a decade of work on True Price (TP) and True Cost Accounting (TCA), efforts have progressed from the initial “pre-development” to the “take-off” transition phase. This shift is reflected in government statements, ongoing attempts to harmonize methodologies, the growing number of companies conducting pilots and experiments, the rise in conferences on the subject, and increased media coverage. Despite this momentum, awareness remains limited, and methodological gaps are still preventing broader adoption—both of which are essential for scaling up TP impact.

To achieve this, significant change is required now. To succeed in scaling up the TP impact, it is critical to adopt the Ecosystem approach, considering all relevant actors as part of the integral ecosystem, in which the interdependences and interactions among actors are essential for the overall success. Among all actors, the government leadership and the business determination are critical.

Strong government leadership is desired in providing strategic vision and plans on TP, phasing its support to businesses with the means of regulations and policies, strategizing and facilitating collaborations at the regional, national and international levels, and in developing and managing strategic engagement with citizens and consumers.

Businesses are expected to drive the transition efforts to provide consumers with responsibly produced products as the mainstream, through vertical (value-chain) and horizontal (industry-wide) alignment on goal-setting and business execution, leveraging the transparency provided by TP tools.

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Mass consumer acceptance of true price is unlikely going to happen unless it becomes widely available for most products and channels, thus the mainstream or the new norm. Citizen and consumer engagement needs to be strategically planned and managed with a long-term perspective and a phased approach.

It is widely recognized that investment institutions have a strategic role in stimulating business transitions, leveraging financial instruments with long-term and societal perspectives.

The availability of reliable TCA calculations is a strategic imperative for the scale-up of TP impact. A feasibility-impact matrix could help the prioritization of the TCA calculation effort, i.e. giving priority to TCA calculations to highly impactful and feasible cases.

Recommendations:

The Ecosystem-based Framework has been proposed aggregating the above conclusions, providing the base for possible interventions and applied research to scale up the impact of True Pricing in The Netherlands. This Ecosystem framework shows that it is essential to consider all relevant actors as part of an integral ecosystem, to organize the True Price effort to scale up its impact effectively. This Ecosystem Framework has described the role of different actors, as well as the interdependences and interactions among actors that are critical for the overall success.

Finally, it is recommended for the Ministry of LNVN to continue supporting TP related efforts to scale up its impact, with the following priorities:

1. **Develop and communicate a strong strategic vision on TP**, in collaboration with other relevant ministries, connecting with the larger society and policy context. Establish the strategic resourcing plan with clear priority setting.
2. **Focus the governmental resource to support business success**, primarily on the value-chains and related businesses that have access to mass market for scale-up effect. Finance the knowledge support for business successes, and stimulate knowledge generation and dissemination to accelerate societal impact.
3. **Design and execute long-term and strategic citizen and consumer engagement programs**, considering target segmentation, roadmap and the role of relevant actors.
4. **Strengthen the strategic support on TCA calculation and harmonization** by strategizing the TCA calculation efforts with a feasibility-impact matrix, developing and leveraging an objective-driven TCA calculation framework that provides clear guidelines on what methodology and calculations could be used for different objectives, and providing support on improving data access and new technologies development to help automate the reliable data access.
5. **Provide knowledge Institutions with structural financial support** not only on the knowledge creation and dissemination, but also on the translation to concrete education and professional training development.
6. **Establish a clear strategy to leverage and incentivize investment institutions** structurally in supporting scale-up TP impact with their financial instruments, which stimulates their active role in nurturing strategic partnership and establishing new financial standard for long term societal value creation.
7. Define a long-term strategy and plan on how to develop and **implement policy and regulatory instruments** to support scale-up TP impact in a phased approach.

Moving forward, we hope these recommendations will help the Ministry of LNVN to formulate its strategy and approach in leveraging True Pricing and True Cost Accounting to drive the food system transition of the Dutch society.

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1 Introduction

1.1 Background and Introduction

The Knowledge and Innovation Agenda 2024-2027 of the Ministry of Agriculture, Water and Food Quality, acknowledges the urgency and necessity of the food system transition to balance food production and consumption so that it is aligned with the earth's carrying capacity. In particular, Mission 4A highlights the importance of working towards transparent and sustainable food chains, with the final goal of building transparency on the external costs and distributing them equally throughout the chain to achieve a sustainable, healthy, and safe food supply that is accessible to all consumers. Sustainable and healthy choices must go hand in hand and become the normal choice (KIA LNV 2024-2027).

True Pricing (TP) addresses this need by accounting and integrating into the final price the negative external costs of food production: environmental externalities such as climate change and biodiversity loss, as well as social externalities such as underpayment (Baker et al., 2020; Rockstrom et al., 2009; Hendriks et al., 2021). There is an urgent need to accelerate the adoption of True Pricing in the agricultural sector to promote sustainability, address pressing environmental and social challenges, and incentivize both production and consumption of healthier and more sustainable diets (Hendriks et al., 2021).

The Food Agriculture Organization (FAO) of the United Nations acknowledges that true cost accounting is a systematic approach that creates an unprecedented opportunity for factoring the costs and benefits of agrifood systems. The true costs are critical for the decision-making process that need to be activated to achieve many, if not all, of the Sustainable Development Goals (SDGs). In this regard, True Cost Accounting (TCA) is defined as the comprehensive assessment to measure and value the environmental, social, health and economic costs and benefits generated by agrifood systems to facilitate improved decisions by policymakers, businesses, farmers, investors and consumers.

In the past years, the Ministry of LNVN has supported research projects in the area of True Pricing, such as the first PPP “Real and Fair Prices” (2019-2022) and the second PPP “True Price: From Insight to Action” (2021-2024), both led by Wageningen University & Research. There have been also True Pricing related real-life pilots and experiments, in the frame of the Multi-year Experimental Program (2020-2023).

Moreover, in June 2023, Raoul Boucke (D66 Parlement member) submitted a motion in favour of further developing true pricing. His motion, supported by a coalition majority, highlights the potential of true pricing to better account for climate and environmental damage. The government has been called upon to assess which sectors, product groups, and services do not yet apply true pricing and to explore how consumers can gain greater insight into the true prices of products. The motion further asks the government to investigate possible instruments that could support the development of a true pricing system and to report their findings by spring 2024 (www.tweedekamer.nl). Supported by the members of parliaments from VVD, CDA, and ChristenUnie, this motion signals growing political momentum supporting true pricing as a tool for advancing sustainable economic practices.

1.2 Challenge at Hand

In recent years, the discourse around sustainable and responsible consumption has evolved beyond mere environmental awareness to a nuanced consideration of the true cost associated with the products we buy. The concept of true pricing has gained prominence, reflecting an endeavour to comprehensively account for the social, environmental, and ethical impacts embedded in the production and consumption of goods.

Current research in True Pricing primarily focuses on dissecting value chains and developing intricate calculation models to unveil the hidden externalities associated with products. In recent years, a few multi-year programs have been developed and executed, with efforts in the form of real-store pilots, experiments, and eco-labelling initiatives (PPP “Real and Fair Prices” 2019-2022, PPP “True Price: from

Insight to Action” 2021-2024, and the “Multi-year Experimental Program”). Consumer research projects have also been conducted to gain insights on consumer responses in general and to various experiments in the Netherlands and in Germany (Michalke et al., 2022; Michalke und Gaugler et al., 2024). Dutch programs have been supported by the Ministry of LNVN.

In addition, Horizon Europe FOODCoST project (foodcost-project.eu, 2024) led by Wageningen University & Research, has expanded the true pricing research effort at the pan European level. Recent results from the “Wahre Kosten Kampagne” German experiment, led by Nuremberg Institute of Technology and the University of Greifswald, revealed some controversial results: the sales of the true-priced products in the supermarket Penny went down, though less than expected for some products; consumer did not comprehend the different negative impact caused by different product categories, and after the campaign they were sceptical about potential government policy interventions to implement true prices (wahre-preise.com, 2024)

Despite the great efforts and the valuable learnings generated previously, the True Pricing movement is still in its infancy. The desired tractions and significant participations of businesses and citizens are yet to be realized in order to reach its full potential for societal impact. Barriers identified are three folded:

- Consumers need to be incentivized to change their actual purchase behaviour, and the impact on citizens with less financial means need to be carefully addressed.
- Companies' decision makers need to be motivated to implement transparent and sustainable production chains.
- Policy makers, need to build a new playing field with drivers to motivate the other two stakeholders.

The Ministry of LNVN has therefore highlighted that the question at hand is “how to scale up the results of the previous true pricing research programs”. It has been recognized that only when there is a significant expansion in the number of businesses participating in responsible value chains, will there be a substantial increase in the number of consumers actively choosing products with transparent and responsible pricing structures. Therefore The Ministry of LNVN would like to gain insights on the following:

*How can we effectively involve companies and citizens
in making the efforts to scale up True Pricing effort concretely?*

How can we transform the individual experiments into a broader integration of True Pricing?

To address the above, Ministry of LNVN has requested THUAS Purposeful Marketing Research Group to provide a fresh review of the results and learnings from the previous True Pricing efforts and to come up with an approach aiming at developing a framework that serves as the base for upscaling the impact of TP/TCA effort, as well as for the knowledge development supporting this goal.

1.3 Project Objectives

The Hague University of Applied Sciences (THUAS) has been commissioned for this project on True Pricing with the following two objectives:

1. Providing a fresh review of the work done related to True Pricing (TP) and True Cost Accounting (TCA) in the Netherlands;
2. Developing a framework as the base for possible interventions and applied research to scale up the impact of True Pricing in The Netherlands.

This “True pricing Scaling-Up Framework” (referred to as the “Framework” in short) will propose the possibilities, insights and pathways for interventions, as well as applied research routes that impact the stakeholders involved in True Pricing.

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It has been aligned with the Ministry of LNV that the key project outcome will be the “framework” report (practice-oriented work plan). The report will contain a framework that makes clear what today's knowledge has yielded and what interventions and applied knowledge are needed to scale up TP and TCA impact in the sustainable transition. The report should provide a breeding ground for targeted interventions on market transformation.

To summarize, this project is to answer the following key question: What Framework can we use to progress on True pricing, which provides a practice-oriented work plan that effectively supports the upscaling of its impact in the sustainable transition?

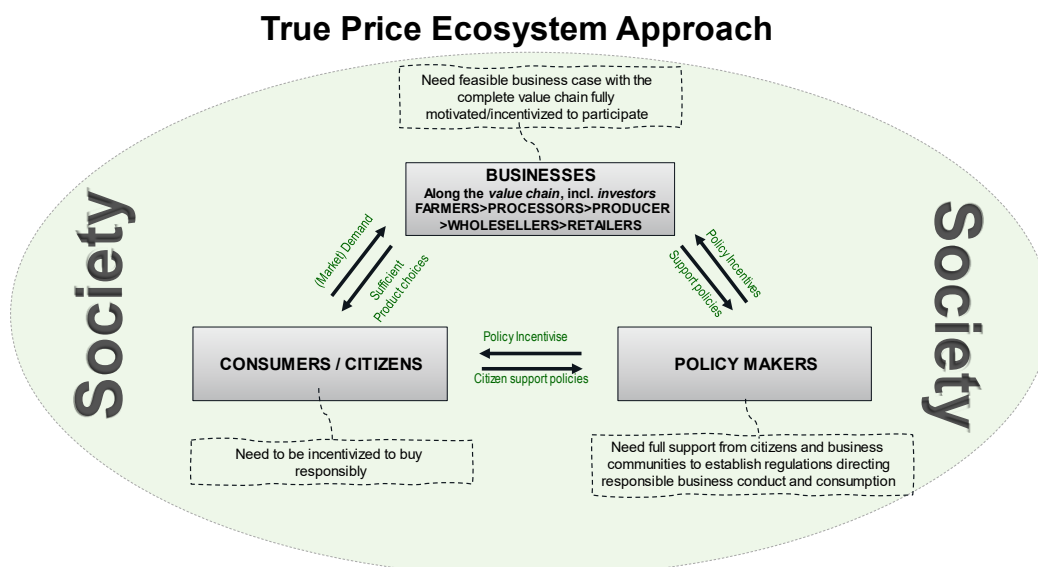
2 Approach and Project Steps

2.1 The Starting Point

Our fundamental belief: The True Pricing Ecosystem Approach

As commonly recognized, there is a lot of complexity around True Pricing and its embedment as common practice. Many different actors need to be truly motivated to make the right movements, and sustainable incentives need to be present to make the scale-up successful. To answer the questions at hand, a deep understanding of all relevant actors is required. Hence, we have proposed the “Ecosystem Approach” as the starting point to direct the project steps. As illustrated in Figure 1, at least three types of inter-related actors are critical, as illustrated in below graph: Businesses need to be successful (also financially), consumers and citizens need to be able to buy products with true pricing, and policymakers need to have full support from the citizens/consumers. They all must move in the same direction towards the sustainable food transformation, but their needs and pre-conditions need to be satisfied. And, they are dependent on each other's input and successful steps as well, e.g. without consumers' adoption or policy support, businesses will not enough market demand to make the business case work.

Figure 1: True Price Ecosystem Approach



Source: H. Joosten-Ma & M. A. Aragon Moran, THUAS, Purposeful Marketing Research Group, 2024

These three interdependent parties need to be activated, motivated and incentivized effectively to reach the scaled positive societal change.

This means that critical insights are required in all three areas.

The framework needs to tackle the full ecosystem, providing support to all three interdependent parties in many decisions they need to make in their respective transitions. The questions at hand span a wide range of disciplines, emphasizing the inter-, multi- and transdisciplinary nature of the true pricing field. Successful advancements will likely require collaborations among all actors in the ecosystem, such as businesses, policymakers, investors, NGOs, branch organisations and knowledge institutions. It also requires a wide range of expertise, such as economics, business strategy, supply chain and operations, psychology, marketing, environmental science, sociology, societal change governance, and policymaking.

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2.2 Key Project Steps

Considering the Ecosystem approach, the following steps have been taken in this project within a seven month period, from April to October 2024:

Step 1: Desk research (April-June 2024)

To gather a comprehensive understanding on the existing written knowledge. This was accomplished by gathering, analyzing, and synthesizing existing literature and information from previous work related to TP and TCA. We focused primarily on Dutch sources and added relevant international resources that could add value to our recommendations.

More than 70 pieces materials have been analyzed, including scientific publications, project reports, press articles and white papers. They provided a comprehensive understanding of theoretical perspectives, empirical evidences, controversies, and areas requiring further investigation.

Based on the above initial analyses, knowledge gaps have been identified, with the areas where further applied research is needed to effectively upscale adoption by the three key interdependent actors, as highlighted in the initial ecosystem approach.

Step 2: Qualitative research on existing TP community (May-June 2024)

To gain an up-to-date overview on the existing work and knowledge. Relevant previous efforts, projects and knowledge owners (experts) were identified and approached with the help of the Ministry of LNVN. As a result, 11 experts from the existing TP community, with relevant academic and/or applied research have been interviewed.

The objective of the interviews was to get the personal perspectives from the interviewees, especially on their views on the barriers, drivers and key success factors needed to scale up the impact of TP.

The interviewees have also shared their views on knowledge gaps, and/or critical issues that need to be further researched with stakeholders outside the existing TP network.

Step 3: Qualitative research on key actors (May-July 2024)

To understand key stakeholders perspectives on the opportunities and barriers for them to embrace TP practices, 11 people from different actor groups have been interviewed: 7 from businesses (covering producers, caterers, retailers and SME food-related service providers). 2 from investment institutions, 1 from consumer organizations and 1 from government. The topics include their awareness, knowledge on TP/TCA, the role of TP/TCA in the transition, opportunities and barriers, own related efforts and learnings, critical success factors for upscaling, and knowledge required.

2 consumer focus group discussions were conducted among consumers who have the basic awareness of the potential environmental and social impact of their own food consumptions. Key topics included general food purchase decisions, awareness of TP/TCA, responses and views on TP/TCA and its potential implementation in the Dutch society, the barriers and benefits from their own perspectives, the roles of different actors in their perspectives.

Step 4: Draft framework development (July-August 2024)

Based on key findings from the previous steps, the draft framework for True Pricing upscaling further applied research was developed. This draft framework has included the required critical components for upscaling TP impact, their detailed interdependence, the important content themes and topics, and their sequencing and prioritization.

Step 5: Co-creation Workshop with all project participants (September 2024)

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The workshop brought together members of the existing True Price (TP) community, experts from knowledge institutions, key business representatives, and officials from the Ministry LVVN. During the workshop, participants shared findings, aligned on knowledge gaps, assessed priorities, discussed the framework and the applied research needs. The outcomes of the workshop have been integrated into relevant sections of the report, enhancing the project's findings and supporting the final conclusions and recommendations.

Step 6: Final reporting (October 2024)

3 Desk Research

In this section, we summarize key insights from existing research on True Cost Accounting (TCA) and True Pricing (TP) to identify intervention strategies necessary for scaling up the impact of true pricing in the sustainable transition in the Netherlands. Over 70 sources were analyzed, including scientific publications, reports, white papers, master thesis, and webpages.

The desk research is organized into four sections: methodology and calculations, businesses, consumers, and government. Each section highlights the main findings, explores potential controversies, and identifies areas needing further explorations or interventions to enhance the role of true pricing in driving the sustainable transition.

Finally, we provide a brief overview of the Transition Theory and the Market Transformation Framework, illustrating how these perspectives can enrich the True Pricing Ecosystem Approach by incorporating a time dimension and the evolving interactions of stakeholders at different phases.

3.1 True Price Methodology and Calculations

The True Price (TP) and True Cost Accounting (TCA) offer vital tools for unveiling and monetizing the hidden costs and benefits of food systems. Rooted in the concept of externalities introduced by economists Pigou and Marshall in the 1920s, TCA seeks to capture the social, environmental, health, and economic impacts that are often left out of traditional market pricing. While the importance of addressing these externalities has gained increasing attention over recent decades, there remain significant challenges in standardizing TCA methodologies and improving data accessibility. This section explores the current state of TCA, highlighting key methodologies, gaps in harmonization, and the need for further efforts to make TCA more actionable for policymakers, businesses, and consumers alike.

True Cost Accounting as a tool to unveil and monetize the hidden costs of food system

Externalities refer to "situations when the effect of production or consumption of goods and services imposes costs or benefits on others which are not reflected in the prices charged for the goods and services being provided" (OECD, 2013). In other words, we can refer to externalities as "external impacts" or "hidden costs" for the society and environment, that are not reflected in the market price. Externalities can be negative (greenhouse gas emissions impacting others beyond the polluter) or positive (lower healthcare costs derived from benefits of healthy diets).

Externalities in the food system arise from various factors (refer to **Table 1**, from Hendriks et al 2021). Notice that the classification differs per approach: the boundary between social and human capital is defined differently across frameworks, and the impact of health is seen as an externality itself or classified as part of human externalities.

Table 1: Summary of key externalities of the food system, from UN Food System Summit Draft

Type of externality	Examples of externalities	Endpoint impact(s)
Environmental ¹ (effects on natural capital)	Air, water and soil pollution GHG-emissions Land use Overuse of renewable resources Soil depletion Use of scarce materials Water use	Contribution to climate change, health effects, depletion of abiotic resources, depletion of biotic resources including ecosystem services and biodiversity.
Social ² (effects on social rights and human & social capital)	Animal welfare Child and forced labour Discrimination and harassment High and variable prices Training Underpayment and underearning	Poverty, well-being, food security and human skills.
Health ³ (effects on human health)	Antimicrobial resistance Undernutrition Unhealthy diet composition Zoonoses	Human life (mortality and the quality of life), Economic (medical costs, informal care, lost working days)
Economic ⁴ (effects on financial, manufactured and intellectual capital)	Food waste Tax evasion	Increased food demand, and a decrease in public funds

Sources:

¹ FAO, 2015; NCC, 2015; Baltussen et al., 2016; Allen & Prosperi, 2016; Nkonya et al., 2016; TEEB, 2018; 2019; Dalin & Outhwaite, 2019; FOLU, 2019; Galgani et al, 2021.

