FOOD COST

Internalising Externalities in Food Systems: Recommendations to Support Business-Oriented Pathways

Deliverable 3.4

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Internalising Externalities in Food Systems: Recommendations to Support Business-Oriented Pathways

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Executive Summary

Food systems are a major source of environmental degradation, social inequality, and public health challenges, yet many of the costs and benefits they generate remain external to market prices and business decision-making. As a result, food that appears economically efficient often relies on the systematic externalisation of environmental, social, and health costs, while businesses that invest in more sustainable practices struggle to compete. Internalising externalities – by integrating these costs and benefits into business strategies, operations, and value-chain relationships – is therefore increasingly recognised as a necessary condition for the long-term environmental and social sustainability of food systems and the companies operating within them, as well as for their long-term economic viability.

This report contributes to this transition by offering a structured set of 21 business-oriented recommendations to support the internalisation of externalities (IOE) in food systems. It is grounded in the premise that IOE is not only a response to policy pressure or ethical concerns, but a strategic approach to managing risk, resilience, and competitiveness in a context of climate change, biodiversity loss, market volatility, and geopolitical uncertainty. While public policy and consumer behaviour remain critical drivers of systemic change, this deliverable focuses explicitly on the role of businesses and value-chain actors in operationalising internalisation through market-based strategies.

The recommendations are organised into four interrelated stages: Assess; Prioritise & Set Targets; Act; Anchor & Diffuse, which together provide a practical roadmap for companies at different stages of maturity. The framework is not prescriptive or linear: businesses may enter at different points and iterate across stages as knowledge, capacities, and contexts evolve. What matters is the coherence between ambition, action, and governance over time.

The report further highlights pitfalls. It cautions against reductionist approaches that focus narrowly on efficiency gains or substitution without addressing consumption patterns, rebound effects, and power asymmetries within value chains. Internalisation is not presented as a silver bullet, but as one component of a broader transformation that requires reflexivity, long-term commitment, and collective action.

Overall, this report aims to equip food system businesses, particularly primary producers, SMEs, and value-chain intermediaries, with a credible, actionable, and strategic reference for engaging with the internalisation of externalities. By doing so, it seeks to support business models that contribute to environmental regeneration, social equity, and economic resilience, while remaining viable in an increasingly uncertain global context.

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1 Introduction

1.1 The challenges of externalities

The transition to sustainable food systems is no longer optional, it is a necessity. Current food systems are significant contributors to environmental degradation, climate change, biodiversity loss, diet-related diseases, and social inequalities (FAO et al., 2020; IPCC, 2019; World Bank, 2016). These outcomes are not merely unintended side effects; they are the consequence of regulatory systems and market structures that systematically allow actors of food systems to generate environmental and social costs and risks – without requiring them to account for, or bear responsibility for, those impacts – while equally failing to recognise and reward positive ones (Mirzabaev & Braun, 2022; Mehrabi & Giagnocavo, 2024).

Externalising costs, such as those related to nitrate overuse, intensive pesticide use, unhealthy food ingredients, excessive packaging, or unfair value distribution, enables the production of cheap but environmentally and socially harmful food, making it difficult for sustainable agri-food businesses to compete (Mehrabi & Giagnocavo, 2024). On the other hand, externalities can also be positive. For example, agroforestry practices in eco-innovative business models promote biodiversity, enhance soil health, and sequester carbon, generating benefits for society at large. Yet, these positive contributions are rarely rewarded through market mechanisms, and their costs are often borne by producer, consumers or sustainable agri-business alone (Mehrabi & Giagnocavo, 2024).

Internalising these positive and negative externalities – that is, integrating the social, environmental, health, and economic costs and benefits into business decision-making and policy frameworks – is fundamental to align value chain activities with broader environmental and societal interests. By making these costs that materialise over longer time horizons visible and actionable, internalisation also encourages actors to move beyond short-term cost minimisation and towards longer-term strategy, investment, and resilience. The FOODCoST project contributes to this transition by developing methodologies, tools and recommendations that support policy-makers and businesses in incorporating both positive and negative externalities into their strategies.[1]

1.2 Business pathway to internalisation

The internalisation of externalities (IOE) can be pursued at different interdependent levels: policy interventions, business logic (including supply chains), and individual actions. Addressing synergies and collective dynamics across these levels will be

[1] The FOODCoST project collectively defined the 'internalisation of externalities' as "a process that, either through business models/strategies or regulatory policies, takes into account more complete costs and/or benefits in the composition of goods and services prices. This process may involve the reduction or prevention of negative externalities, or the creation of positive externalities, involving various actors of the value chain".

necessary to initiate a systemic transition, from creating urgency, to experimenting, scaling up, and institutionalising change (Simons et al., 2023). This report focuses, nonetheless, exclusively on the role of businesses in operationalising internalisation. Political and individual dimensions fall outside the scope of this report.[2]

The business operationalisation of IOE requires a paradigm shift. Actors in traditional food systems have largely been steered by profit maximisation, shaping the 'cheaper food' paradigm (Benton et al., 2021): a self-reinforcing system in which producing ever-cheaper food ("cheaper" partly because negative externalities are not borne by those responsible) is prioritised over accounting for environmental and social impacts.

While profit and price remain critical factors for many actors, some have started recognising the importance of moving towards a model driven by impact, including environmental and social. Growing segments of the market value attributes such as sustainability, health, and fairness, creating opportunities for differentiation. IOE offers businesses a strategic lever to position themselves in this evolving landscape, moving beyond cost competition towards models that integrate economic, environmental, and social performance. This shift calls for exploring innovative business models and strategies that prioritise long-term well-being for people and the planet (Klomp & Oosterwaal, 2021). It requires, however, breaking free from the system lock-in that makes it more attractive to keep investing and innovating in the existing system than transitioning to sustainable alternatives.

Building on this context, the purpose of this deliverable is to provide suggestions of tools and inspiring examples to help businesses implement IOE within their own strategies and operations. The report is based on the premise that transitioning towards sustainable agri-food systems is not merely a normative goal aligned with sustainability policy agendas, but a core economic and strategic requirement for ensuring the long-term viability of businesses, particularly in an increasingly uncertain geopolitical and economic context. In this sense, inaction cannot be considered a neutral stance; it is a high-risk strategy. Our overarching message is therefore clear: **Inaction is risky – Business should start proactively planning their transition strategy now**.

The 22 recommendations presented in this report are thus designed for actors who recognise the competitive and sustainability advantages of IOE and seek guidance to operationalise it. Beyond measuring and potentially pricing externalities, this report encourages businesses to adopt systemic strategies to reduce their impacts across the value chain as a pathway for long-term value creation. While such corporate sustainability transition may not strictly constitute an internalisation mechanism in economic terms, it can deliver similar outcomes by reducing externalities at their source. This report therefore emphasises strategies that move beyond accounting for externalities towards reducing and ultimately avoiding them.

[2] Complementary FOODCoST reports address specifically policy recommendations (Deliverable 2.3), as well as an integrated roadmap for IOE (Deliverable 6.4).

2 Business-oriented recommendations to internalise externalities in food systems

This section provides a roadmap for where to start. Recommendations are organised into four stages: **Assess → Prioritise & Set Targets → Act → Anchor & Diffuse**. This four-stage logic closely mirrors frameworks that many businesses are already familiar with or are beginning to engage with, including the Science Based Targets Network (SBTN) Corporate Manual's five-step process (Assess, Prioritise, Set Targets, Act, Track) and the Taskforce on Nature-related Financial Disclosures' (TNFD) LEAP approach (Scope, Locate, Evaluate, Assess, Prepare), which is itself referenced in the EU's Corporate Sustainability Reporting Directive (CSRD). Rather than introducing an entirely new process, the FOODCoST recommendations therefore build on and connect with the direction of travel in corporate sustainability practice. Each stage fulfils a distinct function in the internalisation process: *Assess* focuses on identifying and measuring externalities, as well as opportunities for change; *Prioritise & Set Targets* establishes strategic orientation by clarifying long-term vision, purpose, priorities, and measurable objectives; *Act* concentrates on operational changes and value-chain interventions to reduce negative externalities and enhance positive ones; and *Anchor & Diffuse* embeds governance, monitoring, learning, and diffusion mechanisms to sustain progress over time and contribute to broader system change.

While presented sequentially, these stages should not be interpreted as prescriptive. Implementation processes are rarely linear; businesses may need to revisit earlier steps as conditions evolve, new insights emerge, or constraints shift. Equally, the recommendations within each stage are not intended as a mandatory checklist to be completed in full: companies differ in their size, business model, value chain position, and starting point, and not every recommendation will be relevant or actionable for every organisation.

The recommendations are better understood as **a menu of options**, i.e. a structured overview of what can be done, from which businesses can identify the actions most suited to their specific context and ambitions. At each stage, companies should evaluate the Suitability, Feasibility, and Acceptability of different strategies,[3] considering internal capacities, stakeholder dynamics, context-specific challenges, etc.

Finally, the recommendations across these four stages draw on and operationalise the work by Mehrabi & Giagnocavo (2024), who mapped the key business models and strategies through which agri-food businesses can embed the internalisation of externalities into their practices. Businesses seeking additional information on sustainable and innovative business models and strategies for the internalisation of externalities are encouraged to consult that work.

[3] The Suitability, Feasibility, and Acceptability (SFA or SAF) model is a strategic framework for evaluating potential business strategies, helping organisations decide if a strategic option is right for them.

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Assess
Identify & measure externalities; explore opportunities for change

1. Map your value chain and identify externalities
2. Quantify and monetize key externalities
3. Assess risks & investment needs and identify financial opportunities

Prioritise & Set Targets
Establish strategic orientation

4. Adopt long-term vision
5. Co-define an integrated purpose
6. Develop corporate sustainability agenda with clear and measurable targets
7. Identify indicators to track externalities and methodologies to assess them

Act
Operationalise change to reduce negative externalities and enhance positive ones

ENABLERS

8. Enhance collaboration across the supply chain, industry, and academia
9. Adopt new management tools geared towards positive impact on natural and social capital
10. Reinforce traceability within the value chain

LEVERS

11. Prioritise responsible sourcing
12. Reduce externalities in own processes and product formulations
13. Foster fair value distribution across value chains
14. Foster risk-sharing across value chains

SIGNALS

15. Strive for greater transparency
16. Support and adopt labels and consumer-facing signals that reflect IOE

Anchor & Diffuse
Sustain progress and contribute to system change

17. Set up impact governance bodies
18. Regularly measure performance
19. Support suppliers in monitoring and reducing externalities
20. Communicate a clear narrative on externalities and long-term impacts
21. Share good practices
22. Engage constructively with policymakers

Figure 1. Set of 22 recommendations for business-level internalisation of externalities

2.1 Stage 1: Assess

Effective internalisation begins with a comprehensive assessment of a company's environmental, social, and economic dependencies and impacts across its entire value chain. This evaluation helps identify key externality hotspots and provides the evidence base for informed prioritisation and action. Stage 1 therefore moves from qualitative mapping to quantification and monetisation, and finally to an assessment of financial feasibility and opportunities.

2.1.1 Recommendation 1 – Map your value chain and identify externalities

Identifying important externalities, i.e. impacts or effects, generated along the value chain, both positive and negatives, helps raise awareness on an organisation's impact. Awareness, followed by internal conversations about these impacts, provides the basis for developing a clear strategy and align decision-making for the internalisation of externalities. In practice, many businesses are already engaging in closely related exercises. The EU Corporate Sustainability Reporting Directive (CSRD) requires companies in scope to conduct a Double Materiality Assessment (DMA), a structured process to identify and evaluate the actual and potential impacts of business activities on people and the environment across the full value chain, as well as the sustainability risks and opportunities that may affect the company's financial performance. For SMEs not yet subject to CSRD, the Voluntary Sustainability Reporting Standard for SMEs (VSME), developed by the European Financial Reporting Advisory Group (EFRAG), provides a proportionate and accessible equivalent. This approach is also consistent with the OECD Guidelines for Multinational Enterprises on Responsible Business Conduct, which call on companies to carry out risk-based due diligence to assess and address actual and potential negative impacts across their operations, supply chains, and business relationships (OECD, 2018), and with the EU Corporate Sustainability Due Diligence Directive (CSDDD), which requires companies to integrate due diligence into their policies and risk-management systems across value chains.

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It is important to not stop or limit this identification to a main organisation's office and main product/service delivery, but rather to look at the whole chain. Existing tools and guidance can help make this process concrete:

Tools

1) The Science Based Targets for Nature initiative of the Global Commons Alliance provides a description of tasks to perform in order to assess pressures along a value chain.
2) WWF developed a guidebook to equip economic actors with information on tools dedicated to natural capital. These tools are designed to support decision-making on environmental issues, and are divided into six categories according to their main technical features: biodiversity footprint tools, mapping tools, qualitative and quantitative tools, monetary tools, "absolute" ecological performance tools, and integrated accounting tools).
3) The Future Up CSR Risk Check is a practical online tool to help companies involved in international trade identify social and environmental risks in their supply chains, providing guidance for risk-based due diligence and mitigation measures.
4) A Life Cycle Assessment (LCA) is a structured methodological framework used to assess environmental impacts across all stages of a product or service life cycle, from raw material extraction to end-of-life. It enables the identification of impact hotspots along value chains and supports decision-making by highlighting where the most significant environmental pressures occur. While traditionally quantitative, LCA can also be applied in a simplified or screening form to qualitatively map potential externalities.
5) The OECD's Due Diligence Guidance for Responsible Business Conduct provides practical steps for companies to identify, prevent, mitigate, and account for adverse environmental and social impacts in their operations and value chains. This risk-based approach helps businesses prioritise significant impacts and frame them within management systems, supporting credible indicator selection and progress tracking.07/05/2026 13:46:00

2.1.2 Recommendation 2 – Quantify and monetise key externalities

Quantifying externalities establishes common evidence for decision-making inside and outside the company by translating impacts and dependencies into measurable units. This enables the estimation of the magnitude of the externalities and of the risks and opportunities for the company's business.

Where quantitative data are available, monetisation, i.e. expressing externalities in monetary terms, further strengthens the business case by making costs and benefits directly comparable across issues and legible to financial decision-makers, thereby facilitating integration into decision-making. Monetisation can be conducted from different perspectives depending on the decision context. Company-level valuation

estimates the direct financial implications for the firm (e.g. abatement costs, expected carbon taxes, compliance costs, productivity gains, or new market opportunities), allowing integration into investment, sourcing, and pricing decisions. Societal valuation estimates the broader costs and benefits to society (e.g. environmental damage or social improvements). While these estimates are not always directly comparable to company financial figures, they can help anticipate future regulatory changes, stakeholder expectations, and market shifts that may translate into future costs or opportunities for the business.

Partnering with initiatives like the Impact Institute[4] or using True Cost Accounting methodologies can help translate these impacts into monetary terms, creating a foundation for action. Monetised estimates should, however, be interpreted with caution, as valuation results depend on methodological assumptions and may not fully capture interactions and feedback across sustainability topics (e.g. climate, water, and biodiversity). Importantly, measurement efforts should no focus only on the externalities that are easiest to quantify, but should prioritise those that are most relevant and material to the business, meaning those that (i) affect the company's ability to operate in the short, medium, and long term, and/or (ii) are likely to influence its financial performance and long-term viability (True Price et al., 2014).