² Baltussen et al., 2016; Westhoek et al., 2016; IDH, 2016; WBCSD, 2018; Jaffa et al., 2019; True Price, 2020a, Galgani et al, 2021.

³ Wageningen University, 2017; FOLU, 2019; TEEB, 2018; GBD, 2019; FAO et al., 2020.

⁴ FAO, 2015; TEEB, 2018; 2019; Impact Institute, 2020; FAO et al., 2020.

Source: Hendriks et al. 2021

A first step to address externalities is to unveil them, redefining the value of food (UN Food Systems Summit 2021). This can be realized by True Cost Accounting (TCA). While there are many definitions for TCA, we have adopted the following in this report: True Cost Accounting (TCA) is “a holistic and systemic approach to measuring and valuing the environmental, social, health and economic costs and benefits generated by agrifood systems to facilitate improved decisions by policymakers, businesses, farmers, investors and consumers” (FAO, 2023)

Consensus and differences in TCA Approaches

Over the past decade, True Cost Accounting (TCA) has gained traction across a range of commercial and non-commercial organizations, with each tailoring the approach to fit their specific needs. Consequently, various TCA methodologies have emerged, making it challenging to compare results across different approaches. (de Adelhart Toorop et al., 2021)

Impact Institute and the True Cost Accelerator registered and compared 35 methodologies. While there are many similarities among the approaches, the differences are equally significant (Impact Institute 2023). They are summarized in **Table 2**.

Areas of general consensus are: a vision on the need to weigh in the externalities in food systems decision-making, the inclusion of economic, environmental and social (human, including health) effects, as well as the use of comparable metrics of costs and benefits to stakeholders. Additionally, there is consensus on including the different stakeholders in the value chain when accounting for the externalities. (de Adelhart Toorop et al., 2021; de Adelhart Toorop et al., 2023; Impact Institute 2023).

The authors highlighted the differences amongst various frameworks. First, each framework uses a different set of indicators. Second, the levels of aggregation differ: indicators are aggregated to varying degrees (as **Table 1** showed). Third, not all impacts are measured in all methodologies, and there is no

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alignment as to whether to include net positive and negative effects. Fourth, different TCA frameworks use different ways to measure welfare (wellbeing): while some approaches measure the value based solely on the impact to human wellbeing, others take a broader view, also including nature and/or human rights. Fifth, a variety of monetization techniques (i.e. the calculation to translate hidden costs and benefits in monetary units) are observed among methodologies. Some techniques use an economic approach (marginal damage costs), while others have a more legal approach based on rights (remediation costs); as a consequence the same impact has a different value depending on the methodology used. For example, the 'social cost of carbon' can range from below 0 to more than US\$2,000 per ton CO₂, depending on the monetization technique. Lastly, different frameworks have different views on the degree to which the value chain of an organization should be included in a TCA project (i.e. to what level an organization is seen as responsible for the externalities created by other organizations involved in their value chain) (de Adelhart Toorop et al., 2021; de Adelhart Toorop et al., 2023; Impact Institute 2023).

Table 2: Similarities and Differences in the True Cost Accounting methodologies in literature

SIMILARITIES	DIFFERENCES
Shared Vision	Indicators
Environmental, Social and Human impacts	Levels of aggregation, including net positive and negative effects
Use of comparable metrics	Completeness
	Measure of welfare
Multistakeholder view of the value chain	Monetization techniques
	Scope of the value chain

Source: Based on Impact Institute, 2023

Despite the variety of TCA approaches, even within a single framework, researchers face numerous micro-level decisions that can lead to differing values and potentially divergent conclusions on the same topic (de Adelhart Toorop et al., 2021). De Adelhart Toorop et al. describe this as a paradox: while TCA methodologies are still in need of improvement for wider adoption, the field has already expanded too broadly, with over 30 independently developed methodologies. This fragmentation makes it difficult to establish standardized practices, complicating efforts to unify TCA approaches (de Adelhart Toorop et al., 2021).

Harmonizing TCA methodologies is a key first step for upscaling TCA

Standardizing methodologies is a key step to make TCA more accessible and actionable for policymakers, businesses, and consumers. Comparability among results and trust in the calculations highly depend on its harmonization (de Adelhart Toorop et al. 2023; Logatcheva et al. 2023), thus it is one of the key factors for scaling up.

However, expecting a single methodology to suit all applications of TCA is likely unrealistic. De Adelhart compares TCA with finance methods, which depend on well-established and traditional metrics, and have various methodologies for different applications such as annual reporting, internal control, asset valuation, credit rating or government budgeting, despite these processes having clearly defined boundaries. TCA remains insufficiently defined, with unclear boundaries for what constitutes a TCA assessment. Thus, there is a need for agreement on shared principles, definitions, and metrics across applications, and clear standards and guidelines per application (de Adelhart et al. 2021).

Efforts toward harmonization are underway. Impact Institute, sister company of the True Price Foundation, has identified nine harmonization initiatives. (Table 3). These initiatives resulted in combined approaches from various members, as reflected in Table 3. The result is more detailed guidance than the individual methodology provided before, making it easier for users to implement the new approach with less additional instruction, compared to the previous initiative (Impact Institute, 2023)

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Table 3: TCA Harmonization Initiatives

Harmonization Initiatives	Previous individual methods
PPP for True Pricing	Wageningen University and True Price Foundation
Impact Weighted Accounts Framework (IWAF)	Harvard Business School and Impact Institute
Value Balancing Alliance (VBA) method	Deloitte, EY, PwC and KPMG
Transparent method	Takes different elements from different methods
FoodSIVI	Takes different elements from different methods
The Natural Capital Protocol	Takes different elements from different methods
Social and Human Capital Protocol,	Takes different elements from different methods
TEEBAgriFood Evaluation Framework	Takes different elements from different methods
TCA AgriFood Handbook (TMG Thinktank and Soil & More Impacts 2022),	Derived from the TEEBAgriFood Evaluation Framework

Source: Based on Impact Institute, 2023

According to Impact Institute and the True Cost Accounting Accelerator, The TCA AgriFood Handbook, FoodSIV and the PPP are three methods specifically created for food systems, which contain a high amount of details in the process, enabling practitioners to perform an assessment without the assistance of a methodology expert.

However, a review of Dutch business initiatives applying True Pricing PPP methodology, unveiled that the underlying principles, calculation models and data in the TCA pilots were rarely available, clear or public (True cost accounting in The Netherlands A Quick Scan, 2022). This suggests that, in practice, even the most detailed methods still require improvement for transparency of the calculation details and its process.

Achieving a de facto standard, or an agreement on what standards are best suitable per application, requires coordinated actions. The harmonization must take place not only at overall guiding principles level, but also on externalities, monetization factors and calculation rules (de Adelhart et al. 2023).

Efforts are underway to achieve harmonization, as visualized **Figure 2**, (Impact Institute, 2023).

There are two harmonization initiatives in the Netherlands: PPP on True Pricing (WUR), and TCA AgriFood Handbook (CE Delft). In addition, the FoodCost EU Horizon project is an EU-wide initiative led by WUR.

Figure 2: Mapping of the current True Cost Accounting interactions and related harmonization efforts¹



Source: Impact Institute, 2023

Data availability is a key challenge for upscaling TCA

A key challenge for upscaling TCA impact lies on availability and accessibility to data. A TCA study requires a substantial amount of data to be collected to assess the costs in scope. A shared data directory and standardized tools for primary and secondary data collection can greatly reduce the resources required for TCA studies (de Adelhart et al., 2023)

Snoek et al. (2024) provided an overview of the data and databases that can be used to calculate the true costs of food. These databases can be used to support TC assessments. However, depending on the goal of the TCA, there is a necessity of collecting specific, primary data/

The Scientific Group of the UN Food Systems Summit called for further application of technological developments for building comprehensive databases. They suggested that the developments in digital technology, environmental science, and economics can create a substantial opportunity to implement TCA and TP, supporting a transition to sustainable food systems. Key developments include improved environmental data from satellite and sensor technologies, enhanced traceability across value chains via IT systems, and the potential of blockchain and big data technologies to provide reliable and real-time information (Hendriks et al., 2021)

As stressed in literature, TCA community should further collaborate on developing universally accepted data standards and a unified data collection framework to ensure scalability and feasibility. Additionally, establishing a publicly accessible database of high-quality data, grounded in a standardized TCA model, would further support the harmonization efforts (de Adelhart et al., 2023).

¹ Abbreviations: The Economics of Ecosystems and Biodiversity (TEEB), Harvard Business School (HBS), Impact Economy Foundation (IEF), Value Balancing Alliance (VBA), Wageningen Economic Research (WEcR), World Business Council for Sustainable Development (WBCSD).

Social indicators remain challenging to quantify and assess

Currently, a wide variety of calculation methods are used for TCA, leading to inconsistent results. Efforts are underway to harmonize these methods at the EU level, but there is still no consensus on how to measure certain impacts. While TCA accounts for both environmental and social indicators, the development of social and human impact indicators, such as child labor, is still in its early stages. These social indicators remain challenging to quantify and assess, whereas environmental indicators are generally easier to measure (Vervelde et al., 2024)

In practice, current tools are useful for estimating true prices and identify “hot spots”, but methodology shortcomings prevent its full applications

A good example of TCA application is the analysis conducted by the UN Food Systems Scientific Group to estimate the true costs of the global food system. It has included diverse sources of data, and adopted the methodology from the first PPP 'Real and fair price for sustainable products' (Galgani et al., 2021). The result shows the true annual cost of food was estimated to be around 7 trillion USD for environmental costs, 11 trillion USD in costs to human life and 1 trillion USD in economic costs (Figure 3). Given that the cost of food at the market prices at that time was 9 trillion USD, the results showed that the true cost of food is disproportionally high. More importantly, the analysis revealed that the most important impact area is the costs to human life derived from unhealthy diets (Hendriks et al 2021).

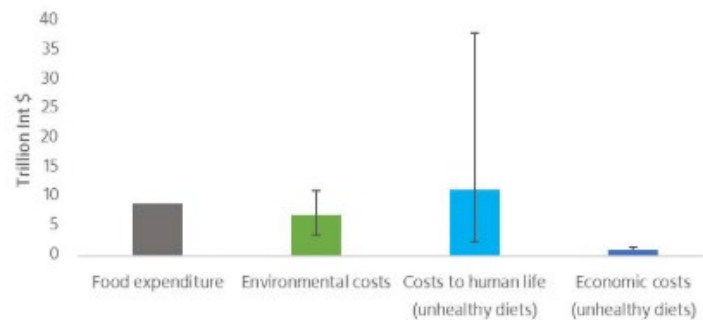
TCA methodology has been developed in the PPP1 “True Price of food” (Galgani, 2021), and tested in different case studies. Results show that the method can be used to get a first estimation of the true price of products, and which impact areas contribute most to the true price gap. However reliable comparison between the true price of common products and non-common (i.e. organic) food products is not possible, due to the shortcomings in the true price methodology and availability of good data. The first shortcoming is that some important externalities, such as soil degradation or biodiversity loss, are difficult to monetize and are therefore only moderately reflected in the true price gap. Secondly, other externalities such as biodiversity loss, are only included to a limited extent in the methodology. Moreover, the positive impacts of organic production are not fully taken into account. As a result, the true price of some organic products is higher than the that of a regular product (Vissers L et Snoek J, 2023).

For example, the exploratory study of the hidden costs of conventional and organic pork production in The Netherlands showed the most important impact area (hotspots) of conventional and organic pork production is air pollution. This insight could be used by public and private organizations to improve the sustainability of pork. The pig farming industry could decide to focus more on reducing pollution from stables, for example by using air scrubbers. The government could decide to devote more resources to reducing particulate matter in pig farming or to give the related objectives a higher priority. Furthermore, the insights could be used by the pig production chain to communicate to society which sustainability aspects (conventional or organic) pig farming scores well and on which aspects there is still room for improvement. However, due to the limitations in the methodology and the availability of data, no conclusions can be drawn about the comparison of conventional and organic pork true price, therefore, it cannot be used to determine the level of interventions - for example the level of a meat tax. (Vissers L et Snoek J, 2023)

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Figure 3: The annual true cost of food for the Globe

Note: the bar represents the range of possible costs.



Source: UN Food Summit 2021 (Hendriks et al 2021)

While results will never be perfect or entirely objective, TCA provides actors in the food chain with much better information about the value of food than they currently have. Given the ubiquity of externalities, the complexity of TCA, and the significant interests involved, actors in food systems need an abundant supply of affordable, comparable and reliable TCA information (Hendriks et al 2021).

3.2 Businesses

In the Netherlands, several initiatives have emerged to integrate True Cost Accounting (TCA) and True Pricing (TP) into business practices in the food sector. As these frameworks gain traction, businesses are recognizing the opportunities they offer, from identifying sustainability "hotspots" in supply chains to enhancing corporate social responsibility and transparency. However, despite growing interest and support from both the government and knowledge institutions, companies still face significant challenges, such as a lack of standardized methodologies, difficulties in data collection, and uncertainties around consumer behaviour. This section explores the opportunities and challenges businesses face in implementing TCA and TP, drawing from existing publications.

The Food and Agriculture Organization of the United Nations, in its report "*State of Food and Agriculture 2023*", stated that agrifood systems are primarily driven by the private sector, and businesses must take responsibility for reducing hidden costs. True Cost Accounting (TCA) provides a framework for companies to more accurately assess and manage their impacts. By integrating TCA into decision-making, businesses can identify opportunities across the supply chain, promote sustainable production, attract investment, and benefit from government incentives. When supported by policies and regulations, TCA reshapes key performance indicators and redefines business success by incorporating human, social, and natural capital (FAO, 2023)

In a report of the PPP "From Insight to Action", Vervelde et al. (2024) agrees that the value of TCA (compared to other sustainability tools) lies in: (1) offering monetized indicators, which helps businesses prioritize risks and opportunities, and simplifies decision making, (2) integrating well with existing accounting systems, as both measure and value costs and benefits, and (3) having a broad scope, including environmental, social, and human impact indicators.

Furthermore, the report looks at business from the angle of the different steps of the management cycle, indicating that different tools support different steps of the management cycle. According to the authors, within the management cycle, TCA is most effective in the steps of identifying risks and hotspots (step 1) and in the evaluation (step 5). It helps identify relevant sustainability risks by quantifying external costs and provides a clear basis for evaluating targets and measures through transparent, comparable overall scores.

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Consequently, TCA is seen as particularly valuable for two business applications: creating transparency and supporting prioritization. True Cost Accounting (TCA) is useful for making external costs and benefits clear and easy to compare by expressing them in monetary terms, and it helps prioritize sustainability efforts. However, it cannot address the root causes of problems nor drive behaviour change on its own, although it could be used to communicate with consumers or support pricing strategies (Vervelde et al., 2024).

Overview of TCA/TP Business Initiatives in The Netherlands, Opportunities and Challenges

In the Netherlands, several initiatives have been launched to apply True Cost Accounting (TCA) and True Pricing (TP) within the business sector. A 2022 Quick Scan conducted by WUR identified approximately 30 business initiatives related to TP or TCA in the food sector. These initiatives received government financial support, with knowledge institutions or consultancy firms overseeing the calculations and implementation (Splinter, 2022). In addition, we have identified five additional true cost assessments in the cocoa, meat, and coffee industries published in 2023 (Publications-Impact Institute, 2024).

We have reviewed these initiatives and analyzed the opportunities and challenges of TCA and TP as reported by businesses in previous publications.

Businesses recognize the *opportunities* that TCA/TP offers:

1. Helping identify “hotspots” areas to reduce the negative impacts in the value chain

Most of market players declared that adopting true cost accounting can help identify the sustainability effects caused by food production. It provides them with a clear understanding of where the impact of food production lies, helping determine who can take action and where to mitigate these effects (Splinter, 2022). This aligns with Vervelde’s conclusion that TCA is particularly valuable for creating transparency and applying weighting.

For example, TCA/TP provides catering businesses with insights into the environmental impact in their value chain. By calculating the true costs of their food offerings, businesses can identify hotspots where environmental costs are the highest, such as meat products and dairy, and make adjustments to reduce these costs (CE Delft, 2023a). For instance, replacing animal-based products with plant-based alternatives can significantly reduce environmental costs.

Additionally, it supports transparent communication with key stakeholders, including suppliers, consumers, governments, and financial institutions. As a result, initiatives of this nature are prevalent among many ongoing efforts (Splinter, 2022).

2. Supporting Sustainability and Corporate Social Responsibility (CSR) as part of the company values

One of the foremost drivers for businesses adopting TCA and TP is the increasing emphasis on sustainability. Many companies are aligning their visions and operations with global sustainability goals, using TCA/TP as a means to internalize the environmental and social costs that are traditionally externalized in conventional financial reporting. This move allows businesses to demonstrate their commitment to CSR, which is increasingly important in today’s market (Splinter, 2022). By incorporating the true costs of production, companies are not only meeting their ethical obligations but also positioning themselves as leaders in sustainable business practices.

3. Addressing the consumer demand for transparency and minimizing reputation risks

Consumers are becoming more aware of the environmental and social impacts of their purchasing decisions and are demanding greater transparency from businesses. True pricing initiatives allow companies to provide clear, evidence-based data on the true costs associated with their products, including hidden costs related to labor conditions, environmental degradation, and resource depletion.

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(Van den Broek & Van Soest, 2023). This transparency builds trust with consumers, particularly among those willing to pay a premium for sustainable products. Research from the True Price multi-year program indicates that companies adopting TP can cultivate stronger consumer loyalty, driving market differentiation (Van den Broek & Van Soest, 2023).

4. Providing potential market differentiation and competitive advantage

Companies adopting TCA/TP can leverage these practices to gain a competitive edge. True pricing enables companies to differentiate themselves from competitors by showcasing their commitment to sustainability, which is increasingly valued by both consumers and investors. Businesses can create new market opportunities by offering products that reflect their true environmental and social costs, thus attracting a growing segment of eco-conscious consumers (Van den Broek & Van Soest, 2023).

However, up to date, there are hardly any initiatives that explore the possibilities of using TCA/TP for labelling practice (Splinter, 2022), although evidence show that labelling could be a useful tool in driving consumer purchase decisions.).

Furthermore, the existing TCA methodologies showing higher costs for organic products than regular products (see above in section 4.1.1 on Methodology and Calculations) do not yet enable companies to apply TCA/TP for the deserved competitive advantage.

5. Allowing businesses to stay ahead in regulation compliance

Regulatory and policy frameworks are gradually aligning with sustainability objectives. By participating TCA/TP related initiatives, such as the Private Public Partnership, and the Multi-year experimental program, companies have the opportunity to experiment with TCA/TP as a way to comply with future regulations on sustainability reporting and cost internalization. In this way, TCA/TP provides them the advantage of staying ahead of regulatory requirements (Splinter, 2022).

Desk research reveals key challenges for businesses to implement TCA/TP

1. Lacking methodology standardization

A significant challenge for businesses is the lack of a widely accepted framework or standardized methodology for implementing TCA/TP. The absence of such a standard makes it difficult to compare and scale true pricing initiatives across industries (Splinter, 2022). This fragmentation also hinders businesses' ability to fully adopt TCA/TP and complicates the process of consistently measuring and reporting true costs. It also results in inconsistent outcomes and subjective data interpretations, further complicating business decision-making (Vervelde et al., 2024). For instance, caterers have noted that without a generally accepted method for identifying the external costs of their product range, it is nearly impossible to award suppliers based on the 'lowest external cost' (de Graaff & de Koning, 2022).