When quantifying externalities, companies should build on what is already available, including existing data, internal reports, and sector benchmarks. Where full quantification is not feasible, for instance for smaller businesses or for externalities where robust data are lacking, qualitative sources, such as audits or stakeholder interviews, can provide estimates that inform prioritisation based on severity and likelihood (OECD, 2018). A company may therefore move along a spectrum from qualitative hotspot mapping, to quantification in physical units, to full monetisation, depending on data availability, capacity, and strategic purpose.

Example

Futureproof Coffee Collective – Measuring for revealing
Members of the Futureproof Coffee Collective collaborated to calculate the true cost of coffee production by first identifying and quantifying key externalities such as soil degradation, carbon emissions, water use, biodiversity loss, and income gaps. Building on existing data, they partnered with the Impact Institute to apply True Cost Accounting (TCA) benchmarks, converting these impacts into monetary values. This approach revealed the hidden costs of coffee production and provided a basis for fair pricing and informed sustainability strategies.

Tools

[4] https://www.impactinstitute.com/

The Dutch National Institute for Public Health and the Environment (RIVM) provides a database on the environmental footprint of food products in The Netherlands. Their LCA is used to quantify carbon emissions and resource use.

The True Price Database (True Price Foundation) provides standardised monetisation factors for a wide range of environmental and social externalities, including greenhouse-gas emissions, water pollution, land use, biodiversity loss, and labour-related impacts.

The Cool Farm Tool, developed by the Cool Farm Alliance, is a farm- and supply-chain-level calculator that quantifies environmental impacts such as greenhouse-gas emissions, water use, and biodiversity indicators, directly supporting the measurement and quantification of externalities.

2.1.3 Recommendation 3 – Assess risks and investment needs and identify financial opportunities

Transitioning to business models that internalise externalities requires companies first to assess the value at risk from inaction (e.g. exposure to regulatory changes, supply disruptions, reputational risks) and the value at stake from action (e.g. efficiency gains, access to new markets, price premiums, or long-term supply security). This assessment helps clarify both the strategic rationale for action and the scale of investments required to implement product or process innovation, reorganise value chains, adopt new measurement and accreditation tools, or pursue market-recognition strategies such as sustainability labels (Mehrabi & Giagnocavo, 2024). While these shifts may require upfront investment, identifying the associated costs and expected returns provides the basis for mobilising appropriate financing mechanisms.

Mapping financial opportunities enables businesses to identify which financial actors (investors, lenders, buyers, procurers, public agencies, philanthropic, etc.) will reward, co-finance, or de-risk those investments. Early and strategic engagement with such mechanisms turns what might otherwise be costs into opportunities for value capture and competitive advantage. This is especially important because, as highlighted by Mehrabi & Giagnocavo (2024), innovative financing is one of the five key strategies that can support the internalisation of externalities within sustainable business models.

Note: while Recommendation 3 is presented here as part of the Assessment stage, the identification of investment needs and financial opportunities will in practice be influenced by the strategic priorities that are established (Stage 2). Companies may therefore find it useful to revisit this recommendation after setting their strategic direction.

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Examples

This Side Up – Mission-driven buyers
The TSU Trade has been paying a higher base price to coffee farmers with long-term contracts, adding a voluntary regenerative agriculture premium for producers investing in soil health and ecosystem restoration. This premium directly transforms a risky investment at farm level into a bankable pathway to regenerative agriculture. TSU model illustrates how some buyers already reward sustainability improvements. Mapping such financial opportunities can provide producers and producers organisations an overview of mission-driven buyers, like This Side Up.

FAIRR – Impact investors
FAIRR is a global network of institutional investors integrating sustainability risks in agri-food investments, with a focus on the protein sector. Producer organisations or food SMEs mapping finance can identify impact funds, such as FAIRR, offering concessional capital or blended finance opportunities.

Cooperative business and finance models
Many European producers are organised in marketing cooperatives and work closely with cooperative banks operating under relationship-banking models. These institutions are grounded in principles of membership, democratic governance, and collective action, and often play a strategic role in supporting transitions towards more sustainable agricultural systems. Beyond providing debt finance tailored to the needs of member farmers and cooperatives, cooperative banks may offer complementary services that help de-risk sustainability investments. These can include applied research and innovation support, “test-before-you-invest” pilot farms to assess the performance and cost–benefit of sustainable practices or products, peer-to-peer learning platforms, as well as insurance and advisory services.

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2.2 Stage 2: Prioritise & Set Targets

Once externalities have been mapped, businesses will need to prioritise among them. Not all identified externalities will warrant the same depth of further analysis, and attempting to address everything at once is neither feasible nor strategically useful. Prioritisation determines where effort is best directed, focusing resources on the externalities that matter most for the business, its value chain, and society at large. This stage helps companies clarify (and officialise) their orientation by establishing a normative and strategic backbone through vision, purpose, agenda and indicator setting. In practice, some degree of prioritisation will already have begun in Stage 1, when mapping and quantifying externalities, so the two stages should be understood as mutually informing rather than strictly sequential.

2.2.1 Recommendation 4 – Adopt long-term vision

Adopting a long-term vision means planning business strategy, operations, and sustainability interventions beyond short-term financial cycles. Many sustainable choices, such as sourcing responsible ingredients, reducing waste, remunerating suppliers fairly, investing in regenerative practices, or employing local labour, put immediate pressure on margins. However, when companies evaluate return on investment over a longer horizon, these decisions appear economically viable.

In practice, this long-term perspective may be constrained by prevailing financing structures or investor expectations, reinforcing the importance of aligning business strategy with appropriate financial partners and instruments, as highlighted in the preceding recommendations.

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Furthermore, long-term visioning might require some cultural and organisational alignment in the business, placing sustainability-minded leaders in strategic positions, aligning stakeholders around a shared purpose, and integrating externality considerations into governance, risk assessment, and corporate strategy. While family-owned businesses often adopt long-term visioning more easily due to ownership stability, other companies might need to dedicate time to formalise it in planning, leadership structures, and internal policies.

Examples

Dandoy – Long-term vision rooted in ownership
The family-control of the company over seven generations has facilitated the adoption of long-term reflections, allowing them to keep their ambition high without being pressured by short term financial return. For instance, their price for local organic cereals is 50% higher than the market price, but it gives a fair return to each actor of the supply chain, which is essential to build a long-term relationship based on trust. While this approach is an investment in the short-term, it helps the company move away from the market speculations and gain in resilience in the long-term.

Cooperatives and solidarity-based market arrangements – Long-term stability through collective governance
Producer organisations, marketing cooperatives, and solidarity-based market arrangements such as Community Supported Agriculture (CSA) or buyer groups can also enable long-term visioning by reducing exposure to short-term return expectations. In these models, financial value is not extracted by external shareholders, and surplus is typically reinvested within the organisation or redistributed among members.

By pooling risks, stabilising demand, and aligning incentives across the supply chain, cooperatives and solidarity-based buyers provide producers with greater income predictability and planning security. This allows investments in sustainability, such as fair remuneration or agroecological practices, to be assessed over longer time horizons, without the pressure of delivering rapid financial returns to third-party investors. Given that cooperatives account for a substantial share of EU agricultural production, these models represent a structurally important pathway for supporting long-term sustainability strategies.

2.2.2 Recommendation 5 – Co-define an integrated purpose

Internalising externalities requires companies to take decisions that are not always financially optimal in the short term (e.g., paying true prices, investing in regenerative agriculture, improving farmer incomes, reducing biodiversity impacts). Such decisions can, however, become viable if the company has a clear, shared purpose that explicitly integrates environmental and social ambitions in their value proposition. An explicitly articulated extra-financial purpose, co-defined with key stakeholders, helps anchor this

shift. It provides a company with a mandate to invest in solving externalities and motivates employees and partners to engage in long-term transitions. Without this anchoring, IOE efforts risk remaining fragmented, opportunistic, or vulnerable to external pressures in the short term.