Furthermore, there's no agreement on the methods to be used to measure certain impacts. Though TCA covers both environmental and social indicators, the development of social and human impact indicators is still in its early stages. Quantifying and assessing social impacts, like child labor, remains challenging, whereas environmental indicators are much easier to measure (Vervelde et al. 2024)

2. Difficulties in gaining data as well as the lack of transparent understanding of experimenting cases

Applying TCA/TP across complex supply chains is another significant challenge, as businesses must collaborate with suppliers to collect accurate data on external costs, but fragmented and globalized supply chains can make this process difficult. In sectors such as catering and food production, there are additional challenges related to incorporating true pricing practices into existing contracts (Splinter, 2022). In addition, amongst the businesses that have implemented true pricing, there is a lack of information

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transparency, i.e. the underlying principles, calculation models and data are rarely or never available, clear or public. (Splinter, 2022).

The large amount of data required for a TCA study results in significant costs for companies, particularly when analysing long and complex value chains. In many cases, estimations are necessary, because even with an available budget, the required data may be still lacking (Vervelde, 2024).

3. Being uncertain about the purchase behaviour and the willingness to pay of consumers in the long term, especially in sectors with high price sensitivity

Some businesses have used TCA to charge consumers the "true price gap" as a voluntary or mandatory payment (Splinter, 2022). The additional funds can then be allocated by the company to specific measures or groups to remediate negative impacts. While there is a growing segment of consumers willing to pay for sustainable products, price sensitivity remains a significant barrier for mass adoption. Many consumers are not willing to bear the additional costs associated with TCA/TP, particularly when cheaper, non-sustainable alternatives are widely available.

Research from experiments in caterers at universities showed that only a fraction of consumers opted to pay the environmental costs of their meals, with the percentage dropping as the novelty of the experiment wore off (de Koning, 2023). This indicates that while transparency can attract some eco-conscious consumers, the broader market remains price-sensitive, making it difficult for businesses to maintain profitability while adopting TCA/TP.

Researches warn that at present, TCA is still less suitable for communication towards the mass of consumers (Vervelde, 2024).

4. Struggling on financial feasibility

Sectors with slim profit margins, such as producers and SMEs may struggle to absorb the higher costs from the sustainable choices, if not passing them on to the end consumers. Farmers can use TCA as a means to account for the costs and benefits of their agricultural practices (Jones, 2020). However, primary production sectors are reluctant to adopt true pricing due to the fear that internalization of external costs will put further pressure on already narrow margins.

5. Lacking the knowledge for properly implementing TCA among supply chain actors

CE Delft reported that one of the main challenges in the catering business is the lack of knowledge among clients and caterers for properly implementing True Pricing (de Graaff & de Koning, 2022). Participants in the 'External costs in catering' project have highlighted that sharing knowledge about external costs is important, and they would have positive impacts on businesses of the full value chain, including clients, caterers and guests alike.

Furthermore, sharing existing guidelines for implementation will help accelerate the learning curve for other businesses. For example, the step-by-step guides for contracts in catering provide means for institutional catering to advance sustainable practice structurally and significantly, through new contract requirements for the value chain (de Graaff & de Koning., 2022).

3.3 Consumers

While a change in production practices themselves is presumably a valid effect of TCA (and arguably the main function), the general public's acceptance is deemed crucial for a successful and socially supported implementation of TCA (Michalke et al 2021).

Recent studies in behavioural economics and consumer behaviour suggest that most individuals are not purely self-interested but exhibit conditional pro-social preferences (Fehr & Fischbacher, 2003). While many consumers show interest in sustainability, price remains a key factor influencing their purchasing decisions (White et al., 2020; PwC, 2020). The New York Times summarized it in an article published in October 2024: "... Not many shoppers would voluntarily pay true prices if they could just go to conventional grocery stores instead... But research shows that prices can be a powerful signal for those trying to shrink their food's environmental footprint" (nytimes.com, 19 Sep 2024).

Multiple studies have been conducted amongst consumers, experimenting with different ways of implementing True Price at the consumer level: information, voluntary payment or actually asking for the True Price. This section synthesizes the learnings on consumers' views on True Pricing, including the results from the main experiments that have been conducted in the latest years. Most of them have been conducted in The Netherlands in the context of the PPP "from insights to action" and of the Multiyear Experimental Program. Additionally, two larger experiments have been conducted in Germany in the discounter chain Penny, in 2021 and 2023 respectively.

1. Quantitative survey showed that more than half of Dutch consumers claimed their interest to pay for a small and financially feasible contributions to cover the externalities.

Consumers generally express interest in True Pricing, especially when it is explained clearly and concisely. A large-scale survey among Dutch consumers (N = 1,048) revealed that 6-7 out of 10 participants found it important, fair, and acceptable if supermarkets passed on true prices for food products to them as consumers (Centerdata, 2021).

Similar results are found in a 2022 online survey by the Amsterdam University of Applied Sciences amongst more than 2,800 Dutch consumers, about paying the True Price for a cappuccino drink (2.93 Euro vs. 2.40 Euro). It showed that 59% of respondents are positive about paying the true price. The most supported driver was to see paying a small, financially feasible contribution as a simple way to make a big difference. Opponents accounted for 41% of respondents, arguing doubts about the destination of the extra money, not willing to be pressured, or believing that companies already make enough profit and the regular sales price should cover the damage to people and the environment. Furthermore, 22% of respondents declared that they (as consumers) should take the responsibility for environmental and social impact of products by themselves as consumers, while 45% said that companies should be responsible, and 33% placed responsibility on the government (marketingfacts.nl, 2024)

Michalke et al. (2022) found similar results in the Penny's experiment in Germany, indicating that overall consumers show interest in true food pricing, but have also expressed concerns that many consumers might not be able to afford to pay true prices.

2. Consumers' trust is a key factor impacting their acceptance and willingness to pay.

Viewing True Cost Accounting as a form of greenwashing is a risk widely alerted by scholars (de Adelhart Toorop et al., 2021), and confirmed by research.

The qualitative study by Michalke et al. (2022) among Germany community of practice stakeholders, revealed that a lack of consumer trust in TCA methodology that underlies true prices might be detrimental to consumers' acceptance of true price food products (Michalke et al., 2022). One study conducted in The Netherlands found that many consumers are sceptical about where the extra money paid for TP products will go, with 50% of respondents expressing that they are not confident that their payments would benefit people and the environment (Centerdata, 2021). So, clear answers to the questions of how the true costs are calculated and where the extra money goes are key underlying factors for consumers' acceptance to true price products.

Building on these learnings, Taufik et al. conducted two empirical studies in The Netherlands looking at how to positively impact True Price acceptance through increasing consumer trust. The study was conducted amongst shoppers of an organic supermarket (so already holding pro-sustainability values),

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and a panel representative of Dutch population. For both groups, the research confirmed that trust in True Price concept and executions (referred as the “Green trust” in the paper) has a significant impact on purchase intent. Furthermore, researchers discovered that two factors related to buying true-price products significantly impacted this trust, namely, “green-value” (positive impact on environment and society) and social status signalling (signal to others). However “remediation beliefs” (the extra money to remediate negative impact effectively) did not have an impact on this trust (Taufik et al., 2023). These results can be used to guide further consumer engagement. It is worth pointing out, that it measured purchase intention, not the actual purchase behaviour in real shopping environment, in which consumers are exposed to many different products at different prices that could compete with True-price products.

The results from the survey conducted amongst a representative panel of more than 2800 Dutch people by Amsterdam University of Applied Sciences, also confirmed that the greater the confidence in true price concept and its execution, the higher the willingness to pay. Besides, willingness to pay was positively influenced by positive framing compared to negative framing, as well as by a healthy sustainable lifestyle (marketingfacts.nl, 2024).

3. Both simplified communication and labelling impact the willingness to pay the TP

Dutch consumers appreciate transparency in the form of true pricing, in the form of simple visual pies or bars showing the difference between the regular market price and the true price. However, when presenting too much detailed information, such as where the extra payments go, consumers are likely to engage less with True Pricing (Centerdata, 2021). This suggests a need for simplicity in communicating TP to avoid overwhelming or confusing consumers.

Also, consumers seem to rely on sustainability certification labels, as research has shown a positive influence on the willingness to pay. Dutch consumers are more likely to be influenced to make a purchase decision on products with a sustainability label than by-products without it. Impact on willingness to pay seems to be different depending on the consumer segment (“green consumers” tend to trust certifications, pre) and on the label itself (a more known the certification is the more trusted) (Weber et al. 2023).

With regards to the topic on “strategic information avoidance”, literature has shown that consumers tried to avoid information on why sustainable products are more expensive when it exceeds their budget limit. However, specific study with real-life experiment has shown a mixed results in the context of True Pricing (Schmieds, 2021). Contrary to what was expected, Schmieds found that a significant share of subjects did not excuse their selfish choice with a lack of knowledge. The experiment showed a high volatility in information avoidance, with many factors influencing its occurrence. Also, subjects were curious about the true price information and chose to see this information, even though they did not subsequently choose the more expensive, altruistic product. In contrast, other subjects avoided information, but chose the more expensive product without being sure whether it was more sustainable. As a consequence, recommendations such as providing true price information at the point of sale to reduce the probability of strategic ignorance, are not necessarily justified based on strategic information avoidance arguments. Additional research would be needed to see under what circumstances that behaviour takes place.

4. Attitude-behaviour gap: transparency is valued, but price, personal values and social influence play more important roles in behaviour change

While consumers often express their appreciation of the transparency and clear communication value of the true price concept, the higher price remains a significant barrier. The “attitude-behaviour gap” is evident in many TP studies, where consumers who express a desire to buy sustainable products revert to lower-cost options when faced with actual purchasing decisions.

As shown in the quantitative study among 1,048 Dutch people earlier, 6-7 out of 10 respondents declared TP was important, fair and acceptable if the supermarket charged the true prices. However, when confronted with a real purchase decision, when only some of the products have the true price, the product without a true price is chosen, even when the consumers were presented with clear information about the true price of products (Centerdata, 2021).

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This was also evident in the experiment conducted at Albert Heijn with coffee-to-go. In an online survey conducted before the experiment, 36% of customers indicated they were willing to pay the True Price, and 20% said they would switch to a lower-impact option, such as plant-based alternatives or black coffee. However, the sales data told a different story: only 15% of customers chose to pay the True Price at checkout, and there was no noticeable shift toward lower-impact options (True Price and Albert Heijn, 2023).

Experiments in caterers at WUR University and in an accountancy office, asking for voluntary payment of the True Price, showed that only a fraction of consumers opted to pay the extra environmental costs of their meals. This happened regardless if they received information on True Pricing or not, and the percentage dropped as the novelty of the experiment wore off (at WUR, the environmental costs were paid for roughly one-quarter of the products sold during both weeks of the experiment. At BDO, this was 17% in Week 1 and 7% in Week 22) (de Koning, 2023).

This demonstrates that providing information about true pricing did not necessarily change consumer purchase choice effectively. During this experiment, social pressure, the tendency to mimic others' behaviour and consumers' existing views on environmental issues, had shown a greater impact on consumer purchase choices than the information presented to them alone. These insights underline the importance of crafting a communication strategy that is specifically designed to resonate with the target audience (de Koning, 2023).

Real-life experiments have demonstrated that while consumers appreciate the transparency provided by True Price, the actual (lower) price remains a key driver for significant behavioural change. Between December and March 2021, a set of three pilots was conducted in the canteens of Wageningen University, TU Delft, and Zuyd University of Applied Sciences. During the experiments, meat prices were increased by an average of 40% (reflecting the true price), while prices for vegetables, fruit, and vegetarian meals were reduced by 9%. The results showed an increase in guest satisfaction, with a 20% reduction in meat purchases and a sevenfold increase in the consumption of vegetarian food, fruit, and vegetables (Remmers et al., 2024). In another experiment at Coop, reducing the price of organic milk to match that of regular milk, along with its clear communication, led to a 32% increase in organic milk sales (Food Personality, February 2021).

5. The perceived market standard is decisive in driving consumer purchase behaviour change

In an experiment with online chocolate shoppers, setting the True Price as the default led to a dramatic 95% of customers paying the higher, environmentally inclusive price, compared to just 21% when the retail price was set as the standard. This outcome has exceeded expert expectations by far, as 66 professionals from science, policy, and retail background had predicted a maximum of 60% consumers paying the true price (Centerdata 2021). Similarly, another experiment at Coop showed that simply giving organic milk more shelf space, without lowering prices or emphasizing its benefits, already resulted in a 9% increase in sales (Food Personality, Feb 2021).

These findings demonstrate that the shifts in product presentation that provides “main-stream” and “market standard” perceptions can significantly influence consumer behaviour, sometimes even more effectively than traditional communications or price adjustments. The results showed the significant power of strategic defaults and product placement in promoting sustainable choices.

3.4 Government

TCA and TP have emerged from niche experiments and pilot projects and are starting to gain broader attention in The Netherlands. However, they are not yet mainstream, and the systems, structures, and actors needed for scaling up are still developing. In this section, the results from existing works on the role of government in upscaling True Price impact will be discussed.

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1. The Government's role is critical in shaping the regulatory framework to enable upscaling of TP impact

As highlighted in various TCA project reports, the government plays a crucial role in establishing the policy frameworks needed to drive wide adoption of TP/TCA. Policy changes, tax reforms, and subsidies are viewed as key interventions to level the playing field, promote responsible business practices, and transition TCA and TP from niche approaches to market standards (van den Broek & van Soest, 2023; True Price Foundation, 2023; Logatcheva, 2023; Kools & van Soest, 2023; Splinter, 2022).

For example, the True Price Multi-year Experiment Program report noted that pioneering companies often face challenges in fully implementing TP because the current economic system favours competitors offering lower-priced products (van den Broek & van Soest, 2023). Fiscal tools such as tax incentives, subsidies, and public procurement standards can help incentivize businesses to adopt true pricing. These policies encourage investment in sustainable technologies and practices while imposing higher taxes on products with negative environmental or social externalities (van Soest, 2023; Baltussen, 2021).

In addition, directing subsidies toward sectors that adopt TP and TCA methodologies can ensure that small and medium enterprises (SMEs) participate in the sustainable transition without financial strain. This approach could also alleviate concerns within primary sectors, such as agriculture, where fears exist that TCA may further compress already thin profit margins (van den Broek & van Soest, 2023).

By aligning taxation and subsidies with externalities, TCA can help reduce distortionary taxes and make subsidies more effective in promoting sustainability (Hendriks, 2021).

2. Government policies should take affordability and social equality into full consideration

While TP and TCA aim to address environmental and social costs, there are also concerns that they could increase food prices, particularly affecting low-income households. When considering how to scale up the impact of TCA and TP, existing reports highlight that it is important to ensure that the TP/TCA implementation does not disproportionately affect low-income households by raising the cost of basic goods, such as food.

In order to balance sustainability with social equality, the "Fixing Food Prices" report suggests that governments can subsidize healthy and sustainable foods (e.g., fruits, vegetables, and plant-based proteins) to ensure that they remain affordable. Afshin et al. (2017) meta-study on high-income countries found that, on average, a 10% decrease in price increased the consumption of healthy foods by 13% (True Price Foundation, 2023)

Additionally, policies such as living wage mandates and financial support for vulnerable populations can mitigate the regressive impacts of true pricing. (True Price Foundation, 2023)

3. TCA can be used for both policy development and evaluation

TCA can be used in identifying and quantifying externalities, thus offering a clear picture of the main sustainability challenges in different sectors and value chains, and further directing policy interventions to where they are most needed. Furthermore, by using TCA to track the actual changes of different externalities at a granular level, different policy impacts could be revaluated against its costs and effort (van den Broek & van Soest, 2023; Logatcheva, 2023; Splinter, 2022).

4. Fully leverage TP implementation in public procurement as a significant opportunity for upscaling

Public procurement is a critical lever for scaling up the impact of TCA and TP. The Dutch government, as one of the largest buyers of goods and services, can use its purchasing power to set a benchmark for sustainable practices. Reports, such as **Fixing Food Prices** (2023), emphasize that governments can mandate TP and TCA in public procurement contracts, ensuring that all goods and services purchased by the public sector include external costs in their pricing % (True Price Foundation, 2023). Through leading

by example, the government can normalize sustainable procurement across the private sector and stimulate broader market demand for products that internalize their true costs.

5. There is an explicit desire for a clear government vision and strategic roadmap for upscaling TP impact

The report of the Multi-year Experimental Program, specifically called for the government to strengthen the focus on true pricing in policy, by developing a strong vision on the internalization of external costs and the transition process required to achieve it. True pricing should be linked to key issues such as nitrogen, the Water Framework Directive, and the protein transition. Involvement from other ministries such as the Ministry of Economy and Ministry of Finance is crucial. An interdepartmental policy study has been suggested. Internally, increasing awareness of true pricing through initiatives like "true price lunches" can help integrate the concept within the government (van den Broek E., van Soest, 2023)

6. The Scientific Group of the UN Food Systems Summit has proposed a phased approach for government to support the upscaling of TP/TCA impact in short-, mid- and long-term.

The Scientific Group of the UN Food Systems Summit has thoroughly considered the pre-conditions to allow policy interventions structurally (Hendriks et al. 2021):

- *Building technological infrastructure* to collect and trace externalities along the value chain, in order to have a standard methodology and reliable data.
- *Integrating true pricing into international trade agreements*: International trade regulations are a constraint to governments' national regulatory policies intended to provide incentives for TCA and TP. The World Trade Organisation (WTO) rules impose economic competition strictly based on prices and do not consider externalities
- *Creating popular understanding and support* for true pricing.

Consequently, a phased approach has been recommended to the governments and policymakers (Hendriks et al. 2021):

- A) In the *short term*, policymakers can remove the barriers for stakeholders to engage in TCA and use TCA data to redefine the value of food to reflect its true costs and benefits. In particular, governments and other stakeholders can:
 - Foster internationally accepted harmonized TCA principles across all applications.
 - Educate and build capacity among professionals in business and government about TCA.
 - Provide professionals in business and governments with concrete tools (practical skills and toolboxes) to facilitate TCA.
 - Support market-players to engage in true pricing, enabling the expression of preferences for sustainable and healthy food into choices, and creating endogenous market incentives.
 - Pursue pragmatic second-best true pricing approaches that create smart incentives without increasing food prices or imposing high administrative costs.
 - Create a modelling toolbox to estimate the effects of short term true pricing policies on the environment, health and affordability.
 - Generate global agreements and public-private partnerships around a roadmap.
 - Create a technological alliance and invest in affordable, traceable, sustainable, reliable and fair technologies to allow all market players, big and small, to implement true pricing in practice.
- B) In the *medium and long term*, governments can look at ways to integrate TCA in economic metrics at all levels:
 - Integrate TCA into National Accounts and GDP. This can provide a standardized account of how much inclusive welfare (realized welfare and changes in wealth) was created, and provide a much better view of how the food sector contributes to welfare.
 - Integrate TCA into business sustainability businesses reporting and controls. By adding TCA information into their internal and external financial reports, businesses can compile impact-

weighted accounts and impact statements, enabling them to report and manage the value they create to all stakeholders via all capitals.

- Integrate TCA into product labelling. Products can show their true costs to their customers (in monetised terms), as well as their true value (in monetised terms or otherwise).

3.5 Transition Theory and the Sustainable Market Transformation framework

Transition Theory and the Sustainable Market Transformation (SMT) Framework offer valuable perspectives for understanding and guiding the adoption of True Pricing (TP) and True Cost Accounting (TCA). Both frameworks explore how complex systems evolve over time, highlighting the stages of development that lead to widespread adoption of sustainable practices. By applying these theories, we can assess the current phase of TP/TCA implementation and identify the necessary steps to scale its impact. While momentum around True Pricing has grown in recent years, with increasing business adoption and policy interest, it has not yet reached mainstream status. This section explores how both frameworks provide insight into the current phase of TP/TCA and how they can contribute to offer strategic guidance for progressing toward wider adoption and system-level change.

The Transition Theory

Transition Theory is a framework used to understand large-scale, long-term shifts in societal systems, such as the transition toward sustainability. It focuses on how complex systems (e.g., food systems) evolve over time, driven by interactions between various social, economic, technological, and environmental factors. Transition theory is often applied to sustainability transitions, emphasizing how societies can shift from unsustainable practices to more sustainable modes of production and consumption (Geels, F. W., 2011).

The Transition Theory describes four phases:

1. **Pre-development Phase:** In this phase, the system is relatively stable, and there is little visible change. Existing structures and practices dominate, but underlying tensions and pressures (e.g., environmental concerns, social dissatisfaction) begin to build. Innovations or alternatives may exist, but they are in the early stages and are not yet mainstream.
2. **Take-off Phase:** This phase marks the beginning of significant change. Innovations start gaining momentum, and pressures from external factors (e.g., regulations, societal demand) increase. Small-scale experiments and alternative practices emerge, and awareness about the need for change grows. The system begins to destabilize as new ideas challenge the status quo.
3. **Acceleration Phase:** In this phase, the transition speeds up. Innovations spread more widely, and the system undergoes significant structural changes. There is a rapid adoption of new technologies, practices, and policies that support the emerging paradigm. During this phase, dominant actors may resist change, but the momentum toward the new system becomes difficult to stop.
4. **Stabilization Phase:** In the final phase, the new system becomes the norm, and the transition is stabilized. The new practices and technologies become mainstream, and new regulations and institutions solidify the changes. The system reaches a new state of equilibrium, though further small adjustments and improvements may continue.

Sustainable Market Transformation Framework

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In their book “Changing the Game” Lucas Simons and André Nijhof argue that, in order to solve complex sustainability challenges like climate change and biodiversity loss, focus should be in transforming the underlying systems that reward unsustainable behaviour. The authors propose the concept of Sustainable Market Transformation (SMT), which is based on three key principles: it is possible to steer and manage system change, no single party is solely to blame, and all stakeholders need to work together at the right time with the right roles. They highlight the importance of organizing efforts to avoid fragmented, ineffective actions, using the analogy of creating coordinated "music" instead of "noise." It outlines four phases of market transformation—comparable to stages of human development—each requiring different strategies and actions from stakeholders. The phases range from recognizing the problem (baby phase) to institutionalizing new norms and behaviours (adult phase). The secret to successful market transformation lies in aligning stakeholders' actions according to the phase of development, with a focus on creating competition, collaboration, and ultimately embedding sustainable practices as the new standard.

Figure 4: The four phases of Market Transformation

The stakeholder matrix© from Changing the Game (2021) – Lucas Simons & André Nijhof	1. Inception	2. Competitive advantage	3. Pre-competitive collaboration	4. Institutionalization
Industry	<ul style="list-style-type: none"> Stop denying the issue Partner with NGOs Pilots, CSR projects Identify solutions 	<ul style="list-style-type: none"> Business models Use labels Engage value chains Rankings and benchmarks 	<ul style="list-style-type: none"> Communicate a non-competitive agenda Join platforms Be inclusive Sector strategy 	<ul style="list-style-type: none"> Lobby new normal Recognize politicians Comply legislation Take on subsequent issues
Government	<ul style="list-style-type: none"> Embrace the crisis Long-term vision Experiments and fund projects Solution principles 	<ul style="list-style-type: none"> long-term vision Challenge companies Launching customer Recognize leaders 	<ul style="list-style-type: none"> Develop measures Support platforms Influence behavior of consumers Tax incentives 	<ul style="list-style-type: none"> Political leadership Announce legislation New normal Remove the laggards
NGOs	<ul style="list-style-type: none"> Raise awareness Join projects Campaign against laggards Argue for next steps 	<ul style="list-style-type: none"> Reward first movers Support frontrunners Name and shame time to move on 	<ul style="list-style-type: none"> Engage frontrunners Join platforms Be a watchdog Transparency about desired future 	<ul style="list-style-type: none"> Lobby Policy developers Monitor progress Shift attention to new issues
Financial Institutions	<ul style="list-style-type: none"> Donate to charity Finance projects Apply negative screening Clear positioning 	<ul style="list-style-type: none"> Provide funding Financial benefits Engage all clients Best-in-class screening 	<ul style="list-style-type: none"> Join platforms Collaborate Create financial solutions for scaling Invest long-term 	<ul style="list-style-type: none"> Lobby Investment criteria Exclude clients Potential risks linked to new issues
Research Institutions	<ul style="list-style-type: none"> Prioritize issues Study system loops Study practices Identify good practices 	<ul style="list-style-type: none"> Showcase good practices Investigate failures Develop benchmarks Research agenda 	<ul style="list-style-type: none"> Change agenda Be objective Calculate potential impacts Scientific evidence 	<ul style="list-style-type: none"> Provide overview Argue policies Monitor impact Identify new and emerging issues

Source: Simons, L., & Nijhof, A. (2021)

Transition Theory, Sustainable Market Transformation framework and True Pricing

The Transition Theory and the Sustainable Market Transformation Framework offer tools to identify the current phase of the True Pricing transition and set targets for progress in each stage. Most specifically, the Sustainable Market Transformation framework provides clear guidance on the roles and responsibilities required at each phase to move to the next. Both have introduced a time dimension, allowing us to consider the True Price Ecosystem approach with progression in consideration, enabling the development of an effective action plan for scaling up TP/TCA impact.

As reflected in this report, momentum around True Pricing has significantly accelerated over the past decade. This is evident in government statements, ongoing efforts to harmonize methodologies, the

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increasing number of companies conducting pilots and experiments, the growing number of conferences on the topic, and the expanding media coverage. Companies like Vermaat, Hutten, De Aanzet, and Tony Chocolonely are leveraging True Pricing to differentiate themselves in the market. However, general awareness remains limited, True Pricing has not yet become a mainstream practice, and the standardization of methodologies is still in progress. Therefore, it is reasonable to place TP/TCA in the second phase based on both Transition Theory ("take-off") and the Sustainable Market Transformation framework ("competitive advantage").

3.6 Summary Findings from Desk Research

The desk research highlights both the progress and challenges associated with upscaling True Cost Accounting (TCA) and True Pricing (TP) in the food sector. Despite growing interest and several pilots, the field remains in its early stages, with significant challenges to address before the scaled impact.

1. **Momentum and growing adoption:** Over the past decade, there has been considerable momentum around True Pricing, as evidenced by increasing government interest, efforts to harmonize methodologies, and the number of businesses conducting pilots. Companies like Vermaat, Hutten, De Aanzet, and Tony Chocolonely have used TP to differentiate themselves, but broader adoption is absent.
2. **Harmonization of methodologies:** One of the major challenges for scaling TCA is the lack of standardized methodologies. Currently, various approaches are used, leading to inconsistent results and difficulties in comparing outcomes across sectors. Efforts toward harmonization are underway, but achieving a unified framework remains a critical priority for the broader adoption.
3. **Data accessibility and methodological refinement:** A key barrier to TCA implementation is the significant amount of data required for accurate assessments. Many businesses struggle to collect or access the necessary data, especially across complex supply chains. Furthermore, some externalities, particularly social impacts, remain challenging to quantify and incorporate into true pricing models. Transparency in calculations and methodologies is also limited, with many underlying principles and data not readily available to the public yet.
4. **Business applications:** TCA offers opportunities for businesses to identify "hotspots" in the value chain where improvements can be made to reduce negative impacts. It also supports corporate social responsibility (CSR) initiatives and transparency with stakeholders. However, the financial feasibility of adopting TCA remains a concern, particularly for small and medium enterprises (SMEs) and sectors with narrow profit margins.
5. **Consumer engagement:** While there is interest among consumers in true pricing, the actual willingness to pay higher prices remains lacking for the majority, particularly in sectors with high price sensitivity. Experiments show that consumers appreciate transparency but often revert to cheaper options when faced with real purchasing decisions. Sustained consumer education and clear communication are needed to build trust and increase long-term engagement.
6. **Policy support:** The role of government is crucial in providing the policy frameworks, incentives, and regulatory support necessary for scaling up TCA and TP. Policies that align taxes, subsidies, and procurement with sustainability goals can help level the playing field for businesses adopting true pricing. However, clear policy directives and coordinated cross-ministry actions are needed to move TCA from a niche practice to a market standard.

In conclusion, while True Cost Accounting and True Pricing have the potential to reshape food business practices, several key challenges, including methodology standardization, data availability, consumer engagement, and policy alignment, must be addressed to achieve broader adoption and impact.

4 Key Stakeholders Perspective

To gain an up-to-date understanding of the current work and knowledge surrounding True Pricing (TP), 11 experts from the existing TP community, with relevant academic and applied research experience, were interviewed. These interviews aimed to gather personal perspectives on the barriers, drivers, and key success factors needed to scale up TP's impact.

Additionally, qualitative research was conducted, involving interviews with 11 key actors from different sectors, including businesses, investment institutions, consumer organizations, and government, focusing on their awareness, understanding of TP/TCA, and perspectives on scaling its implementation. Two consumer focus groups were also conducted to explore consumers' awareness, their views on TP/TCA, and the potential barriers and benefits of its implementation in the Dutch society. Interviewees also shared insights on knowledge gaps and critical issues that need further research beyond the existing TP network.

4.1 Existing True Price Community

To maximize the learnings from the previous work, key players from the existing True Pricing (TP) community in The Netherlands were interviewed. The interviewees represent the perspectives of academic researchers and independent consultants who have been supporting True Pricing as a tool to foster a sustainable transition in food systems from various angles.

Participant 1 and Participant 2 (True Price Foundation)

Two leaders at the True Price Foundation, who have been key drivers in True Price efforts both in the Netherlands and at the international level. The True Price Foundation focuses on three main activities: developing and maintaining the True Price Standard for global adoption, engaging stakeholders like governments, businesses and organizations through the Global True Price Partnership, and mobilizing consumer demand for true pricing through the True Price Movement. It is a key partner in the first PPP1 "True and fair Prices" and the second PPP2 "From Insights to Action".

Participant 3 (Behavioural Insights)

This participant is the co-founder of Behavioural Insights, a consultancy agency that helps organizations develop practical solutions for social problems by connecting behavioural science with practice. She has conducted several studies on how individuals respond to true pricing models and co-led the Multiyear Experimental Program on True Pricing.

Participant 4 and Participant 5 (Transitiecoalitie Voedsel)

Transitiecoalitie Voedsel (Food Transition Coalition) was established in the Netherlands to accelerate the transition to an agricultural and food system that is sustainable, healthy and fair. It is one of the partners of the two PPPs on TP.

Participant 4 is an Environmental Strategist Consultant, who specializes in sustainable development and policy advising. He focuses on integrating true pricing into broader sustainability frameworks, influencing policy directions at various levels. He has participated as advisor in various TP studies, advised on financial and fiscal instruments to incentivize sustainable practices, and co-led the Multiyear Experimental Program.

Participant 5 is involved in the agricultural transition space. This participant is responsible for Reward and Pricing at the Transitiecoalitie Voedsel, focusing on the agricultural transition and the shift from animal to plant-based proteins.

Participant 6 and Participant 7 (Wageningen University & Research)

Wageningen University & Research (WUR) is a leading research institution on True Cost Accounting and True Price in The Netherlands. Research projects have included "Real and Fair Prices", a joint effort of True Price and WUR on monetizing the hidden costs in order to arrive at a true price of

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products, and PPP2 “from insights to action”, where WUR and actors around the food chain have explored, tested, and evaluated different actions using True Price. The two participants are the coordinators of PPP1 and PPP2, besides leading FOODCoST, the Horizon Europe funded project.

Participant 8 and Participant 9 (HAS University of Applied Sciences)

Participants from HAS University of Applied Sciences included a Professor and Snr. Researcher from the research group Future Food Systems. These participants are involved in the application of TCA in agricultural value chains. HAS has also been a partner in PPP2.

Participant 10 (Amsterdam University of Applied Sciences)

The Professor of Digital Commerce at the Amsterdam University of Applied Sciences also participated. His team has been conducting research on how True Price can support sustainable consumer choices.

Participant 11 (InHolland University of Applied Sciences and Greenport West Holland)

This participant has deep knowledge in horticulture sector and agriculture value chain. He has explored the possibilities to introduce True Cost Accounting in Greenport West Holland, with the help of WUR.

The following section presents the personal perspectives of the 11 interviewees, representing the TP/TCA existing community, on the current efforts, challenges, and future directions of the True Pricing community in the Netherlands.

Outcomes from the interviews with existing TP community

The True Pricing (TP) movement in the Netherlands is marked by a diverse array of initiatives spanning research, business implementation, policy advocacy, and educational efforts. This section covers the outcomes of the interviews with 11 experts of the existing TP community, exploring their views of on the diverse landscape of True Pricing efforts, the lessons learned from recent initiatives and the challenges faced in scaling up TP and True Cost Accounting (TCA) practices across industries.

Current Landscape of True Pricing Effort in The Netherlands

The landscape of True Pricing (TP) efforts in The Netherlands is characterized by diverse activities, including academic research, policy advocacy, business implementation, and educational initiatives.

The types of work being done around TP and TCA can be summarized as follows:

1. **Awareness and Policy Advocacy:** Pioneered by the True Price Foundation, joined by Transitie Coalitie Voedsel and True Animal Protein Price Coalition (TAPPC), significant effort has been made to actively promote TCA and TP standards and influence policy. One of the interviewees stated: *"We are working towards making TP a recognized standard by policymakers. Without policy support, it will be challenging to scale up TP beyond a few pioneering businesses."*
2. **TCA calculation and methodology:** Partners of the PPP1 “Real and Fair Prices”, coordinated by WUR, are leading the efforts for calculation and methodology harmonization. CE Delft, True Price Foundations and its sister organization Impact Institute, along with HAS have been playing an important role in these. Interviewees highlighted that there is still work to be done in this area in order to facilitate TCA and TP wider implementation. An interviewee mentioned *"Our research aims to provide a comprehensive framework for true prices calculation, focusing on both environmental degradation and social externalities. There is still much to learn about monetizing the full impact of these costs on the agricultural sector...Health impact is not included in calculation yet."*
3. **Societal experiments:** Various experiments and pilots on TP have been conducted with the participation of different stakeholders of the value chain. Participants range from *catering companies*,

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such as Hutten, Vermaat and Green Dish, *supermarket* (De Aanzet, COOP and AlbertHeijn), *Café* (Het Warenhuis), *knowledge institutions* such as WUR, CE Delft, HAS, CE Delft and HvA, *advocating organisations* such as True Price Foundation, Behaviour Insights and Transitiecoalitie Voedsel, *other organisations* such as OnzeMarkt, Greendish, Centerdata, Greenswapp, FairMatch Support, Bio Wingle Vereniging and Superzero, plus “customer” organisations that provide their canteens for the real-life implementation, including educational institutions, consultancy and accountancy firms. In order to understand the consumers’ attitudes towards True Price and their short term behaviour, studies have been carried out, most of time in the catering context, but also in the online purchasing setting and in some retailers (De Aanzet, Coop, Albert Heijn). According to one interviewee, “*these pilots are crucial for understanding the practical challenges and benefits of TP, allowing businesses to adjust their practices accordingly. We need more pilots to refine our approaches*”. The concrete learnings from these experiments and pilots will be covered in the next section “Key Learnings and Challenges”.

4. **Application guidelines.** As an output of the studies conducted with businesses, some guideline documents for follower practitioners have been developed for further implementation.
5. **Reflections on learnings:** Interviewees who have coordinated various programs highlighted the key overarching reports that reflect and summarize the learnings, which have been the important sources for the desk research chapter.
 - *True pricing en duurzame voedselsystemen* (May 2021)
 - *True cost accounting in Nederland. Een Quick Scan* (Nov 2022)
 - *Scoren met echte prijzen. De oogst van het meerjarenprogramma True Pricing en de daaraan verbonden leergemeenschap* (March 2023)
 - *Belonen en Beprijzen, van Boer tot Bord* (April 2023)
 - *True Cost Accounting (TCA): een methode voor verduurzaming van het globale voedselsysteem. Een visie op verdere ontwikkeling van TCA* (2023)
 - *Bijdrage van True Cost Accounting aan overheidsbeleid om te verduurzamen* (April 2024)

Key Learnings and Challenges identified by TP Existing Community

Across sectors, these stakeholders from TP Existing Community highlighted several critical learnings and challenges that have emerged from their work on TCA/TP.

A prominent theme across the interviews is the complexity of developing **standardized methodologies** that can be applied across sectors. Specifically, assigning precise monetary values to environmental and social impacts across all product lines is very challenging. As one of the interviewees explained, “*There’s no one-size-fits-all when it comes to True Pricing. What works for agriculture may not work for manufacturing. We need sector-specific guidelines.*” This diversity in sectoral needs makes the creation of universal frameworks challenging, requiring tailored approaches for industries as varied as agriculture, retail and manufacturing.

Another significant challenge recognized is the general **lack of consumer engagement**. Awareness of True Pricing among consumers is currently limited to those who are sustainability-minded. While there is some understanding of the environmental impact of products, knowledge about social costs and the broader concept of True Pricing is lacking. Many participants expressed the difficulty of engaging consumers in the concept of true pricing. One of the participants emphasized, “*Educating consumers is key. If they understand why certain products cost more because of their environmental or social impact, they will be more likely to support businesses that implement True Pricing.*”

Interviewees involved in consumer pilots observed that while awareness of TP can positively impact brand perception, it does not necessarily drive behavioural change toward choosing sustainable, true-priced options.

Furthermore, businesses face difficulties in explaining the concept of TP and its long-term benefits to their customer base, further complicating implementation. One of the interviewees discussed: “*Through our*

pilot projects, we're learning about the challenges of applying TP in practice—particularly when it comes to communicating the value of true prices to consumers."

Building on the **businesses-related learnings**, the interviewees highlighted that True Pricing should be integrated throughout the entire value chain, and the buy-in from business decision-makers is crucial for the successful adoption of TP. It was pointed out that the True Pricing approach is most effective with bilateral business-to-business contracts but does not incentivize good producers in an auction system, which is the case for an important part of the Dutch food products.

Lastly, the **policy environment** is still catching up with the needs of TP practitioners. An interviewee involved in policy advocacy stated: ***"We need clear policy directives that make TP a legal requirement, not just a voluntary initiative. That's when we'll see widespread adoption"***. The lack of policy frameworks leaves TP adoption largely in the hands of a few pioneering businesses, rather than becoming an industry-wide or nationwide practice.

Factors needed to scale up TP

The participants identified several critical factors that need to be addressed in order to scale up the impact of True Pricing and True Cost Accounting effectively. These factors are pivotal for moving TP beyond niche applications into mainstream practice.

The **establishment of standardized methodologies** is considered fundamental to scaling TP. As one participant emphasized, ***"Standardization is crucial for upscaling True Pricing. If every business has its own way of calculating the true price, it becomes difficult to compare results or enforce policies."*** The lack of a universally accepted methodology complicates implementation and hinders businesses from fully embracing TP as part of their operations.

Financial incentive is another key factor mentioned by participants. Several interviewees believe that providing more incentives for businesses that adopt TP will encourage more widespread adoption. One of them said, ***"We need to show businesses that True Pricing can actually benefit them in the long term, either through incentives or by demonstrating that consumers will pay more for sustainable products."*** These incentives could come in the form of tax breaks, subsidies, or public recognition for businesses that adopt sustainable pricing practices.

Another important factor mentioned by those in contact with practitioners is the **TCA alignment with EU requirements**. TP can be a valuable tool for enhancing value chain transparency and complying with the European CSRD Regulation, thus increasing its adoption.

Interviewees were also aligned on the pivotal **role of practice communities** in order to scale up. They insist the importance to provide a mechanism and space for "front runners" leading the movement to share their knowledge and experience with "laggers". However, this must be carefully strategized as businesses may be reluctant to share practices and results with competitors. A regional or sector-specific approach is recommended, with careful management of sensitive stakeholders' individual interests. Experts also caution that expanding the community of practice should be well-organized, with clear governance and reporting systems.