For this reason, it is important that business models and legal forms explicitly recognise and support extra-financial purpose. Many European cooperative legal frameworks, guided internationally by the International Labour Organization Promotion of Cooperatives Recommendation, 2002 (No. 193), institutionalise such purposes through provisions on democratic governance, shared benefit distribution, collective reserves or social funds, and concern for community, rather than the extraction of profit by third parties. To a more limited extent, alternative legal forms such as benefit corporations may also be relevant, particularly in jurisdictions where companies are at risk of shareholder action if they are seen to jeopardise financial returns through investment in environmental or social issues to the detriment of profit creation for shareholders (Giagnocavo, 2023). Benefit corporations (and comparable legal forms) are legally required to embed a public-interest or multi-stakeholder purpose in their statutes (e.g., purpose clause, bylaws, or articles of incorporation), requiring shareholder approval. By contrast, B-Corps are not a distinct legal form but companies that voluntarily obtain certification from B Lab, demonstrating compliance with defined social and environmental performance standards.

Rather than a simple restatement of the status quo, a purpose should clarify the "why" sustainability matters for the organisation, thereby guiding its transition from a profit-centric strategy towards the creation of broader socio-environmental value (Carlisi et al., 2017). Co-defining this purpose with all stakeholders helps ensure alignment, credibility, and accountability.

Examples

UNICA Group – Collective purpose enabled by cooperative governance
UNICA Group, a second-level cooperative in Spain uniting multiple first-level producer organisations as members, has articulated a collective purpose centred on environmental sustainability, social responsibility, and healthy diets. This shared purpose is operationalised through cooperative-led marketing, R&D, and sustainability-oriented digitalisation, enabling farmers to engage in transitions that would be difficult to undertake individually.

Wakuli – A purpose built around fair value and regeneration
Wakuli was created to address common issues in the coffee value chain: fixing structural unfairness by paying farmers above market prices and building long-term, direct partnerships. Their purpose guides all strategic choices: simplifying the value chain, channelling more value to producers, and investing in regenerative practices with a clear 2028 target for fully regenerative sourcing.

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2.2.3 Recommendation 6 – Develop corporate sustainability agenda with clear and measurable targets

Once externalities are identified and the company's integrated purpose is defined, businesses must translate this strategy into clear targets to ensure buy-in from management and guide decision-making. Without a structured agenda and quantifiable objectives, sustainability efforts tend to remain fragmented. This agenda should help companies monitor and steer progress with data-driven adjustments.

To support IOE, targets should be SMART: specific, measurable, assignable, realistic, and time-bound, focusing on the most significant externalities for the company's operations and value chains and linked to clear responsibilities and monitoring indicators.

Going a step further, publicly communicating these targets can further strengthen their effectiveness: once announced externally, they create accountability towards investors, customers, and other stakeholders, increasing scrutiny and reinforcing internal implementation by signalling that progress is expected and will be monitored beyond the organisation itself.

Example

Arla – Turning science-based targets into corporate efforts
Arla Foods Group is a Swedish-Danish dairy co-operative. It has set various targets to reduce its impact along its value chain, from milk production to packaging and distribution. For instance, they have set a target of 63% CO2 reduction from 2015 to 2030, through the use of 100% renewable electricity by the end of 2025, energy saving strategies, waste reduction, etc.

Tools

Future Up toolkits and programs: support SMEs in developing structured sustainability agendas.

Science Based Targets initiative (SBTi): translates global climate goals into corporate-level emission-reduction pathways.

2.2.4 Recommendation 7 – Define target-aligned indicators to track priority externalities

Defining the right indicators is essential to translate prioritised externalities and sustainability targets into measurable reference points. Indicators specify what will be measured (e.g., greenhouse gas emissions per ton of product), while targets define the level of performance to be achieved on those indicators within a given timeframe (e.g., a 30% reduction by 2030). At this stage, indicators serve to operationalise strategic priorities by turning them into measurable metrics that can be tracked regularly.

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Indicators should be aligned with the company's purpose and sustainability agenda, reflect the externalities the company is responsible for or can meaningfully influence, and rely on transparent and credible methodologies. They may be quantitative or qualitative, provided they allow consistent tracking over time and enable clear progress monitoring and reporting.

Example

Danone's Impact Journey
Within its Danone Impact Journey, Danone translates its sustainability priorities (Health, Nature, People & Communities) into specific performance indicators used to measure progress on key environmental and social externalities across its value chains. These indicators, covering areas such as nutrition performance, climate impacts, biodiversity, and social commitments, are integrated into the company's reporting systems and allow consistent tracking of progress against established targets. This illustrates how companies can operationalise a sustainability agenda through transparent indicators that are regularly monitored against targets to support accountability and performance management.

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2.3 Stage 3: Act

Stage 3 focuses on implementing strategies to reduce negative externalities and enhance positive ones along the value chain. The nine recommendations in this stage are structured as a combination of enablers, levers, and signals (Figure 2).

- Enablers provide the organisational and informational foundation required for effective action.
- Levers directly drive change at various scales, from upstream suppliers to in-house operations and value chain structures.
- Signals communicate performance and commitments externally, providing the interface between internal transformation and the market/society.

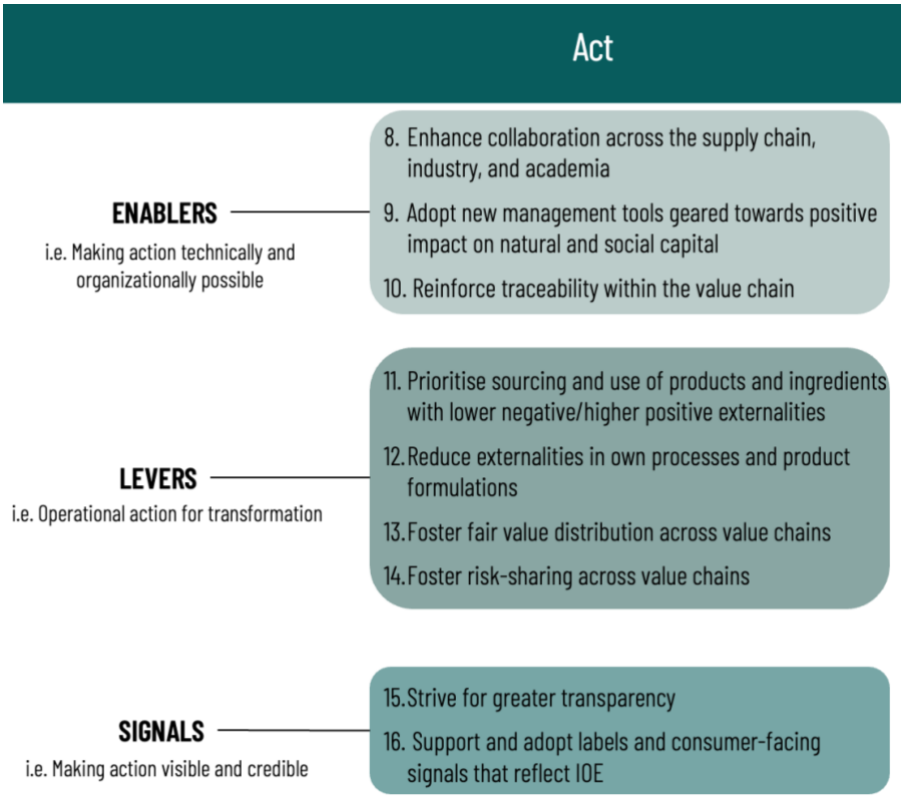

Figure 2. Segmentation of the nine recommendations under "ACT" stage, as Enablers, Levers and Signals.