One of the experts involved in the pilots emphasizes the importance of continuing and expanding the collaborative effort started in the context of the two PPPs: ***"We need businesses, researchers, and policymakers to work together to develop workable solutions and share best practices."***

Experts also mentioned that academic knowledge should be translated into practical guides for businesses. Examples include the "Step by Step Guide" for Catering by CE Delft and the Aanzet brand guide.

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Additionally, **consumer education and engagement** was frequently mentioned as a critical driver for TP's success. Most participants believe that increasing consumer awareness of the true cost of food can increase demand for TP-compliant products, encouraging more businesses to adopt TP. As one interviewee mentioned, ***“Creating demand for TP-compliant products starts with making consumers aware of the hidden costs of their consumption choices”***. Effective public campaigns and educational initiatives are needed to raise consumer awareness about the environmental and social costs of products, encouraging more responsible consumptions.

It was also suggested that transforming consumer perception into long-term behavioural change requires not only awareness, but also systemic changes. For example, if the majority of products in supermarkets are true-priced, this could create the perception that true pricing is the standard. Experiments are useful for raising awareness and creating a "default" perception, but their incremental impact is limited.

Moreover, some interviewees wondered about the current TP resource efficiency in driving consumer behaviour change toward more sustainable choices, further suggesting that secondary data and other tools could be more effective in facilitating a sustainable transition, e.g., demonstrating the health benefits of dietary changes.

The need for **strong policy support** was a recurring theme. The True Pricing expert community calls for government support in several areas: raising awareness and education among stakeholders, investing in technology and tools for TP implementation, including TP in public procurement, providing financial incentives and taxes, and fostering collaboration among businesses, governments, and academic institutions to share best practices.

One interviewee articulated explicitly the role of policy in driving TP adoption: ***“We are pushing for the integration of True Pricing methodologies into national policies. The goal is to ensure that businesses have a legal framework to follow, which incentivizes them to adopt TP”***. Without policy frameworks that mandate or incentivize TP, it will remain difficult to scale the impact of these practices across industries.

4.2 Businesses

In this section we present the business perspective on True Pricing and True Cost Accounting. Key representatives from four different businesses, namely Hutten, Lidl, HAK, and De Groene Afslag, as well as from the FNLI (Federation of the Dutch Food Industry) participated in the interviews. These interviewees were chosen because of their roles in shaping the implementation of True Pricing within their respective sectors.

- **HAK** is a Dutch vegetable and legume processor. In recent years, health and sustainability are central concepts within HAK mission.
- **Lidl** is a German international discount retailer chain, belonging to the Schwarz Group. It operates over 12.000 supermarket stores, present in the European Union, Serbia, Switzerland, the United Kingdom and the United States. There are 440 stores in The Netherlands (Statista 2022). Lidl declares that its business is “not about profitability at any price: Lidl takes responsibility for employees, environment, and society alike” (<https://info.lidl/en>).
- **Hutten** is a Dutch catering and hospitality company and has participated the True Price community practice in the context of the PPP, led by WUR.
- **De Groene Afslag** is a Dutch catering company, with restaurant and events facilities. They describe themselves as “the sustainable hub of the Gooi and Vechtstreek region.” De Groene Afslag is at exploratory phase to understand how true pricing can contribute to its sustainable oriented mission.
- **FNLI** (Federation of the Dutch Food Industry) is the leading organization representing the interests of food manufacturers and suppliers in The Netherlands. It serves as a central voice for the industry, advocating for sustainable practices, innovation, and competitiveness within the Dutch and European markets. Its members include a wide range of companies, from small businesses to large multinational corporations, all committed to ensuring the quality, safety, and sustainability of food products.

These interviewees bring valuable insights into the challenges and opportunities of adopting True Pricing and TCA from a business perspective. Their experiences provide a deeper understanding of how companies across different sectors are navigating the complexities of these models and their potential for fostering sustainable business practices.

Outcomes from the interviews with existing TP community

The perspectives of the interviewed businesses will be explored now, including their understanding of TP and TCA, perceived benefits and challenges, and their outlook on scaling up its impact.

1. Understanding of True Pricing / True Cost Accounting

All organizations acknowledge the importance of True Pricing and True Cost Accounting, though their interpretations and emphases vary based on their operational contexts and organizational philosophies.

Lidl interviewee holds a **pragmatic and somewhat proactive view** towards True Pricing principles, focusing on what it would cost at the production level (e.g., on a farm) to prevent or mitigate the negative impacts (such as biodiversity loss or CO2 emissions). For example, investing directly in sustainable farming practices to avoid biodiversity loss. He warns about a too theoretical approach of True Pricing, when assigning a monetary value to the negative impacts caused by production, and integrating these costs into the final product price for later remediation. He further emphasizes that True Pricing should directly benefit the producers (e.g., farmers) who are making sustainable changes rather than being used for offsetting purposes or theoretical exercises.

HAK interviewee places a strong emphasis on the **transparency** TP/TCA brings. For HAK, True Pricing is not only about reflecting the environmental and social costs of food production but eventually also about **educating consumers on the real impact of their purchase decisions**. She explains: “*Our focus with True Pricing is on transparency. We believe our customers deserve to know what they are really*

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paying for, beyond just the price tag, including the impact on the planet and people". HAK's interpretation of True Pricing aligns closely with their mission of promoting sustainable, plant-based foods, aiming to drive consumer behaviour toward more informed and sustainable choices.

De Groene Afslag interviewee agrees on the educational role for consumers through True Pricing. She views True Pricing as a **commitment to ethical business** practices and sustainable living. She sees True Pricing as a holistic approach to business, as she asserts, *"For us, True Pricing is a matter of integrity. It's about ensuring that every step in our supply chain is accounted for, that we are not passing the hidden costs onto society or the environment".*

Hutten interviewees see True Pricing as a **tool** that eventually should **drive behavioural change** by providing transparency and actionable insights to both supply chain partners and consumers. *"True Pricing should focus on driving behaviour change towards sustainable choices, not just making people pay more out of guilt."*

FNLI interviewees view True Pricing primarily as a **mechanism to manage risks**, and as a comprehensive framework enabling businesses to align their **financial performance with sustainable practices**. FNLI's perspective is more industry-wide, focusing on creating a "business-proof" model that incorporates True Pricing into standard business practices. They express that True Pricing is still largely theoretical and has not yet fully transitioned to practical, widespread implementation. They highlight the need to make True Pricing more "business-proof," suggesting that **businesses require practical, straightforward applications** rather than purely academic understanding. One of the interviewees states *"True Pricing can help manage the risks that companies already have and improve relationships within the value chain".*

2. Perceived Benefits from TP/TCA

The business interviewees identify several key benefits of adopting True Pricing, both for their businesses and the wider community.

Sustainability-oriented businesses see True Pricing as a **means to align business practices with their core values**. One of the interviewees shares her view on True Pricing as a way to live out the company's commitment to ethical business practices. She explains, *"It's not just about numbers for us. It's about making sure our business practices align with our values and that we are contributing positively to society."*

For these businesses, True Pricing is seen as a **powerful educational tool for consumers**, resonating with their sustainability oriented missions. They see True Pricing as a potential tool to influence consumer behaviour by fostering transparency and encouraging sustainable choices. As one interviewee states, *"By showing the true cost, we are educating our consumers and inspiring them to make more conscious decisions about what they buy and why".*

Retailers also highlighted the potential role of True Pricing in **enhancing brand reputation and trust amongst consumers**. Adopting True Pricing would help to differentiate them as a leader in responsible retailing, enhancing their brand reputation and consumer trust. *"It's about building a brand that consumers can trust, knowing that we are considering the full impact of the products we sell."*

Looking broader at the whole value chain, producers noted that True Pricing has prompted a closer examination of their supply chains, leading to **improvements in sourcing and production practices**. This has also a positive impact on risk management and compliance with sustainability regulations.

In terms of value chain stakeholder interactions, FNLI views True Pricing as a way to help companies **strengthen relationships**. It sees the strategic integration of True Pricing into business models as a key tool for aligning financial performance with sustainable practices, and for fostering long-term industry

stability and cooperation: *"True Pricing can improve relationships with retailers and customers, providing a clear incentive for businesses to engage with them more deeply"*.

The role of True Pricing in encouraging sustainable practices **and creating a level playing field**, was highlighted, if it is widely implemented: *"True pricing could help create a level playing field... so the real cost of the non-sustainable offer are explicitly indicated with higher consumer true-price while the sustainable offer shows lower true-price to consumer, which makes the latter more attractive"*. True Pricing could help scale sustainable practices, eventually leading to cost reductions and better market dynamics for sustainable products: *"We believe that scale in the end will also lead to lower prices for having better yields, of course, not the same as intensive farming, but better yields than currently in organic farming"*.

3. Perceived Challenges from TP/TCA

The business interviewees identified several challenges in implementing True Pricing.

The first challenge is the **difficulty in collecting reliable data and the lack of a standardized method** to accurately calculate true costs. FNLI states that a lack of data and a harmonized methodology complicates implementation for many businesses, particularly SMEs. *"Calculation is not available, the methodology is not harmonized"*. **Financial limitations to invest** in those calculations also pose a challenge, particularly for smaller companies like De Groene Afslag and Hutten: *"As a smaller business, we don't have the same resources to invest in sophisticated data analysis tools."* Lidl agrees that one of the primary challenges is reaching an agreement on how to calculate the costs of externalities such as carbon emissions and biodiversity loss. *"Challenges would probably be the theory behind it... to have everyone agree on what is the cost of, let's say, emissions now."*

Another challenge related to cost calculation is the **difficulty in translating existing theory into practice**. FNLI interviewee states, *"We are still on a theoretical level with True Pricing, not much on the implementation side yet"*. This reflects a broader industry challenge in making True Pricing "business-proof" rather than purely academic.

Challenges are not only at the level of cost calculation. In highly competitive markets, raising prices to reflect true costs **could put companies at a disadvantage** if their competitors do not adopt the same pricing strategy.

Sustainable farming is currently more expensive. Both HAK and Lidl have consciously absorbed the higher cost for sustainable products themselves, not transferring it to consumers, allowing that organic products on the shelf to be priced the same as non-organic products. They strongly believe that it is the responsibility of businesses to provide the right products to consumers, not putting consumers in the position having to pay more. *"The external costs are not included in our consumer pricing"*. However, this impacts their **competitiveness in long run, compared with other companies with non-sustainable and lower-cost products**, as they have to sacrifice profit margin to accommodate it, which has potential negative consequences for the company's financial results, and also impacts the future investment in long term. HAK interviewee explains *"True pricing for us is really important... organic products, more sustainable farming, it's more expensive, and actually, we are not able to price this into the consumer, especially when the rest of the market is still... and the regular products are at a low cost."*

Furthermore, the inherent **cost disadvantage faced by organic farming** in the existing economic system affects pricing and market competitiveness *"One of the challenges is that more sustainable farming and especially organic products are more expensive because of the lower yields per hectare... There is not a level playing field between normal regular farms' products and organic products"*.

All business interviewees spontaneously brought up **consumer acceptance** as a major challenge. There is a risk that consumers might resist price increases, especially if they do not understand why prices are rising and where the additional money is going.. Lidl interviewee said *"I think it is the biggest challenge to*

make it clear why prices are increasing, where the money is going to, and what eventually the goals are that we all working towards". Managing consumer perceptions and potential resistance to higher prices is a challenge. Lidl and HAK expressed concerns about how True Pricing might affect customer loyalty. *"We have to be careful about how we communicate these prices to our customers. If the message is not clear, it could backfire".* FNLI also notes that consumers may not be ready to fully embrace True Pricing if it leads to higher prices, particularly in a context of economic inflation and price sensitivity: *"only a small amount of people are making the right choices, largely due to price sensitivity."*

There is a common **perception of lack of political will** to push for systemic changes that would support sustainable practices. One interviewee states: *"It's a whole system... we are only a part of a very big agricultural system... we cannot change the whole farming plan if the farmer has no demands for organic products from other companies, for whom the same land is used for growing productions".* This statement highlights the complexity of implementing True Pricing and the need for systemic changes across the entire agricultural ecosystem. Without government intervention to create a fair competitive environment, the shift towards sustainable agriculture will be slow.

4. Future Outlook: Key Factors for Upscaling True Pricing Impact

Looking to the future, the interviewees from businesses discussed several key factors that could support the upscaling of True Pricing to maximize its impact:

To effectively promote sustainable practices, HAK interviewee highlighted that **businesses should commit fully rather than offering a choice** that allows consumers to default to cheaper, non-sustainable options. *"We believe that a replacement strategy works the best in the sense that we don't give the consumer a choice between organic beetroots and regular beetroots... Market parties and companies should choose themselves to make the switch to organic farming or more sustainable farming practices."*

To incentivize this replacement, **regulations and standards are needed**. There is a consensus on the need for more robust regulations and standards around True Pricing. Representatives from HAK and Lidl advocate for government interventions to establish clear guidelines and metrics. Lidl representative suggests, *"Without government support, it will be hard to standardize True Pricing across the industry, which is essential for its success".* HAK interviewee also emphasized *"We need the government... to create an environment in which there is a level playing field... And there are no instruments at the moment which stimulate that, not at all".* FNLI also calls for the government leadership to facilitate and create a level playing field: *"We need a level playing field at the EU level - government must lead."*

In order to scale up, **innovations to provide wide access to reliable data** is needed, as well as an agreement on the methodology to be used, so companies can easily implement True Cost Accounting and/or True Pricing.

To facilitate implementation, **collaboration with other industry partners** emerges as a critical theme. *"It's all about scale and costs... We need to create an environment that stimulates this transition. We cannot do it on our own."* FNLI interviewee advocates for a multi-stakeholder approach to foster collaboration and share best practices. He also suggests using platforms to share best practices and success stories, facilitating a more unified approach: *"A platform where best practices are shared could help companies learn from each other."*

Broader cultural shift and progressive consumer engagement are essential. True Pricing is seen as part of a broader cultural shift towards sustainability and transparency. Consumers need to be aware of the true costs of food and understand its relevance. De Groene Afslag interviewee sees TP as a tool for systemic change, advocating for small, incremental steps to build momentum. She asks: *"How can we increase momentum gradually? A growth model to a 'truer' price, not so black-and-white?"*

4.3 Consumers

Two focus group discussions have been conducted in June 2024, among consumers who are open to consider more sustainable options in own food choices. The difference between these two groups is whether they have already been buying organics food options sometimes ("dark green") or not ("light green"). Below are the key learnings.

On the general topic of food consumption, participants typically buy food from supermarkets, butchers, and local open markets. Some consumers who have very busy schedules also use online grocery services, e.g. a working mother with two kids, and an airline flight tenant. The frequency varies from daily, 2-3 times per week to weekly, and seldomly monthly. The important factors influencing choices include pricing, sales/special offer, health-related diets, shelf life and freshness (esp. vegetables), and convenience. Here are some direct quotes:

"I go to AH and Jumbo mainly because they have good offers and it's convenient for me." "I prefer buying from the local butcher for meat because I trust the quality more." "I mostly shop at the supermarket, usually once a week." "Special deals and health benefits are crucial for me, especially with the rising healthcare costs." "Picnic is my best supplier; I do my big shopping there once a month and then top up weekly with other things needed."

When discussing sustainable food options, respondents showed mixed feelings. For some, sustainability is considered difficult to identify, as there is confusion and frustration over what constitutes sustainability. Generally consumers related it to be often more/too expensive. Individual respondents also said that they are tired of it being mentioned too often. Sustainable options mentioned include organic products, local production, less plastic packaging material, "Beter-leven" labels. Trust in and the effectiveness of various product labels is a concern. Participants prefer transparency and scientific validation over marketing story. Generally participants pay attention to packaging materials and their environmental impact. Some quotes:

"I try to buy bio products when I can, but they are often more expensive." "There are too many different labels, and it's hard to know which ones to trust." "I prefer local products because I feel they are more sustainable." "There is too much information on packaging; I just want something simple and trustworthy." "I get tired of hearing about sustainability. It's often just a marketing trick to charge more".

The response on the topic of **willingness to pay more for sustainable products** is mixed. Some participants are open to it if there is transparency and the impacts are clear. Some have expressed their concerns about the capitalist system and the actual distribution of extra money made from the organic food. Here are a few quotes:

"I don't mind paying more if I can trust the label, but right now, it's too confusing." "The government needs to step in and ensure these labels are reliable." "I might pay more if I knew exactly where the money was going, but many of them are unclear." "Why should we bear the cost when it's the producers who need to change their practices?" "I try to buy organic vegetables and animal products with the 'Beter-leven' label whenever possible." "I find it hard to know what's truly sustainable. It's confusing with all the labels and prices" "I prefer to buy local products and avoid items wrapped in plastic." "I'm not sure what makes something sustainable. The labels don't always help".

The **role of labels and their trustworthiness** have come up spontaneously in the discussion. Some respondents attribute whether to buy sustainable products to clear and trustworthy labelling. Labels like Fair Trade and "Beter-leven" are mentioned but trust is not consistent. Currently, participants rely on personal judgment. Whilst they value the transparency in the production process, some others express distrust in current labels and desire government insurance. Scientific, NGO validation and trusted sources like the nutrition centre is also preferred. Generally, they find too much information on packaging overwhelming and prefer simplified but trustworthy communication. Below are some direct quotes:

"I trust Fair Trade because it's backed by NGOs." "There are so many labels, and it's hard to know which ones are really trustworthy." "I prefer to use my own judgment and look up information on trusted sites." "There's just too much information on the packaging; it needs to be simpler." "I need to see scientific backing, not just a fancy label."

The **awareness of True Pricing concept** is very low. In two focus groups, only one participant had heard about it and were able to explain the concept to others. Another participant linked it with Tony's Chocolony's more expensive chocolate.

After reading the definition of the true pricing, there is confusion and scepticism about the concept. The acceptance is rather low among participants. They question strongly its general fairness towards having consumers pay for the extra cost, instead of producers and retailers. They also question whether it would actually benefit farmers and labours. Furthermore, they express concerns about the impact on prices and the transparency of how extra money are used. Here are some quotes from the participants:
"I've heard of true pricing, but I'm not sure if it's fair." "Will the extra money really go to farmers, or is it just another way to charge us more?" "I understand the idea, but it seems very complicated." "How do we know that the extra money is being used properly?"

When discuss **applying True Pricing to food products**, most participants continue to be strongly sceptical and negative, rejecting the guilt feeling that the explicit true pricing is "unfairly forcing" on them, whereas it should be covered by the producers and supermarket chains. There is general empathy to farmers and perception that "they have been paid very little". Some raise the fear that it would create societal divides. They express a desire for transparency and assurance that extra money paid will benefit the right stakeholders. When prompted for **any positive reactions of the True pricing Concept**, a few participants find the concept appealing but potentially impractical and feel it might not address underlying issues. They express their desire for government interventions and transparent, fair implementation. Here are their words directly:

"True pricing sounds good in theory, but I worry it will just make us feel guilty." "I want to know that any extra money I pay is actually helping the environment or farmers." "It's a nice idea, but how realistic is it?" "The government needs to regulate this to ensure fairness."

On the topic of the **potential impact True pricing on grocery shopping**, participants expressed their concerns on affordability, worrying about its impact on those with limited budgets. They also question whether the extra cost will truly support sustainable practices. They emphasize the need for clear information and trusted, independent oversight. Some wonder if it would lead to reduced consumption, which could be potentially positive impact. Some individuals suggest that all products should eventually reflect true pricing for consistency. Some quotes here:

"I'm worried about how this will affect prices, especially for those with tight budgets." "True pricing should be applied to all products, not just a few." "This could make groceries unaffordable for many people." "We need reliable information from trusted sources to make informed decisions."

Communication and information needs have been spontaneously mentioned as very important topics. Participants prefer clear, simple labelling and transparency in the use of extra money. They desire independent, public sources of information, insist the availability of detailed breakdowns of price components. There is a preference for government and EU oversight rather than supermarket-led initiatives. When it comes to learning more, they prefer clear educational materials. Here are some of their own words:

"Labels should be straightforward and easy to understand." "Educational materials would help us understand true pricing better." "Information should come from independent, reliable sources." "I trust government and EU oversight more than supermarket initiatives."