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2.3.1 Recommendation 8 – Enhance collaboration across the supply chain, industry, and academia

The internalisation of externalities is a system-wide strategy **for long-term business resilience**; it necessitates collaborations, coordination, knowledge exchange, and aligned incentives across multiple actors.

Value chain collaboration helps distribute costs and risks more fairly, facilitates traceability and monitoring frameworks, and enables co-investment in practices that reduce reduce operational vulnerabilities and enhance resource efficiency. Such collaboration may take horizontal forms, where actors engaged in similar activities, such as farmers or consumers, organise collectively (e.g. through cooperatives), or vertical forms, where actors from different stages of the value chain coordinate through partnerships or long-term contractual arrangements.

Peer and industry collaboration supports the exchange of knowledge, the development of joint standards, and the alignment of sector-wide strategies, within the limits of competition laws, enhancing the scalability and efficiency of internalisation efforts.

Business–academia collaboration facilitates knowledge transfer, innovation, and evidence-based decision-making. Researchers and technical institutes can help improve measurement methods, validate assumptions and assess trade-offs, strengthening the design and evaluation of interventions across both supply chains and sectors. Co-creation and co-design are fundamental to such collaborations. The concept of Living Labs is one such example (see European Network of Living Labs in agriculture[5]) where multiple actors from across the value chain can collaborate with academic partners to solve identified collective problems.

Examples

Value chain collaboration: True Price in the Dutch organic banana sector
During True Price Week, retailers Odin and Ekoplaza collaborated with NGOs and banana producers to address hidden social and environmental costs in the supply chain. They introduced a temporary €0.50/kg price increase, creating a revolving fund that financed farm-level improvements such as drip irrigation, plant renewal, and climate-smart practices. This value chain partnership shows how suppliers, retailers, and expert organisations can pool efforts to raise consumers awareness about externalities and jointly invest in more sustainable practices.

Peer and industry collaboration: Dandoy
Maison Dandoy actively invests in networks that help reshape business practices across the industry. Through participation in initiatives such as The Shift 2030, a CEO network supporting leaders committed to reinventing business for sustainability, and

[5] https://enoll.org/who-we-are/

the Kaya Coalition, a community of ecopreneurs focused on mutual inspiration, collective action, and advocacy, Dandoy gains access to shared learning, benchmarking, and sector-level innovations.

Science–Business collaboration: Utrecht University & Danone
Since 2005, Utrecht University and Danone have maintained a research alliance under Future Food Utrecht, bringing together academic researchers and corporate R&I teams to explore food, nutrition, and sustainability. This cooperation illustrates the potential of long-term business–academia partnerships to support evidence-based innovations, bridging fundamental and applied science with real industrial capacity.

2.3.2 Recommendation 9 – Adopt new management tools (financial and extra-financial) geared towards positive impact on natural and social capital

Integrating IOE within businesses requires management and accounting tools and methods capable of aligning sustainability targets and indicators with operational and investment decisions. In practice, companies often begin with topic-specific measurement systems (e.g., carbon, water, nutrition, or biodiversity accounting) and progressively integrate the resulting metrics operational management processes such as budgeting, procurement decisions, and performance reviews. As practices mature, these indicators can be incorporated into financial governance mechanisms, including investment appraisal criteria, capital-allocation rules, and executive remuneration or performance-based incentive systems, ensuring that environmental and social impacts systematically influence strategic and financial decision-making. A further step consists in transforming the accounting architecture itself through integrated impact-accounting frameworks, such as CARE, which incorporate natural and human capital preservation directly into accounting statements rather than treating sustainability indicators only as supplementary decision inputs.

Example

Danone – Incorporating societal impacts into business decisions
The Toulouse School of Economics teamed up with Danone to develop a tool for valuating corporate societal impacts (Bonnet et al., 2023). The tool allows societal impacts to be incorporated into financial decision-making tools by specifying how much the decision-maker cares about them, alongside traditional financial variables such as revenues and costs. Addressing these societal impacts ultimately depends on both corporate stakeholders' willingness to act, as well as policy incentives such as regulations or taxes on activities that generate high social costs or subsidies to reward internalisation efforts (Delaere et al., 2022). The results of the integrated valuation model can also guide investors towards more responsible investment choices, encouraging them to prioritise companies that achieve the best performance in terms of societal impact (Delaere et al., 2022).

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Tools

The CARE (Comprehensive Accounting in Respect of Ecology) model offers a full operational accounting framework integrating natural capital directly into core financial statements. By combining biophysical assessments with monetary accounts, it enables firms to monitor and preserve natural and human capital with the same rigour as financial assets. CARE's non-substitution principle ensures that preservation of nature or people is not reduced to its financial benefits but becomes a mandatory condition of viable performance.

2.3.3 Recommendation 10 – Reinforce traceability within the value chain

The impacts of food business operations are often distributed across complex value chains, often far from the point of production. Effective IOE therefore depends on the level of traceability that firms can achieve throughout these chains. Strengthening geographic, informational, and relational proximity can enhance this traceability and support more collaborative approaches to reducing environmental and social externalities.

Certification schemes can play a complementary role in reinforcing traceability by providing standardised, third-party verification of environmental and social practices at different stages of production and processing. Certifications such as Rainforest Alliance, GlobalG.A.P., Fairtrade, and Organic Certification cover a wide range of externalities, including soil and water management, biodiversity protection, labour conditions, and producer livelihoods. These certification systems rely on independent verification bodies, which can extend traceability beyond farm-level practices to inputs, logistics, processing, and geographical origin. However, certification alone does not guarantee effective internalisation of externalities. Certification schemes vary widely in scope, stringency, and transparency. Moreover, certification costs and administrative requirements can create significant financial and organisational burdens for small-scale farmers and SMEs, potentially reinforcing existing inequalities rather than correcting them.

Robust traceability systems form the operational foundation for responsible sourcing (recommendation 11), as well as corporate transparency (recommendation 15) and credible sustainability labelling (recommendation 16).

Examples

LoCoSoy – Fostering geographical proximity
LoCoSoy (Flamish initiative, Belgium; studied under FOODCoST Case study 11) is establishing a local, sustainable soybean value chain in Flanders by connecting farmers, processors, retailers, and researchers. The initiative focuses on scaling up organic soybean cultivation, developing low-processing techniques for SMEs, and ensuring fair value distribution among stakeholders. By shortening and localising the value chain,

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LoCoSoy simplifies traceability assessment, making production practices, input use, and value distribution more transparent and easier to monitor across actors.

AB InBev – Fostering proximity through technology
AB InBev (Belgian brewery group) uses blockchain to promote financial inclusion, fair payment, and supply chain efficiency by connecting directly with small-scale farmers through smart contracts and mobile banking services. This technological linkage enhances transaction-level traceability, improves transparency on sourcing conditions and payments, and enables more direct monitoring of social and economic externalities along the supply chain.

2.3.4 Recommendation 11 – Prioritise the sourcing and use of products and ingredients with lower negative/higher positive externalities

Sourcing decisions are a primary leverage point for IOE, as they directly influence upstream environmental and social impacts embedded in products. By prioritising inputs with demonstrably lower externalities businesses can shift demand towards production systems that better account for true societal and environmental costs. This prioritisation may be informed, where feasible, by supplier-level externality assessments, including tools such as True Cost Accounting (TCA), life-cycle assessments, or other impact-evaluation methods that help compare sourcing options on a consistent basis.

Certified ingredients can support this process by improving traceability, transparency, and verification of production practices; however, certification alone does not automatically imply low externalities.

When grounded in robust information and supplier engagement, prioritising lower-externality sourcing can incentivise improved practices among suppliers, while reducing a company's exposure to environmental and social risks and progressively lower the externalities associated with its own operations and value chain.

Example

Bister's 100% Belgian organic mustard
Bister recently introduced a line of 100 % Belgian organic mustard made exclusively from domestically grown mustard seeds, developed in partnership with organic and regenerative farms. By relocating cultivation and sourcing locally, Bister achieves full traceability of its supply chain, ensures that raw materials originate from certified organic and regenerative agricultural practices. Their model also guarantees fair remuneration for farmers, explicitly recognising the social and environmental costs of production.

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2.3.5 Recommendation 12 – Reduce externalities in own processes and product formulations

Beyond sourcing, businesses remain directly responsible for the externalities generated by their own production processes, logistics, packaging, and product formulations. Internalising these externalities requires redesigning products and operations to reduce a company's contribution to environmental and social harm. Such redesign can further contribute to the company's long-term competitiveness by lowering input costs, improving resource yields, and reducing waste-related expenses.

Impact-assessment approaches such as TCA, LCA, or related footprinting methods can be integrated into product development and reformulation processes to compare design alternatives and identify options associated with lower environmental and social externalities.

Example

Ecotone – Reducing externalities through product formulation and operational redesign

Ecotone, a European organic and plant-based food company, has deliberately shaped its product portfolio towards organic and predominantly plant-based formulations, reducing reliance on environmentally intensive inputs and associated externalities linked to synthetic pesticides, fertilisers, and animal production. In parallel, Ecotone has integrated renewable electricity in its production sites and committed to making all packaging reusable, recyclable, or compostable, embedding circularity and energy transition directly into operations.

Johnny Cashew – Value chain redesign and full-resource utilisation

Johnny Cashew, a Dutch cashew brand, has reconfigured the conventional cashew value chain, in which raw nuts are typically grown in Africa, shipped to Asia for processing, and then transported to Europe for consumption. By relocating both sourcing and processing activities to Africa, the company significantly reduces transport-related emissions and associated climate externalities. At the same time, this integrated approach contributes to improved social outcomes by creating local employment opportunities and paying farmers a living income reference price. In parallel, Johnny Cashew maximises resource efficiency by valorising by-products, such as broken cashew pieces and lower-grade outputs, into secondary products including pastes and plant-based cheese alternatives, thereby reducing waste and increasing overall value extraction from raw materials.

2.3.6 Recommendation 13 – Foster fair value distribution across value chains

Fair value distribution is essential to ensure that all actors, particularly upstream producers such as farmers and fishers, can maintain viable livelihoods and invest in reducing externalities. Ultimately, fostering equitable value-sharing contributes to more

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stable and resilient supply chains. Additionally, when good pricing levels are proposed, innovation can take place more easily. A fair pricing process can thus strengthen businesses' capacity for innovating.

Fair value distribution, however, requires transparency about how value is allocated, as well as cooperation across actors to rebalance margins.

Examples

Biocoop – Cooperative fair pricing model
Biocoop, a French organic food cooperative, establishes long-term agreements with producers at stable prices, ensuring farmers are protected from market volatility and incentivised to maintain sustainable practices. This responds to one of the cooperative's objectives to create fair relationships between producers and stores.

C'est qui le Patron? – Consumer-driven fair remuneration
C'est qui le Patron? is a food consumer brand that works with producers to promote fair renumeration. In this model, consumers choose the price they consider fair for a product given production costs, quality and ethical criteria, including fair remuneration for producers. This mechanism ensures that farmers receive a price agreed by consumers willing to support them, aligning value distribution with social fairness and environmental responsibility.

Tools

The Fair Price tool is a framework intended for value chain actors in the agriculture and food sectors that facilitates the implementation of fair prices and fair relationships for all partners in agrifood value chains, and in particular farmers. It is composed of a list of fair pricing criteria and a related questionnaire designed to help actors navigating the fair pricing process by collaboratively defining its core components and identifying the most relevant criteria to be implemented in their context.

2.3.7 Recommendation 14 – Foster risk-sharing across value chains

Risk-sharing mechanisms help distribute financial and operational uncertainties across value-chain actors, reducing the pressure on individual businesses and strengthening resilience to external fluctuations such as price volatility, climate and market shocks or geopolitical tensions. Such mechanisms support more stable and predictable value chains, facilitating long-term planning and strategic decision-making. Typical approaches include joint investment funds, cooperative insurance schemes, adaptive pricing or revenue-sharing contracts, shared responsibility agreements for sustainability-related costs, and, often underestimated in practice, long-term purchasing contracts and supply relationships. The latter deserve particular attention in food systems, which are predominantly built on short-term, price-based commodity transactions that leave farmers and smaller businesses with insufficient security to invest in sustainability improvements.

When value-chain actors commit to longer-term relationships, including price dialogue, volume guarantees, or multi-year agreements, they create the stability and mutual trust that allow co-investment in social and environmental improvements to happen more naturally.

Example

Yespers – Long-term strategic partnerships for shared value creation
Yespers, a Dutch food company focused on circular and inclusive value chains, establishes long-term strategic partnerships with suppliers to move beyond transactional sourcing. For instance, through its collaboration with FruitMasters Ingredients, the company has built a "total value" partnership based on joint value creation and reinvestment across the supply chain. This approach fosters stable, long-term relationships that enhance predictability for all actors and support shared responsibility for sustainability-related investments.

Tool

The Environmental, Social, and Governance (ESG) frameworks provides a common structure to identify and assess environmental, social, and governance risks across the value chain. By using ESG criteria, businesses can systematically pinpoint where risks lie, enabling partners to design mechanisms for sharing financial, operational, and reputational risks.

2.3.8 Recommendation 15 – Strive for greater transparency

Building on traceability systems, transparency concerns how companies disclose, contextualise, and communicate information on activities, impacts, progress, and limitations. Transparency in corporate activities, value chains, and product composition is essential to evaluate societal and environmental impacts accurately while building trust with stakeholders. Importantly, striving for transparency enables genuine market differentiation based on actual quality and performance rather than greenwashing, strengthening a company's long-term positioning.

Regular sustainability reporting, such as annual disclosures aligned with recognised frameworks including the European Sustainability Reporting Standards (ESRS) under the CSRD, provides a structured mechanism for communicating this information consistently over time. Where relevant, aligning with recognised reporting and target-setting initiatives (e.g. Science Based Targets initiative methodologies, or sectoral reporting standards) can enhance comparability and credibility. Transparency should also extend to the methodologies used to assess impacts, including key assumptions, system boundaries, and limitations, enabling stakeholders to interpret reported results consistently.

Practice note: Transparency is a process. Companies should not wait for their data or report to be perfect; being open about remaining uncertainties, ongoing work and learning needs can strengthen credibility. A perfect glossy report can be a big red flag!

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Example

Tony's Chocolonely – Radical transparency for social justice
Recognising the issues frequently pledging the cocoa supply chain (particularly the social issues of child labour, exploitation and unfair value distribution), the Dutch chocolate company has decided to openly disclose its entire supply chain, allowing for full traceability of its cocoa beans. It publishes an annual Fair Report that details progress, setbacks, and impact (social, environmental, and economic). Furthermore, the company strive to create awareness about child labour to foster widespread change in the cocoa industry.

Tool

European Sustainability Reporting Standards (ESRS): provide a structured framework under the CSRD that requires companies to identify material sustainability impacts, risks, and opportunities, and to disclose measurable indicators, targets where defined, and progress across operations and value chains.

Voluntary Sustainability Reporting Standard (VSME): While ESRS under the CSRD sets the benchmark for large companies, the VSME, developed by EFRAG, extend comparable transparency practices to SMEs, ensuring consistency across value chains. By using VSME, SMEs can enhance transparency on key environmental, social, and governance topics without the full complexity of ESRS reporting.