When discussing **future expectations on the conditions for implementation**, participants call for a phased approach (as the ban for plastic bags in supermarket), with clear labelling and consistent application across Europe. They stress the importance of long-term impact and strongly insist for fair distribution of costs across the food chain. They emphasize the need for government regulation and transparency in the entire supply chain, and also suggest that true pricing should be part of a broader effort to make healthy and sustainable food accessible. Using their own words:

"We need a phased approach to true pricing." "It's important that costs are distributed fairly." "Government regulation is essential." "True pricing should be part of a larger effort to make sustainable food more accessible."

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As for the **role of different parties**, they believe that *“government should lead the initiative”* and *“enforce”* regulations, as well as ensure a single, *“clear labelling system”* and fair competition, *“producers should invest in sustainable business practices, and retailers should provide transparent pricing information”*. Both *“producers and retailers should offer sustainable options and be fully transparent about pricing... including their margins”*.

On the **scope of implementation**, participants prefer widespread implementation across all products and brands, with a focus on transparency and fairness. They expect leading brands and supermarkets to take the initiative first. They expect transparency at both the product and supermarket levels. The quotes: *“True pricing should cover a wide range of products.” “Leading brands and supermarkets should set an example.” “True pricing should be implemented across all products.” “We need transparency at every level, from products to supermarkets.”*

4.4 Consumer Organizations

In this section we present the view on TP and TCA from Consumentenbond. Consumentenbond is the Dutch consumer organization dedicated to protecting consumer rights and promoting fair market practices. Although Consumentenbond is currently not actively involved in TP/TCA initiatives, the interviewee shared personal views on these concepts, the perceived potential impact on consumers, and the broader societal implications.

1. Understanding of True Pricing and True Cost Accounting

Though TP and TCA are not central to Consumentenbond's current agenda, it has been in contact with affiliated organizations at the EU level, i.e. BEUC (European Consumer Organization), which is actively engaged in advocating for TCA as a fairer approach to managing the external costs associated with agricultural production.

There is a preference for True Cost Accounting (TCA), interpreted as application at the business level, over True Pricing (TP), viewed as the price to be paid by consumers. This is rooted in a concern for consumer fairness, as the interviewee worries that implementing True Pricing directly to consumers could unfairly increase the financial burden on consumers, especially those from lower-income groups, if not accompanied by proper compensatory mechanisms. The interviewee mentioned that although the organization has not prioritized the involvement in TP efforts, its affiliated EU organization *“focuses more on taxation and incentives... because we don't want consumers to pay for it, and it's very important that the lower income side of society will not have to pay for this internalization of cost.”*

2. Perceived Benefits

Despite the limited involvement in TP/TCA, the interviewee has recognized several potential benefits of these approaches, such as *“helping transparency”* across the value chain, clarifying *“where different costs occur and how profits are distributed”*. This transparency could help hold various stakeholders accountable for their environmental and social impacts.

Furthermore, adopting the *“polluters pay principle”* through TCA is preferred as it could ensure that those responsible for environmental damage bear the financial burden, rather than passing these costs onto consumers. This principle aligns with Consumentenbond's commitment to consumer fairness practices.

3. Perceived Challenges

Several challenges arise in the implementation of True Pricing and True Cost Accounting amongst consumers. A significant concern is that TP could disproportionately affect consumers, particularly those with lower incomes, by raising the prices of everyday goods. The interviewee stressed: *“It's very*

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important for the Consumentenbond, that the consumers are not the ones who are going to be the sole payers for this." This concern underscores the need for policies that prevent TP from exacerbating inequality rather than reducing environmental harm.

Another critical challenge is the absence of a standardized methodology for calculating true costs. Without a unified approach, ensuring consistency and fairness in how externalities are priced and internalized across different sectors becomes difficult. The current lack of transparency in supply chains further complicates this issue, making it hard to track costs and margins effectively: *"there's a lot of knowledge gaps... on the pricing practices... there needs to be more transparency on prices over the complete supply chain."*

Interviewee also commented that, without the involvement of financial institutions and their commitment to supporting sustainable practices, government budgets alone may not suffice to cover all the costs associated with transitioning to TP or TCA.

4. Future Outlook: Key Factors for Upscaling True Pricing Impact

Consumentenbond interviewee identified the following factors for up scaling the impact of True Pricing and True Cost Accounting:

Governmental Leadership: The government is seen as the most crucial player in creating a supportive environment for TP and TCA. This includes establishing clear regulatory frameworks, providing subsidies, and creating tax incentives to encourage sustainable practices. As noted, *"The government has the most responsibility to take the first step... they are the top responsible for creating a new framework."*

Involvement of Multiple Stakeholders: Beyond government action, the successful implementation of TP and TCA requires coordinated efforts from various stakeholders, including businesses, consumers, financial institutions, and academic institutions. Each has a role in supporting a fair and effective transition to sustainable pricing models: *"We need a lot of different stakeholders that can influence in their own ways... Governments, universities, research organizations, and financial institutions."*

Standardization of Methods: Developing a standardized approach to calculating and applying true costs will be critical to ensuring transparency and trust among stakeholders. This standardization would help streamline processes and provide a clear and equitable calculation framework for all parties involved: *"There should be one standard TCA."*

Involving financial institutions in the transition: It could provide a more holistic solution by distributing the costs more evenly across sectors. This would prevent any single group, particularly consumers, from bearing the majority of the expenses. The interviewee suggested that *"financial institutions need to be part of the target group if governmental budget is not enough to take all the cost."*

4.5 Financial Institutions

As the True Pricing (TP) and True Cost Accounting (TCA) movement gains momentum across various sectors, financial institutions play a pivotal role in supporting and scaling these initiatives. In this section, we delve into the perspectives of Rabobank, one of the largest financial institutions in the agricultural sector, to explore how financial institutions are engaging with True Pricing and contributing to its future impact.

Rabobank is a multinational banking and financial services company and the largest agricultural bank in the Netherlands. As such, Rabobank is positioned to influence the sustainability efforts of businesses across the food value chain. Rabobank has introduced the concept of "True Value," which emphasizes

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the positive impact of sustainability actions rather than solely focusing on the costs of negative externalities.

Two key Rabobank representatives were interviewed to provide insight into the institution's approach to True Pricing and TCA, both with roles within Rabobank related to the group's sustainable strategy. The bank focuses on embedding sustainability as a core value within its business operations and collaborations, with initiatives such as the "True Value Lab". This initiative aims to promote collaboration within the food value chain and strengthen sustainable practices.

Outcomes from the interviews with Financial Institutions

The following section presents the key outcomes of the interviews with Rabobank's representatives, covering their understanding of True Pricing and TCA, the perceived benefits and challenges of these approaches, and their outlook on scaling up True Pricing's impact in the future.

1. Understanding of True Pricing and True Cost Accounting, and the Role of Financial Institutions

The interviewees emphasize the importance of TP and TCA in transforming the food system towards sustainability. They describe TP as a method to include all externalities, including environmental, social, and economic, into product prices, thereby showing the "true" cost of goods. TCA further formalizes this approach by integrating these costs into financial statements, promoting transparency and encouraging sustainable business practices.

They see the bank's role as essential in promoting TP and TCA within the agricultural sector. As a significant lender, Rabobank can influence the adoption of sustainable practices through its financial products and initiatives. One of the interviewees specifically highlighted its own "True Value Lab," a collaborative platform designed to bring stakeholders together across the food value chain to align on sustainability goals.

"As a bank, we have the unique selling point of knowing all parties. Our network and knowledge of the sector are crucial in steering towards true value," said one representative.

Rabobank is actively using financial tools to support the transition to TP and TCA. *"We could lend with longer tenures and with lower interest rates. As a bank, we can support farmers in their sustainability challenges"* they explained, pointing to the practical measures Rabobank is taking to reduce the financial barriers for farmers and other stakeholders to adopt sustainable practices.

2. Perceived Benefits

The interviewees outlined several benefits of implementing True Pricing and True Cost Accounting, which are critical for a sustainable agricultural future.

They noted that TP and TCA could significantly enhance sustainability by internalizing the costs associated with environmental degradation, social inequalities, and economic imbalances. This internalization **encourages more responsible behaviour throughout the supply chain**, aligning economic activities with broader environmental and social objectives. *"True pricing or true value should be the end goal. We believe that the true price or true value starts with collaborating. It can only be achieved if we do this as a whole,"* one representative stated, highlighting the importance of collective action in achieving sustainability goals.

Additionally, TP and TCA **promote market alignment and fairness** by ensuring that the costs and benefits of sustainability are distributed equitably across the supply chain. This is particularly important for farmers, who often bear the highest costs associated with sustainable food production but lack the market power to influence prices. *"At farm level, it is very hard to invest in sustainability if you are not paid for it,"*

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an interviewee pointed out, emphasizing the need for a pricing system that fairly compensates farmers for their sustainability efforts.

The interviewees also emphasized that TP and TCA not only help **mitigate risks related to sustainability** regulation compliance but also address challenges posed by climate change and resource scarcity. They see engaging in TP as part of a broader strategy to *"future-proof the agricultural sector against these emerging risks."* Currently, retailers' primary motivation for adopting sustainability tools like TP and TCA is perceived as the *"need for data in order to complete their CSRD reports"*. Additionally, Rabobank interviewees believe that retailers are concerned that farmers may struggle to meet sustainability regulations, and their production could be further affected by climate change. As one interviewee noted, *"They (retailers) know they should help farmers become more sustainable; otherwise, they will face sourcing problems"* underscoring the importance of sustainability in securing future supply chains.

3. Perceived Challenges

The Rabobank interviewees identified several challenges in implementing True Pricing and True Cost Accounting.

The first challenge mentioned by interviewees is the **standardization of data collection**, which complicates the process of accurately assessing and integrating true costs. The interviewees stressed that different parties use different systems, making it difficult to compile consistent datasets necessary for TP and TCA. As mentioned by one interviewee, *"There are 13 different systems for farmers to provide raw data, (which is) very challenging for them. We should help them to work towards one system"*.

Market dynamics and power imbalances within the food value chain were also highlighted. Farmers, who are central to sustainability efforts, often lack the market power to negotiate prices that reflect the true costs of sustainable practices. *"80% of sustainability actions should be taken by farmers, but they have little market power"*. This imbalance makes it difficult for them to invest in necessary changes without sufficient financial support.

The interviewees also discussed the issue of **trust among stakeholders**. There is often hesitation among stakeholders to be the first mover in adopting new sustainability practices due to fears of competitive disadvantages. *"Trust within the chain—do we trust each other? No. For example, different parties have their own system. (They all) Want others to follow them,"* one representative noted, emphasizing the need for building trust and fostering collaboration.

Furthermore, the interviewees highlighted **uncertainty around government policies and regulatory frameworks** as a complicating factor. Without clear, consistent policies, stakeholders are hesitant to make long-term investments in sustainable practices. However, they also mention that the governments also show hesitation due to the potential political risks. *"Two big insecurities are government policy and value chain behaviour. People are not willing to move in an insecure context,"* one interviewee observed, calling for more clarity and support from policymakers.

4. Future Outlook: Key Factors for Upscaling True Pricing Impact

Looking ahead, Rabobank interviewees identified several key factors that are crucial for scaling up the impact of True Pricing and True Cost Accounting.

A fundamental factor discussed was the need for **collaboration across the value chain**. The interviewees argued that the successful implementation of TP requires a concerted effort from all stakeholders, including farmers, processors, retailers, and financial institutions. They advocated for a shift

from competition to cooperation, where all parties work together towards common sustainability goals. *"We believe we can bring all parties together to work on this and, in this way, become more sustainable".*

The interviewees also stressed the importance of **educational initiatives and mindset change**. Bridging the knowledge gap between stakeholders is essential, particularly in educating farmers about sustainable practices and changing the economic mindset of retailers and processors. *"There is quite a big gap between the mindset of the average farmer and the average Western consumer. Education and changing mindsets are crucial".*

They also highlighted the need for **clear government policies and incentives** to provide a long-term vision and reduce regulatory uncertainty, which would help create a stable environment for investing in sustainability. *"It would have helped if the government is going to lead,"* one representative noted, calling for a stronger governmental role in guiding the transition.

Finally, the interviewees emphasized the need for **risk and cost-sharing mechanisms** across the value chain. Financial institutions can play a significant role in developing innovative financial products that help mitigate the risks associated with transitioning to TP, thereby facilitating its adoption by all stakeholders. *"(These sharing mechanisms) would result in different propositions for farmers... loan of land could be cheaper... feasible business model for farmers,"* they suggested, highlighting innovative ways to support key chain actors financially.

4.6 Government

This section analyses insights from the interview with a representative from the Ministry of Economic Affairs and Climate Policy (EZK), who has provided his view on the perceived benefits, challenges, and future outlook related to True Pricing and True Cost Accounting, as seen from a policy-making perspective.

1. Understanding of True Pricing and True Cost Accounting

The interviewee described True Pricing and True Cost Accounting as the emerging approaches that seek to integrate the external costs, such as environmental damage and social impacts, into the market price of goods and services. He noted that *"true Pricing aims to close the gap between the price paid in the shop and the true costs of products, ensuring all externalities are accounted for"*.

He explained that while the concept of accounting for external costs is familiar within environmental and climate policies, the specific application of True Pricing, especially in sectors like agriculture, is relatively new to them. He emphasized the importance of policymakers understanding the difference between the current market price, which often excludes environmental and social costs, and the "true price," which seeks to incorporate all these externalities. T

The interviewee also noted the distinction between the theoretical understanding of true pricing and its practical applications, emphasizing the difference between informing consumers of true costs and insisting them to pay these costs.

2. Perceived Benefits

The adoption of True Pricing is perceived to offer several potential benefits that align with broader sustainability goals. One significant benefit is its potential to drive behavioural changes among both consumers and businesses. By making the true costs of products more transparent, True Pricing could encourage more sustainable consumption patterns.

The interviewee noted *"If the external costs are internalized, businesses will consider these in their investment decisions, potentially avoiding environmentally damaging practices"*, leading to more sustainable practices and innovations. Some companies already factor in a high CO2 price in their decisions to ensure future profitability.

The interviewee pointed out companies might react differently to True Pricing policies, based on their positioning. *"Some companies might use true pricing to differentiate themselves positively, particularly those with premium brands...Others, more focused on cost leadership, may view it as a challenge due to potential price increases"*.

Discussing consumers' perspective, the interviewee thinks True Pricing could potentially help them make more informed choices by highlighting the environmental and social impacts of their purchases. This increased awareness could lead to greater demand for sustainably produced goods, thereby encouraging a shift towards more sustainable market practices.

3. Perceived Challenges

Despite the potential benefits, the interviewee identified several challenges in implementing True Pricing on a broader scale. A primary challenge is around **consumer awareness and willingness-to-pay**. *"I doubt whether many consumers are willing to pay this extra price... Most consumers will not do this,"* the interviewee commented, pointing out the complexity involved in expecting consumers to bear higher costs, especially particularly when the additional costs are not directly tied to immediate, tangible benefits, and when it is unclear how the extra money will be used or who benefits from it.

Additionally, the **regulatory and policy landscape** poses considerable challenges. *"Implementing true pricing across different sectors and countries is difficult because regulations vary. For example, if we enforce true pricing on meat in The Netherlands, it becomes much more expensive, but in other countries, this may not happen, creating an uneven playing field."* he remarked, emphasizing the need for coordinated international efforts to ensure a level playing field across the borders. The differences in regulatory standards among countries could create competitive disadvantages, particularly if only a few countries adopt True Pricing measures.

There is also the issue of **public acceptance**. Higher prices resulting from True Pricing could face resistance from both consumers and producers, particularly in markets where price sensitivity is high. The interviewee pointed out that many people prefer that essential goods, such as food items, remain affordable. *"Public acceptance will not be easy... people prefer that milk and meat remain cheap and are not in favour of paying much more, even if it means less environmental damage,"* he suspected.

4. Future Outlook: Key Factors for Upscaling True Pricing Impact

Looking forward, the interviewee highlighted several key factors that could help scale up the impact of True Pricing. One critical factor is the **development and implementation of policy instruments** that internalize external costs more effectively. Instead of relying solely on consumer choices, the interviewee suggested using direct policy measures such as environmental taxes, norms, and standards to ensure that all external costs are incorporated into the prices of goods and services. *"The best option would be that all external costs are part of the price, whether you are a consumer, industry, or government,"* he proposed. This approach would ensure that environmental damage is better accounted for and could drive more sustainable economic activities.

The interviewee mentioned some potential policy instruments to steer producers: *"Businesses might need more incentives or clear regulations to fully embrace true pricing. Fiscal incentives, subsidies for sustainable practices, or stricter penalties could encourage companies to innovate and reduce their environmental impact."*

International coordination and policy alignment were also identified as crucial for the successful implementation of True Pricing. *"For some products, you need international policies... if only one country implements True Pricing, it might disadvantage its producers"*, the interviewee emphasized the

importance of global cooperation to prevent competitive disadvantages for countries and sectors that apply True Pricing while others do not.

Furthermore, he stressed that *"broader adoption requires careful planning and incremental policy shifts...we should focus on integrating true pricing into economic and environmental policies over the long term"*, suggesting a strategic and gradual transition journey.

Another strategic consideration was ***"aligning true pricing with broader economic policies such as the climate action plans and circular economy strategies, and making it part of a comprehensive approach to sustainable development...This integration could enhance the effectiveness and acceptance of true pricing."***

Additionally, the interviewee highlighted the need for better **consumer education and information**. *"Labelling might be more effective in informing consumers than just showing a price difference... It provides clear, accessible information that could drive more sustainable choices"*. By improving labelling and other informational tools, consumers could be better informed about the true costs of their purchases, potentially leading to more sustainable consumption patterns.

4.7 Knowledge Gaps and Applied Research

Interviewees from different organizations have shared their perspectives on the knowledge gaps and how applied research could help address them. They are largely consistent with previous sections. **Table 1**

Table 4 provides a summary of the knowledge gaps and the role of applied research perceived by all interviewees. More details are in Annex 3.

Table 4: : Summary of Perceived Knowledge Gaps on TP and Role of Applied Research

Knowledge Gap	Role of Applied Research	Mentioned by (type of stakeholder)				
		Ex. Com.	Bus.	Cons. Org.	Fin. Inst.	Gov.
Methodology harmonization and development	Contribute to the development of standardized frameworks, developing clear and actionable goals and metrics	X	X	X	X	
Data availability and quality	Contribute to development of more robust and cost-effective data collection and management tools and methods	X	X		X	
	Contribute to identify and quantify all externalities (both negative and positive) associated with different industries and sectors			X		
Sector-specific understanding	Understanding of needs and methodologies of different sectors (e.g. farms, horticulture, dairy)	X			X	
Usability of existing academic knowledge	Translation of existing complex academic findings into practical business oriented tools	X	X		X	
	Delivering practical implementation guides, actionable frameworks for decision making, handbooks, toolkits, and case studies	X	X		X	
Business drivers for genuine sustainable behaviour (vs regulatory or "greenwashing" drivers)	Gain insights on businesses decision-making processes					X
Businesses challenges for adopting TP within businesses in the value chain	Case studies working directly with businesses to test and refine TP	X				X
	Ways to incentivize decision makers and risk averse mindsets (e.g. rewards systems)	X				
	Adaptations required for existing models (e.g. procurement, margins)	X				
Long-term impacts on business (profitability, competitiveness, brand loyalty)	Evidence based economic impact (e.g. case studies and financial models that outline the cost-benefit analysis for businesses engaging in TP)	X	X			X
Long-term impacts on consumer behaviour (consumer engagement)	Effective communication and education strategies to impact consumer behaviour	X				X
	Consumer demand elasticity (responses to price changes in sustainable vs. non-sustainable products)		X			X
	Development of strategies to market sustainable products effectively		X			
	Research specifically lower income segments			X		
	Research the impact of TP versus other tools into driving sustainable behaviour (e.g. labelling)					X
Role of Financial Institutions	Integration of TP in financial system (e.g. monetary policies, interest rates)	X				

	Frameworks for central banks and financial institutions to incentivize investments in sustainable products through true pricing	X				
	Research on the role of financial institutions in a fairer economic and in sustainable pricing models (e.g. funding models, investment strategies, financial products)			X		
	Examine how financial institutions can integrate environmental, social, and governance criteria into their decision-making processes to support the goals			X		
Policy integration and Legislative Support	Support policymakers in understanding TP and in developing incentives (fiscal policies, public procurement laws, and tools for supporting businesses that adopt TP)	X				
	Identifying effective policy measures that has been successful in other countries/sectors	X	X			
	Research how different policy measures could impact market dynamics and the broader economy					X
	Identify opportunities for international collaboration					X
Leverage technology developments	Investigate the development of digital platforms, blockchain technology, etc.		X			
Collaborative multistakeholder research effort*	Building trust and collaborative networks		X		X	
	Development of tools and frameworks for transparency of pricing practices across supply chains (e.g. databases or digital platforms to track pricing and cost structures from production to sale)			X		

4.8 Summary Findings from Stakeholders Perspectives

To summarise, the research among key stakeholders have yielded the following key findings:

1. The lack of standardized True Pricing methodologies across industries hinders comparability and scalability.

While there has been progress in developing TP and TCA methodologies, the absence of a unified standard remains a significant obstacle. Different sectors and businesses apply varied approaches to quantify environmental, social, and economic externalities, making it difficult to compare results or ensure consistency. This lack of standardization hampers scalability, and businesses struggle to see how different sustainability metrics could be aligned with the help of TCA. Although efforts to harmonize methodologies are underway, progress remains slow due to the complexity of calculating diverse externalities.

2. Data availability and reliability are essential for the success of True Pricing, but current data systems are fragmented and inconsistent.

Interview results reinforced the desk research findings on the significant challenges in data availability and quality, which are crucial for calculating true costs. Interviews also corroborated that businesses often rely on their own models for collecting and analysing data. Business interviewees declared that without a sector standard and practical guidance, implementation of TP remains challenging. Interviewees also emphasize that a one-size-fits-all approach is impractical, and that sector-specific strategies can more effectively support TP's integration into relevant supply chains.

3. Businesses see the potential of True Pricing to create transparency and reduce sustainability risks, but interviewees highlighted the financial burden as a key barrier to widespread adoption.

Business stakeholders see that True Pricing has the potential to enhance supply chain transparency and reduce sustainability risks. However, a recurring challenge mentioned in interviews is the financial burden of implementing TP, particularly for small and medium-sized enterprises (SMEs). While larger companies may have the resources to experiment with TP models, SMEs often struggle to absorb the costs of data collection and the integration of sustainable practices, limiting their ability to adopt TP without external support or financial incentives. To ease the financial burden on companies adopting TP, especially smaller ones, stakeholders highlight the need for financial incentives and risk-sharing strategies.

4. Collaboration and trust across the value chain are critical for scaling True Pricing, but interviews revealed stakeholder reluctance and competitive pressures as limiting factors.

Interviews with financial institutions, businesses and other stakeholders underscored the importance of collaboration across the value chain—from farmers to retailers to financial institutions—in successfully scaling True Pricing. However, many interviewees highlighted a lack of trust and reluctance to share data or adopt standardized practices due to competitive pressures. Businesses are often hesitant to be first movers, fearing that competitors will not follow suit, leading to potential disadvantages. Financial institutions like Rabobank noted their role in fostering collaborations through financial tools and incentives that reduce the risks of adopting new sustainability practices. Clearly without greater cooperation and trust, scaling TP will remain a challenge.

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5. Consumer awareness and willingness to pay for true-cost products remain low, limiting True Pricing's impact on purchasing behaviour.

Focus group discussions with consumers revealed that while many participants are interested in sustainability, price remains the dominant factor in purchasing decisions. Consumers in the focus groups are unfamiliar with TP, and those who have heard of it express confusion or scepticism about its fairness. They valued transparency thus appreciated the concept of True Pricing, but were reluctant to pay higher prices for sustainable products, even when they understood the rationale behind the cost. They didn't feel it to be fair for them to carry these cost which should be actually for the producers and retailers. They are also concerned about affordability, particularly during times of economic uncertainty, and prefer that TP costs be shared across the supply chain, not just by consumers. Participants also expressed scepticism about whether the extra costs of true pricing would directly benefit farmers, workers, or the environment. Consumer advocates and businesses agree that communicating the direct benefits of TP to consumers will be critical in shifting this perception.

6. Consumer education and transparency are necessary for acceptance

Consumer insights reveal that education and transparency are key to fostering acceptance of TP. Many consumers view sustainable and true-priced products as too expensive and express distrust towards existing eco-labels. They prefer simplified, clear information on products and seek trusted sources, such as government oversight, to validate claims. Stakeholder interviews suggest that raising awareness about TP's environmental and social benefits could drive more conscious consumer choices over time.

7. Government leadership and clear regulatory frameworks are essential for scaling up True Pricing impact, but the interviews show that current policy efforts are insufficient.

Interviews consistently pointed to the crucial role of government in scaling up True Pricing and TCA impact, reinforcing the desk research findings. While fiscal tools like subsidies and tax incentives exist, they are not robust or consistent enough to drive widespread adoption. Interviews with stakeholders from existing TP community, financial institutions, consumer organizations and businesses echoed this finding, with all calling for stronger government leadership to provide clear regulatory frameworks. Without such policies, TP adoption remains voluntary and limited to a few pioneering companies. Businesses expressed the need for the government to reduce the risk associated with sustainability investments by providing long-term certainty through clear, supportive regulations.

5 Conclusions

Aggregating the key findings from previous sections, we have drawn the following conclusions:

True Price can be a useful tool to effectively support the societal transition. It has been viewed positively as it brings transparency to the value chains to enable responsible business decisions, inform policymaking, help create awareness of hidden costs of goods consumed, and could impact consumer behaviours.

A lot of work has been done related to True Price (TP) and True Cost Accounting (TCA). With the previous work in awareness generation, policy advocacy, TCA methodology development and standardisation, societal experiments and community building, TP effort has completed the “Pre-development Phase” according to the 4-Phase Transition Theory (Geels, 2011)., and the “Initial Phase” based on the Framework for Market Transformation (Simons & Nijhof, 2021). **It is time to move to the “Take-off” phase, and build the base for the “Acceleration”, aiming at making significant changes and scaling up the impact of TP.** In this phase, it is important for the government to clarify its visions and criteria, for knowledge institutions to harmonize the methodologies, for businesses to work on their own initiatives separately, *and* jointly work as a full value chain through vertical and horizontal agreements, shaping long-term sector strategies forward.

The availability of reliable data and TCA calculations is a strategic imperative for the scale-up of TP impact. Continuous development is required for this. A *feasibility-impact matrix* could guide the prioritization of the TCA calculation effort, i.e. giving priority of the TCA calculations to highly-impactful and feasible cases. Furthermore, it is beneficial to develop an objective-driven calculation framework, i.e. a matrix on what types of calculations fit for what purposes), in order to guide fit-for-purpose calculation simplifications for different purposes.

To succeed in scaling up the TP impact, **it is critical to adopt the Ecosystem approach**, considering all relevant actors as part of the integral ecosystem, in which the interdependences and interactions among actors are critical for the overall success. Among all actors, **government leadership and the business motivation are especially prominent**, because it is critical for the businesses to bring responsibly-produced products to the market and make them widely available for consumers. It is equally important for the government to provide strong support to businesses in creating a level playing field that helps businesses succeed with the transitions in a long run, despite the limitation of the current market economy.

Strong government leadership is also desired in providing strategic vision and plan on TP, phasing its support to businesses with the means of regulations and policies, strategizing and facilitating collaborations at the regional, national and international levels, and developing and managing strategic engagement with citizens and consumers. Explicit and structural communications of the government vision and plan is critical to ensure strong engagement of all necessary actors.

Businesses are expected to drive the transition efforts to provide consumers with responsibly produced products as the mainstream, through vertical (value-chain) and horizontal (industry-wide) alignment on goal-setting and business execution, leveraging the transparency provided by TP tools. The main priority should be given to the “upstream” business, i.e. producing products in a responsible way, rather than repairing and compensating for the damage done. The efforts from businesses, together with (eventual) government policy/regulation support, will transform the market dynamics and product availability.

Mass consumer acceptance for true price is unlikely going to happen, unless it becomes widely available for most products and channels, and becomes the mainstream or the new norm. **Citizen and consumer engagement needs to be strategically planned and managed** with a long-term perspective and a phased approach. Media engagement should be included as part of the plan. It should be owned and driven by the government with marketing expertise.

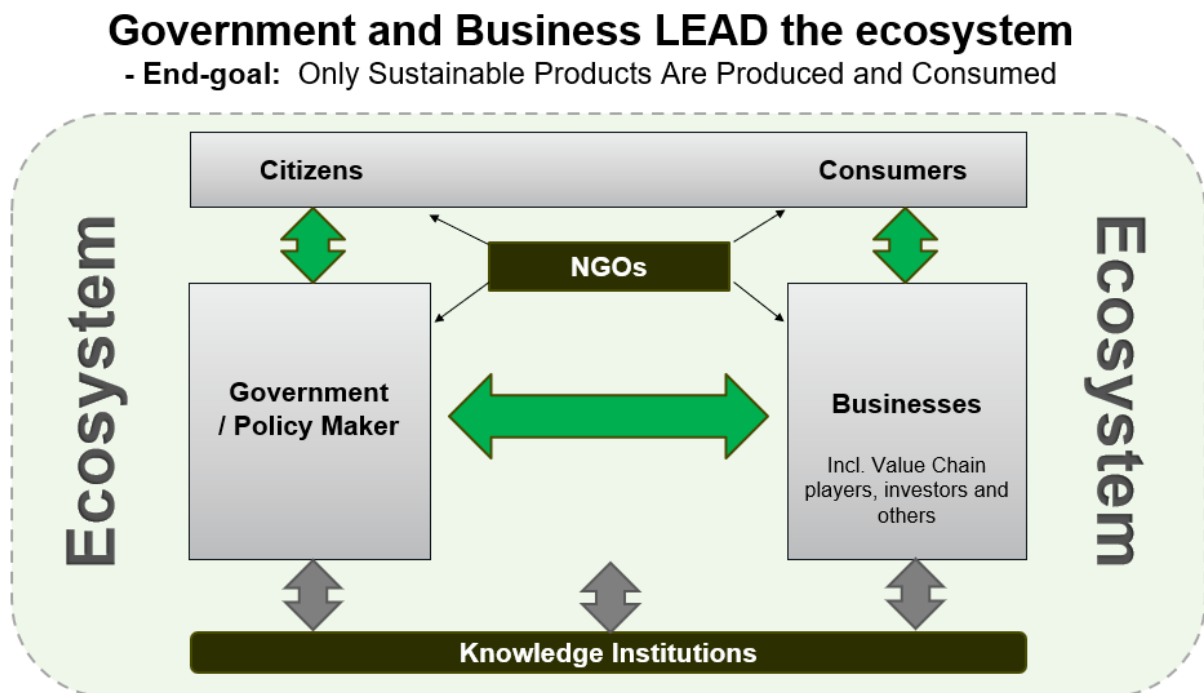
It is widely recognized that **investment institutions have a strategic role** in stimulating business transitions, leveraging financial instruments with long-term and societal perspective. Specifically, they could play a role in incentivizing collaborations and the sharing of investment, risks and benefits across value chains and sectors.

6 True Pricing Ecosystem Framework

Based on the above mentioned work and discussions, an ecosystem framework has emerged and has been supported by multiple stakeholders and project participants from different organisations. This section will provide an overview of this framework, outline the important interactions in this ecosystem.

As aligned with project participants, True Price could be leveraged as a tool to effectively support the societal transition, since it could bring transparency to enable responsible business decisions, help create awareness of hidden costs and behaviour impact among consumers, and provide inputs for policy decisions. In order to organize the True Price effort to scale up its impact effectively, it is essential to consider all relevant actors as part of an integral ecosystem, in which the interdependences and interactions among actors are critical for overall success.

Figure 5: Knowledge Gaps in Ecosystem Framework for Scaling Up True Price Impact



Source: H. Joosten-Ma & M. A. Aragon Moran, THUAS, Purposeful Marketing Research Group, 2024

Figure 5 provides an overview of this ecosystem framework indicating key actors and their interactions.

Three core actors: To start with, three core actors are fundamental for the transition to a responsible society: Businesses that determine what to produce, consumers who decide what to consume, and governments that regulates the playing field. It is important to recognize the interdependence among them.

Businesses: Businesses include not only all businesses that are part of a value chain (e.g. for food retail chain: Seeds provider – Grower – Producer - Wholesaler – Retailor), but also other business

organisations such as investment institutions, accountancy, consultancy, labelling organisations...etc. While we discuss businesses as a whole sometimes, it is important to recognize that each business has its own unique context of operation thus their views, motivations and linkages with True Price vary greatly.

Consumers and Citizens: Although a person is a consumer and a citizen at the same time, it is necessary to differentiate the role being a consumer vs. a citizen as the needs and decisions differ significantly due to the different contexts. Though sometimes referred to as a general group, it is important to note that a homogeneous general consumer/citizen does not really exist, recognizing the diverse factors that bring the differences among all individuals.

Government/policy maker: Although often used as a general term, it is helpful to recognize that there are different government departments from different ministries that have different responsibilities, thus their roles relating to True Price also differ. It is thus helpful to understand their different perspectives in a granular way to effectively engage and guide relevant policy making.

Interdependence among core actors: It is critical to highlight the mutual interdependences among these three core actors.

- Business-Consumer: Business as a whole determines what to produce, thus also what to offer in the market place. This means that consumers rely on businesses to provide the right products available. Yet, businesses also rely on sufficient consumer demands for their offers to have commercial / business success.
- Government-Business: Government needs the support from businesses as they generate the tax income and job opportunities (which helps the societal stability). On the other hand, businesses need government to create the positive environment with financial, regulatory and policy instruments to allow them to flourish.
- Citizen-Government: In general, citizens rely on the government to provide them the infrastructure of support and protection. Yet government requires citizens support to establish policies and regulations in the democratic process.

Ecosystem framework: At the current stage of TCA/TP efforts, we believe that *the roles of businesses and government* are more prominent than the role of consumers/citizens in scaling up the impact of True Price. Previous research has shown that there would be unlikely mass consumer acceptance for true price unless it becomes widely available for most products and channels, thus becoming the mainstream or the new norm. It is for businesses to bring responsibly-produced products to the market and make them widely available for consumers. In the current economic system in which the cost is a predominant driver to win in the competitive market place, businesses, which are front-runners in adopting True Price, intend to be at a financially difficult position. The strong support from the government is critical in creating a level playing field that helps businesses succeed with the transitions in a long run. In short, the effective interactions between the businesses and governments are imperative to create enough product offers, which is essential for the scaled impact of True Price.

Other actors in the ecosystem include NGOs and knowledge institutions. NGOs are viewed as strong forces to challenge status-quo, and generate significant positive impact on all core actors in their changes. Knowledge institutions play a valuable role in leading knowledge development and disseminations that are essential in developing and standardising methodologies and scaling up the impact of True Price efforts. Their neutral role as public organisation also put them in an unique position to bring objective views in the best interest of the society at large.

Having completed the overview of the ecosystem framework as the approach to scale up the impact of True Price, it is also worth mentioning that True Price efforts could be made at different levels, namely national, provincial, regional and municipality level. This ecosystem framework should be leveraged when approaching the challenges at these different levels

7 Recommendations

7.1 General Recommendations

Based on all the discussions outlined above, we recommend Ministry of LVVN to continue supporting TP related effort, with the priorities as the following:

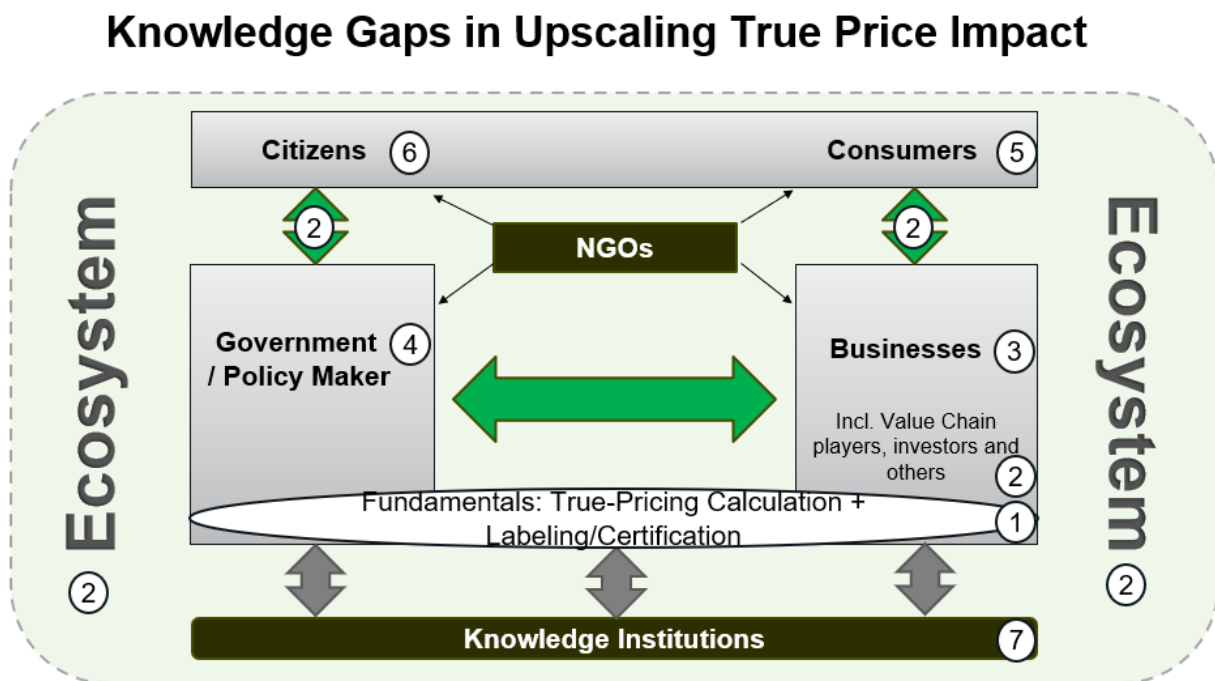
1. **Develop and communicate a strong strategic vision** on TP, leveraging the Ecosystem Framework.
 - a. Develop the strategic vision on the role of TP in the desired transition in collaboration with other relevant ministries, connecting with the larger societal and policymaking context. This strategic vision should include: the overall role of TP in the desired transition, key factors for effective impact, steps required, focuses in the mid- and long-term, role of the government and desired roles for other key actors.
 - b. Communicate the vision structurally to relevant stakeholders to create strong engagement. Leverage the proposed Ecosystem Framework to drive and facilitate the upscaling efforts.
 - c. Establish the strategic resourcing plan to provide the necessary financial support for the upscaling efforts. Define a clear strategy on how to finance diverse types of priorities with different financial means in order to most effectively leverage the strength of different stakeholders and prevent resource waste.
2. Focus the governmental resource to **support business success**, primarily on the value-chains and related businesses that have **access to the scaled mass market**:
 - a. Strategically choose the value chains that have the potential to reach the mass consumer, rather than niche consumer groups. It could include both B2C value chain (Farmer-Producer-Retailer-Consumer) and B2B value chain (e.g. catering value chain);
 - b. Finance the knowledge holders, institutions and NGOs to provide long-term support in creating business success for the value chains and for all individual businesses in the chain;
 - c. Offer continuous and structural effort to nurture learning community, generate and transfer knowledge to businesses, branch organisations and education programs, and monitor the progress and impact, in order to accelerate the societal impact.
3. Design and execute **long-term and strategic citizen and consumer engagement programs**:
 - a. It should be based on both concurrent insights as well as forward-looking foresights.
 - b. It is important to adopt a segmentation approach, providing a critical understanding on the different needs and motivations of different segments of citizens and consumers.
 - c. The engagement program should provide a roadmap, i.e. describing the key phases with specific engagement objectives, key content focus, engagement channels and timing.
 - d. The role of media and NGOs should be very explicitly structured in the engagement plan.
 - e. It is critical to leverage the professional support from knowledge institutions that provide the expertise and required objectivity.
4. **Strengthen the strategic support on TCA calculation and standardisation** in three areas:
 - a. Strategize the TCA calculation efforts with a prioritization tool, i.e. the feasibility-impact matrix that considers both how feasible certain TCA calculation is and the magnitude of its impact, i.e. giving priority of TCA calculations and data accessibility to highly-impactful and feasible cases;
 - b. Develop an objective-driven TCA calculation framework, providing clear guidelines on what ways of calculation could be used for different objectives, i.e. what is good enough for what purpose? Allow simplified calculations as appropriate for the objectives. Achieve this by putting the right skill sets together, combining the technical knowledge and the ability to connect with business, practical and societal needs.
 - c. Provide support on improving data access and new technologies development to help automate the reliable data access, in order to speed up the data availability and reliability that is crucial for the upscaling of TP applications.