2.3.9 Recommendation 16 – Support and adopt labels and consumer-facing signals that reflect internalisation of externalities

Sustainability labels represent a downstream translation of traceability and transparency efforts into decision-relevant signals for consumers and buyers. Shifting consumer demand towards products with lower environmental and social externalities is a key market lever for IOE, and labelling plays a central role in this process by translating complex information into accessible insights at the point of purchase.

Beyond signalling product-level impacts, consumer-facing communication can also help reduce externalities during the use and end-of-life phases. Clear on-pack guidance on portioning, storage conditions, “use by” versus “best before” interpretation, preparation practices, and recycling or disposal options can significantly influence food waste, packaging waste, and resource use associated with consumption. Such information enables consumers not only to choose lower-externality products but also to use them in ways that minimise downstream impacts.

To avoid consumer confusion and risks of greenwashing, labelling schemes and behavioural guidance should rely on harmonised methodologies, credible verification systems, and clear, simple communication formats that are easily actionable at the moment of use.

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Examples

Cooperative branding – Signalling social value and governance models
Cooperative branding initiatives communicate adherence to socially responsible principles, helping cooperative enterprises distinguish themselves from investor-owned or privately held firms. The International Cooperative Alliance promotes the *.coop* domain as a global identifier for legitimate cooperatives through its Global Identity Toolkit. At national level, the Spanish Agricultural Cooperatives Association has promoted the *Cooperative Product* label to differentiate food produced by cooperatives on the basis of origin, quality, and positive social impact in rural areas. By 2025, the label was used by 32 cooperatives and available in over 1,000 points of sale. This initiative illustrates how cooperative labels can function as market-facing signals that make governance structures and social value more visible to consumers.

EU Organic – Verified production standards
The EU organic label, managed by the European Commission, signals compliance with harmonised standards covering pesticide restrictions, animal welfare, and soil management. By providing a widely recognised and regulated certification, it enables consumers to identify products associated with lower environmental externalities at the point of purchase.

Fairtrade – Linking purchasing decisions to social externalities
Certification from Fairtrade International indicates that producers meet defined standards on minimum prices, labour conditions, and community investment. The label helps translate social externalities, such as unfair remuneration, into visible product information, enabling consumers to support fairer value distribution through their purchasing choices.

B Corp – Company-level impact certification visible on products
Certification by B Lab recognises companies meeting verified standards of social and environmental performance, transparency, and accountability. When displayed on product packaging, the B Corp mark signals company-wide commitments to internalising externalities, complementing product-specific sustainability labels.

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2.4 Stage 4: Anchor & Diffuse

Finally, monitoring progress and sharing results will help businesses increase transparency, while enabling continuous improvement. Transparent communication also fosters sector-wide learning, creating positive feedback loops that accelerate systemic change.

2.4.1 Recommendation 17 – Set up impact governance bodies

To ensure that the internalisation of externalities is sustained over time, it should be embedded within corporate governance structures rather than remaining confined to project-level initiatives or sustainability departments. Impact governance mechanisms, such as board-level oversight of environmental and social performance or dedicated impact committees, institutionalise IOE within core decision-making processes and reduce the risk of mission drift over time. It also provides a space where trade-offs between financial performance and societal and environmental impacts can be explicitly addressed, including decisions on how sustainability indicators are integrated into financial and investment approval processes, executive incentives, and other financial governance mechanisms.

As good practice, these formal structures should combine internal representatives with selected external stakeholders, including voices representing nature, future generations and marginalised groups. Bringing diverse and sometimes "surprising" stakeholders to

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the table can help challenge the status quo and strengthen the legitimacy of a company's impact strategy.

Example

Dandoy – Weaving accountability through innovative governance
Maison Dandoy has put in place a Regeneration Committee alongside the Board of Directors with representation from a broad set of stakeholders to represent the mission of the company, future generations, nature, commons and social issues. The purpose of this is to represent the issues of these stakeholders so that the company can be accountable on all these subjects. This structure is very recent, and the question now is to see how it can have a real place and real value in supporting the Board of Directors and guiding future decisions to keep the course set by their Manifesto.

2.4.2 Recommendation 18 – Regularly measure performance against externality targets

Regularly monitoring performance against predefined targets – using the indicators defined during the prioritisation and target-setting stage – provides an evidentiary basis for informed decision-making affecting society and the environment. It allows companies to assess whether implemented actions are effective, and supports adaptive management when progress is insufficient or misaligned with objectives.

Continuous monitoring strengthens accountability towards stakeholders, enabling transparent communication on progress, setbacks, and corrective actions.

Example

Eosta – Monitoring performance through Nature & More
Eosta, a Dutch importer and distributor of organic fruit and vegetables, regularly monitors environmental and social performance across its supply chains through its Nature & More transparency system. Using predefined indicators, which cover aspects such as carbon footprint, biodiversity, water use, and social conditions, Eosta tracks progress over time and communicates results openly to buyers and consumers. This continuous measurement allows the company to assess whether sustainability actions are delivering expected outcomes and to adjust practices in collaboration with suppliers when targets are not met.

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2.4.3 Recommendation 19 – Support suppliers in monitoring and reducing externalities

This recommendation reinforces earlier commitments on traceability, sourcing and risk-sharing through targeted support to suppliers. Often, environmental and social impacts occur upstream in the value chain, where suppliers might lack the resources, knowledge, or tools to monitor and mitigate externalities. Supporting suppliers in this effort enables companies to internalise externalities beyond their direct operations, building resilience across the whole value chain.

Practical support, such as guidance, technical assistance, and co-investment in sustainable practices, can help suppliers to adopt improved methods, track their progress, and align their operations with the company's sustainability agenda.

Example

Danone – Supporting suppliers through the Danone Ecosystem Fund
Danone's Ecosystem Fund provides technical assistance, training, and co-financing to farmers and suppliers to help them adopt sustainable practices and strengthen their resilience. In some projects, Danone works with suppliers to design and apply monitoring tools that inform improvement plans and can help align upstream practices with the company's sustainability objectives.

Fairtrade International – Embedding monitoring and support through certification standards
Fairtrade International offers a complementary, system-level model: rather than designing their own supplier support programmes, companies can join a shared certification system that embeds monitoring, technical assistance, and capacity-building directly into its standards. Fairtrade requires producers to conduct risk assessments, implement remediation measures, and continuously improve their environmental and social performance, supported by training, impact-based monitoring tools, and a Fairtrade Premium that enables producer organisations to co-invest in sustainability improvements. For businesses sourcing from smallholder-dominated supply chains, this provides a practical and credible way to support suppliers in monitoring and reducing externalities.

2.4.4 Recommendation 20 – Develop and communicate a clear narrative on externalities and long-term impacts

Beyond measurement and disclosure, effective IOE will require that companies actively shape a clear, credible and consistent narrative about their societal and environmental impacts and the long-term implications of their business models. A strong narrative will explicitly connect the management of externalities to the company's long-term viability, showing how reducing negative impacts and strengthening positive contributions can lower operational and regulatory risks, enhance resilience to supply-chain disruptions, and support long-term competitiveness.

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Importantly, the way externalities are framed strongly influences stakeholder understanding and market acceptance. Evidence from a FOODCoST case study on true price labelling suggests that inadequate or fragmented communication can foster misunderstanding and negative sentiment in public discourse. Indeed, media discourse analysis of the PENNY true price campaign in Germany (Stein et al., 2024) indicated that when price increases are presented without clear explanation of the externalities involved, the distribution of responsibility along the value chain, or the intended use of the price signal, initiatives are frequently perceived as greenwashing, marketing tactics, or unfair cost transfers to consumers or farmers. Conversely, stakeholder interviews suggested that more constructive responses emerge when companies clearly explain assumptions and limitations, contextualise price signals, and link them to concrete transition objectives. A robust and adaptive corporate narrative is thus needed to translate complex impact data into meaningful insights.