5. Provide **knowledge institutions** with structural financial support not only on the knowledge creation and dissemination, but also on the translation to concrete educational and professional training development.
 - a. This should be done with a structural approach, i.e. identifying the specific target groups for the knowledge and their different needs, and addressing them in a tailored pragmatic way.
 - b. Strategize the effort by planning and managing at the national level in order to leverage the synergies and resources cross-institutions.
 - c. Take into consideration and serve the different knowledge needs at the regional, national and EU levels.
6. Establish a clear strategy to leverage and incentivize **investment institutions** structurally in supporting scale-up TP impact with their financial instruments. This strategy should:
 - a. Recognize the powerful role of investment institutions and nurture strategic partnership, whilst fully understanding their different commercial objectives;
 - b. Stimulate their business creativities in establishing new and long-term financial standard considering the integrated societal value creation;
 - c. Safeguard the public/societal interest by leveraging the pragmatic business initiatives of financial institutions, and at same time, keeping the knowledge institutions being in the lead for objective methodology.
7. Define a long-term strategy and plan on how to **develop and implement policy and regulatory instruments** to support scale-up TP impact in a phased approach.
 - a. It is important to take a structural approach with a long-term perspective, starting with an aligned view of key knowledge gaps and the steps to address them. Develop the mapping between different policy instruments and impact efficiency to support choices effectively.
 - b. Establish structural collaborations with other relevant ministries (e.g. Economics, Health) to leverage TP opportunities jointly and holistically.
 - c. Structurally examine the opportunities and plan policy steps that could be managed at the national and regional levels without international collaborations.
 - d. Define quick-wins from policy perspective to support businesses (e.g. public procurement policies), whilst working on strategic long-term change.
 - e. Establish strategic partnerships with relevant branch organisations and investors to incentivize vertical and horizontal agreements, target setting, investments and benefits sharing.
 - f. Define a structured way and clear ownership in influencing policy and regulations at EU level.

7.2 Knowledge Agenda for Applied Research

Despite the great work in the last years, True Price effort still struggles to get active involvement of businesses and consumers for a scaled impact. Significant knowledge gaps have been identified in this project (see Section 4.7, page 47). In order to structure the knowledge work effectively to support True Price upscaling effort, we have used the ecosystem framework as the base and grouped the key knowledge in seven areas, as shown in Figure 6.

Figure 6: Knowledge Gaps in Ecosystem Framework for Scaling Up True Price Impact



Source: H. Joosten-Ma & M. A. Aragon Moran, THUAS, Purposeful Marketing Research Group, 2024

The first area is the “**Fundamentals - True-price calculation & Labelling**”: Significant work has been done in the past by True Price Foundation, Wageningen University and Research, CE Delft and HAS University of Applied Sciences. However, there is a long way to go to make *reliable* True Price calculations **available for a broad scope of products in an affordable and easily accessible way**, based on *consistent* methodologies that enables comparison. This is a fundamental area that needs to be further progressed. Labelling and certifications have also been included here as they could offer a consumer interface that helps simplify the implementation.

The second area is “**Ecosystem Dynamics**,” which emphasizes fostering positive interactions among all key actors within the entire system. This includes not only the relationships within business value chains or between businesses and consumers, but also between government and businesses, and government and citizens. More importantly, it highlights the dynamic, interdependent interactions of the broader ecosystem and how leveraging these connections can drive actors to make the necessary positive changes at the right time. Further work should focus on creating trust and positive win-win interactions among actors to result in effective long-lasting change.

The third, fourth, fifth and sixth area focuses on the specific knowledge buildings to support *businesses* in transformation, inform *government* policy and regulatory effort, and engage *consumers* and *citizens* respectively.

The last area is specifically related to *knowledge institutions* and their role in providing *education* to different audiences in various formats. It is recognized that some NGOs (e.g. True Price foundation) also have a great role to play with their knowledge background, although they are not categorized as a knowledge institution.

Based on the findings of this project, we have made an effort to help make the knowledge agenda more concrete by highlighting some key themes and topics for each of the seven knowledge areas and the required expertise for each, as listed in Table 5. It is important to note that the below list is not exhaustive due to the limitations of the knowledge and expertise of the authors of this report.

Table 5: Key Knowledge and Innovation Agenda Framework Related to True Price

Key Knowledge and Innovation Agenda Framework Related to True Price	
1. Fundamentals - True-price calculation & Labelling: Consistent, Reliable, Available, Affordable, Easily-accessible	
Themes / Topics	Expertise
A. Impact-Feasibility Matrix as the strategic tool for the prioritization of calculation development efforts, i.e. put the calculation priority on the ones with the highest impact and with good feasibility	Strategic management, TP Calculation expertise
B. General alignment and guidelines on the calculation methodology for different impact areas (environmental, social and health), also with PEF and CSRD	Value chain and economics, strategic management, + EU expert network
C. General alignment and guidelines on the objective-driven calculation method matrix (i.e. what types of calculations fit for what purpose), and fit-for-purpose calculation simplifications for different purposes	Value chain and economics, strategic management, + EU expert network
D. Sector-specific alignment and guidelines on different methodologies for different purposes	Sector knowledge & expertise, value chain and economics, strategic management; + EU expert network
E. Sector-specific goals development and data-driven KPIs setting	Sector knowledge & expertise, value chain and economics, strategic management, Branch/Sector organisations; + EU expert network,
F. Enable open and reliable data source	Supply chain and economics, data science, business IT, data governance; Government institutions
G. Leverage new (digital) technology to increase supply chain data availability and reliability	Supply chain and economics, digital technology experts (e.g. sensor, data sciences, blockchain)
H. Integration of TP in labelling and certification systems	Regulation, legislation & law; B2B and B2C business strategy and marketing; Consumer behaviour

2. Ecosystem dynamics: Create positive interactions among key actors	
Themes / Topics (WHAT)	Expertise (WHO)
A. Granular understanding on the dynamic interactions among key actors that impact the total ecosystem movement, based on deep insights of their unique contexts and motivations	Strategic governance; System Design; Strategic Marketing; Complexity Economics; Behaviour Science; Sector and industry expertise; Government, policy and regulation
B. Knowledge to effectively create trust and positive interactions among key actors for desired food system transition	
C. Governance model to most effectively facilitate the full ecosystem results	
D. Showcase initiatives for prioritized sector(s) to spread knowledge for further upscaling	
E. Longitudinal knowledge on the integrated impact of TP for business, consumers and societal system change	

3. Business Specifics	
Themes / Topics (WHAT)	Expertise (WHO)
A. New knowledge and expertise to address challenges at the dynamics food value chain level, leveraging new ways of working such as vertical alignment, i.e. value chain agreement, in order to establish a collaborative value chain approach that makes commercial success possible for all value chain businesses (B2B & B2C)	Sector expertise; Business strategy; Economics; Marketing; Operation & supply chain; Finance (Sector experts, value-chain players; Bank)
B. Financial and economic lever deep-dive: Understanding on long-term financial/economic support, investment, risks and benefits for key chain players as well as the full value chains, and possible ways to create a new chain-sharing model	Finance; Economics (classic & complexity); Investment banks; Strategic governance; Business strategy (Bank, Chain players)
C. Understanding business decision making and how to stimulate the majority of businesses to adopt true-price practice	Business strategy; B2B Marketing; Businesses; Sector expertise; Branch organisation (e.g. FNLI)
D. Ways to prioritize different sustainability options and set measurable goals and metrics for individual businesses with true pricing tool, and create business value proposition that leads to competitiveness and commercial success	Supply chain economics; Strategic marketing; Businesses
E. Knowledge on how companies' could benefit from TP, e.g. regulation compliances, B2B agreement and contract, end-customer preference and loyalty;	Regulation expertise; Procurement and contracting; B2B & B2C marketing
F. Sector/industry market dynamic changes impacted by TP, and how to direct it to create positive market demand	Strategic marketing expertise, branch/industry expertise
G. Collaborations (instead of compete) with business peers (competitors) through sector/branch-wide (horizontal) alignment/agreement to co-create a main-stream market with "responsibly-produced" products	Branch organisations, Complexity economics, Government

H. Real-life long-term successful business cases that are independent from temporary subsidies	Businesses + Multidisciplinary expertise incl. strategy, operation, finance, marketing, procurement, governance
I. Set of practical TP business toolkits and training materials to support integration in different types of businesses	Business + Multidisciplinary expertise

4. Government Specifics	
Themes / Topics (WHAT)	Expertise (WHO)
A. Development of strategic and long-term vision and plans to leverage TP for sustainable transition, with incremental steps and timing	Governance, Strategy, Policy making; Societal transformation and transition
B. Development of citizen & consumer engagement strategy and plans on TP related topics, with appropriate timing	Strategic marketing and social marketing
C. Knowledge on policy development for effective societal transformation in general, and specific application of TP in agri-food sustainable transition	Policy development, economics, agri-food sector
D. Insights on what and how specific TP-related policy/regulatory levers are effective at what time in creating a level playing field for sustainable businesses, that will drive business & market dynamic changes and its momentum	
E. Knowledge on how to establish a TP-related policy framework that lead/drive/provide strategic governance to the sustainable food transition step-by-step, including how to leverage the role of financial institutions	
F. How to effectively establish EU collaboration to drive broader policy and regulation change related to TP	EU regulation expertise

5. Consumer Specifics	
Themes / Topics (WHAT)	Expertise (WHO)
A. Consumer and marketing knowledge to develop consumer engagement goals, strategy and phased plan	Strategic marketing planning, societal transformation
B. For each phase, understanding of consumer behaviours in transition	Consumer insights & behaviour
C. For each phase, how to design the effective consumer engagement activities to drive behaviour change to support business transformation.	Consumer marketing, Marketing strategy and operational planning
D. Concrete specific consumer insights and value propositions for companies to generate sufficient market demand for their sustainable offers	Strategic marketing in developing consumer value propositions development and validation for specific businesses

6. Citizen Specifics	
Themes / Topics (WHAT)	Expertise (WHO)
A. Concrete citizen insights and value propositions for policy makers to ensure sufficient policy support TP and sustainable food transition and its dynamic movement	Insights and behaviour expertise, Psychology, Sociology, Communication proposition development (marketing)

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B. Marketing knowledge on how to develop long-term citizen engagement / PR strategy and program	Marketing and social marketing, Governance of societal change
C. Knowledge on the role of media and how to develop a strategic media engagement program and plans	PR and media strategy and planning

7. Knowledge Institutions and Education	
Themes / Topics (WHAT)	Expertise (WHO)
A. Knowledge of True Pricing Calculation for education of students and business professionals in supply chain economics	Supply chain economics & business education
B. Knowledge to develop True Pricing related business education for students and business professionals	Business education
C. Knowledge to develop ecosystem transition education including how to make complex value chain work	Strategy, Ecosystem design
D. Knowledge on how to integrate new (digital) technologies and innovations to support TP data availability, access and calculation	Technological expertise, multi-disciplinary innovation, expertise in innovation implementation
E. Knowledge on translating theoretical learnings to practical and easy tools for businesses	Joint effort between knowledge experts and business experts

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Annex 1: Abbreviations

CSR	Corporate Social Responsibility
EU	European Union
EZK	Economische Zaken (Ministerie van)
FAO	Food and Agriculture Organization
FNLI	Federatie Nederlandse Levensmiddelen Industrie
GDP	Gross Domestic Product
HAS	Hogere Agrarische School
HvA	Hogeschool van Amsterdam
KIA	Knowledge and Innovation Agenda
LVVN	Landbouw, Visserij, Voedselzekerheid en Natuur (Ministerie van)
PEF	Product Environmental Footprint.
PPP	Public Private Partnership
SMT	Sustainable Market Transformation
SDG	Sustainable Development Goals
SME	Small and Medium Enterprise
TCA	True cost Accounting
THUAS	The Hague University of Applied Sciences
TP	True Pricing
UN	United Nations
VBA	Value Balancing Alliance
WUR	Wageningen University & Research
VBA	Value Balancing Alliance

Annex 2: Knowledge Gaps and the Role of Applied Research: Perspectives from Key Stakeholders

As True Pricing (TP) and True Cost Accounting (TCA) continue to evolve, stakeholders across various sectors have identified significant knowledge gaps. This section highlights these gaps and explores how applied research can help address them. The perspectives shared by the TP community, businesses, consumer organizations, financial institutions, and government representatives are consistent in emphasizing the need for standardized methodologies, reliable data, and more effective tools for implementation.

Knowledge Gaps: Perspective from TP Existing Community

Members of the TP community recognize several knowledge gaps that hinder the full integration of TP and TCA. A key issue is the **lack of reliable data**, particularly regarding social costs. As one expert mentioned, "We have decent models for environmental costs, but when it comes to social costs, the data is either unavailable or unreliable." This presents a significant barrier to accurately quantifying and incorporating these costs into true prices.

Another gap is the need for **sector-specific research**. One interviewee noted, "What we need is more research in sectors like food and agriculture, where the impacts are so varied." Different industries, each with unique environmental and social impacts, require tailored methodologies rather than a one-size-fits-all approach.

There is also a lack of understanding regarding the **long-term impacts of TP on businesses and consumers**. One interviewee stressed the importance of longitudinal studies: "We need to understand how TP affects business performance over the long term. Are companies that adopt TP more resilient?" Additionally, there are concerns about consumer engagement over time, with one participant questioning, "How does TP influence consumer behaviour over time? Do consumers continue to support TP-compliant products, or does the novelty wear off?"

Stakeholders also pointed out the need for more **practical case studies**. "We need more real-world examples of True Pricing working in practice," said one interviewee, emphasizing the necessity of applied research that bridges theory and practice.

Role of Applied Research: View from TP Existing Community

Applied research is essential in addressing the gaps identified by the TP community. It can help:

- **Shift mindsets** among business leaders and marketers by demonstrating how TP can be integrated into operations and marketing strategies, reducing risk aversion.
 - **Adapt procurement models** in the B2B context to encourage higher prices for sustainable products, rethinking margin models.
 - **Integrate TP into financial systems** by exploring how monetary policies, interest rates, and financial incentives can support sustainable investments.
 - **Develop sector-specific tools** for industries like agriculture and dairy, making complex academic findings more accessible to SMEs.
 - **Enhance consumer communication tools** to guide consumer decisions, ensuring that the right information is available to foster informed choices.
 - **Support policymakers** by providing evidence for regulations, public procurement laws, and tools that encourage sustainable practices.
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Knowledge Gaps: View from Businesses

Upscaling True Pricing Impact in the Netherlands

Businesses echoed the need for more **standardized methodologies**. As one interviewee stated, "We need a standardized methodology for calculating true costs." The lack of a unified framework complicates implementation and hinders comparison across industries.

Businesses also highlighted the need for better data to assess the **economic impact of TP on profitability and competitiveness**. A representative from HAK emphasized, "We need more concrete examples that show how sustainable practices under True Pricing frameworks affect a company's profitability."

Another gap is **data availability and quality**, particularly on social impacts like fair wages and labor practices. Interviewees from Lidl and HAK noted, "We often have to develop our own models, which aren't always comparable with others."

The lack of **frameworks for government policies** was also mentioned. One participant remarked, "We need the government to create an environment that stimulates this transition."

Role of Applied Research: View from Businesses

Businesses are calling for applied research to:

- **Develop standardized frameworks** for TP and TCA that can be widely adopted.
- **Provide evidence-based insights** into the financial impacts of TP through case studies and cost-benefit analyses.
- **Improve data collection methods** to support accurate calculation of true costs.
- **Collaborate with governments** to create policy frameworks that incentivize sustainable practices.
- **Investigate consumer behaviour** and market dynamics to inform marketing strategies for sustainable products.
- **Deliver practical tools and guidelines** to help businesses implement TP without financial risk.
- **Explore technological solutions**, such as digital platforms and blockchain, to enhance transparency in supply chains.
- **Foster collaborative research efforts** involving businesses, academic institutions, NGOs, and governments.

Knowledge Gaps: View from Financial Institutions

Financial institutions identified the need for more **precise metrics and goals** for aspects like biodiversity and social impacts. One interviewee remarked, "CO2 is easy, but biodiversity? Other areas are challenging to set even."

There is also a gap in making **existing knowledge usable**. As one representative noted, "There is a lot of knowledge at institutions like TPI and WUR, but making it available and usable is a challenge."

Data collection systems are another challenge. "There are 13 different systems to provide raw data, which is very challenging for farmers," one interviewee observed. Standardizing these systems would facilitate data aggregation and analysis.

Lastly, a lack of **trust and collaboration** among stakeholders hinders data sharing and coordinated efforts to implement TP and TCA effectively.

Role of Applied Research: View from Financial Institutions

Applied research can assist financial institutions by:

- **Defining precise goals and metrics** for environmental and social impacts.
- **Making knowledge more accessible** and usable for practical implementation, particularly for farmers.
- **Standardizing data collection systems** to ease data integration and analysis.
- **Building frameworks for trust and collaboration** to foster more effective partnerships across sectors.

Knowledge Gaps: View from Consumer Organizations

Consumer organizations highlighted a **lack of transparency** in how prices are set across the supply chain. As one interviewee said, "There needs to be more transparency on prices over the complete supply chain."

There is also limited understanding of **consumer willingness to pay** higher prices for sustainable products. The interviewee stressed the need for research on how to incentivize lower-income consumers, asking, "How do we incentivize them?"

Role of Applied Research: View from Consumer Organizations

Applied research can help by:

- **Mapping externalities** and hidden costs associated with various industries.
 - **Enhancing supply chain transparency** by developing digital platforms to track pricing structures.
 - **Studying consumer behaviour** to understand preferences and willingness to pay, especially among lower-income groups.
 - **Investigating how financial institutions** can contribute to a fairer economic system by supporting sustainable practices.
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Knowledge Gaps: View from Government

Government representatives emphasized the need for more insights into **consumer behaviour**, particularly how willingness to pay for true-cost products can be influenced. One participant observed, "We assume straightforward reactions from consumers to policy measures, but their actual behaviour can be much more complex."

The government also highlighted the lack of understanding regarding **business decision-making** in sustainability commitments, noting, "We don't know if companies are genuinely motivated or if it's just window dressing."

Role of Applied Research: View from Government

Applied research can support government efforts by:

- **Informing policy development** with data on consumer behaviour, business motivations, and effective policy measures.
- **Supporting business innovation** by identifying best practices and developing tools to calculate and internalize external costs.
- **Facilitating international collaboration** by examining the feasibility of harmonizing TP policies across borders.
- **Developing communication strategies** to educate consumers and businesses on the benefits of TP.