Beyond consumer-facing communication, coherence in how externalities are framed also matters in businesses' interactions with policymakers and sectoral representatives. Aligning corporate political engagement with stated sustainability objectives is part of responsible internalisation, helping to avoid inconsistencies between companies' public sustainability commitments and the positions expressed through their policy engagement or sectoral representation. While individual firms may have limited influence over collective lobbying positions, increasing transparency and internal reflection on advocacy priorities can contribute to a gradual shift in dominant narratives within business and sectoral organisations.

Examples

Tony's Chocolonely – Owning the narrative on cocoa externalities
Through its "Our Promise" page, Tony's Chocolonely communicates a clear, structured narrative about the social and environmental externalities in its cocoa supply chain, including unfair value distribution and child labour. The company explains why these issues matter and how its sourcing practices aim to mitigate them. By presenting both progress and remaining challenges, Tony's provides stakeholders with a credible, evidence-based account of externalities, helping consumers understand the broader implications of their purchases.

2.4.5 Recommendation 21 – Share good practices

Sharing practical examples and lessons learned on accounting for and reducing externalities will accelerate adoption across the business community. Most companies require evidence of both the feasibility and the benefits of specific approaches of internalisation to change behaviour. Learning from frontrunners or early adopters provides guidance on "how to" implement measures, highlights the business case, and demonstrates tangible impacts.

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Such peer learning reduces perceived risk and creates momentum for sector-wide shifts towards IOE. Empirical evidence suggests that practical examples, combined with client demand or regulatory drivers, are among the most effective mechanisms to catalyse behavioural change among companies.

Example

B Corp Community – Stronger together
B Corp movement is an active community of companies with a shared vision to use their business as a force for good. The B Corp community uses the collective voice and action of its members to rally together for systems changes on topics that matter most to them, e.g. climate change, inclusion and stakeholder governance. By coming together, they aim to learn from each other and leverage synergies to create an even greater positive impact.

COPA-COGECA – Sharing practices across European agricultural cooperatives
COPA-COGECA brings together farmers' organisations and agricultural cooperatives across the European Union, providing a platform to exchange experiences, disseminate good practices, and build shared positions on sustainability challenges in agri-food systems. Through working groups, thematic exchanges, and cross-country dialogue, COPA-COGECA can facilitate peer learning on issues such as environmental performance, cooperative governance, and value-chain organisation. While not an implementation tool in itself, this collective knowledge-sharing function helps reduce uncertainty and supports the diffusion of practices relevant to IOE across cooperative and farming networks.

2.4.6 Recommendation 22 – Engage constructively with policymakers to enable the internalisation of externalities

While this report focuses on business-level actions, it recognizes that internalising externalities cannot rely on voluntary efforts alone. A credible and scalable transition requires an enabling policy environment that ensures a level playing field across firms and jurisdictions and set a coherent pace.[6]

Complementing the need for coherent narratives and transparent advocacy (recommendation 20), businesses can play an important role in shaping enabling regulatory environments through constructive interactions with policymakers, public agencies, and sectoral organisations. This may include sharing evidence from pilot initiatives, communicating implementation barriers, supporting harmonised sustainability standards, and advocating for policy instruments that reward lower-externality practices

[6] A complementary FOODCOST report addresses in greater depth the public policy instruments needed to support and scale the internalisation of externalities (Deliverable 2.3).

and reduce regulatory inconsistencies. Responsible and transparent policy engagement can help align private-sector initiatives with public transition objectives and accelerate the scaling of effective internalisation strategies.

Example

Future Up – Collective business advocacy for an enabling policy environment
Future Up is a Dutch platform for sustainable businesses that actively bridges the gap between private-sector sustainability practice and public policy. In the food and agriculture sector, it brings together companies, farmers, financiers, and knowledge institutions to demonstrate what works in practice, and to translate those insights into concrete policy needs. By collectively showing policymakers what businesses and farmers require to make the transition to nature-positive and lower-externality practices viable, Future Up helps shape a regulatory environment that rewards sustainable business models.

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3 Further Reflections

3.1 A first compass for action

The recommendations presented in this report are not exhaustive. They represent a first set of guiding principles for businesses seeking to internalise externalities within food systems.

While they draw on existing examples and emerging practices from pioneering companies, they are intended to illustrate potential pathways rather than prescribe a complete solution. Future research and practical experimentation may uncover additional strategies, context-specific adaptations, and innovative business models that further advance the internalisation of social, environmental, and economic externalities. Businesses are encouraged to treat these recommendations as a starting point, iteratively refining their approach in alignment with their unique value chains, stakeholder networks, and long-term sustainability objectives.

For many businesses, the main challenge at this stage is not whether to act, but where to begin without being overwhelmed. Faced with a comprehensive set of recommendations, companies may hesitate, either because the scope appears too broad, or because the temptation arises to select only the easiest actions and postpone more structural changes. In this context, the objective should not be to "apply" individual recommendations in isolation, but to enter the internalisation process in a way that creates momentum and learning. Starting with a limited number of priority issues, value-chain segments, or pilot initiatives can help organisations build internal understanding, test feasibility, and progressively expand ambition, rather than attempting to address all externalities at once or reducing internalisation to a checklist exercise.

3.2 Tailoring recommendations to the diversity of food system business actors

While internalising environmental and social externalities is a growing imperative for the food sector, not all producers and businesses operate under the same conditions, nor do they have equal opportunities or incentives to act. Food systems are composed of a wide diversity of business actors (producers, processors, distributors, and retailers) whose roles in the value chain, degrees of market power, access to capital, and exposure to risk differ substantially.

Beyond sectoral position, businesses also vary in their operational contexts and strategic situations. The stage of development of a business (e.g. whether it is entering a market, scaling an innovation, or defending an established position) strongly shapes its capacity to absorb costs, experiment, and engage in longer-term transformation. For instance, start-ups may be agile but resource-constrained, whereas more established firms may benefit from greater stability, but face inertia linked to existing assets, contracts, and organisational routines. Recognising this heterogeneity is essential, as internalisation

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pathways are likely to differ accordingly. Future iterations of these recommendations could further support this differentiation by offering tailored guidance that helps businesses identify the most relevant starting points and leverage points given their role in the value chain, their capacities, and their position in the transition journey.

3.3 Understanding pitfalls: the unintended effects of well-intended efforts

As promising as this transition may seem, internalisation alone is not a silver bullet. Sustainability transitions in food systems are riddled with unintended consequences that must be carefully managed. Three paradoxes, originally discussed in the context of the protein transition by Duluins & Baret (2024), highlight key tensions in sustainability transitions and challenge linear thinking in food system reform:

1. *Substitution paradox: Replacing products without changing the system*

The Substitution paradox cautions against replacing an unsustainable product with a seemingly more sustainable alternative while leaving overall consumption patterns unchanged. Even if the new product has a lower environmental footprint per unit, the persistence of high consumption levels may counteract the expected benefits.

For instance, bio-based or compostable packaging is often promoted as a substitute for fossil-based plastics. Yet when introduced without changes in single-use consumption models, overall packaging volumes might continue to rise. This leads to persistent waste flows, pressure on biomass resources, and limited real reductions in environmental externalities.

2. *Jevons paradox: Efficiency increases stimulate demand*

The Jevons paradox warns that efficiency gains can backfire because improvements that lower production or operating costs often stimulate additional demand. More efficient production methods may therefore lead to higher total consumption, ultimately negating the intended environmental benefits.

For instance, more energy-efficient refrigeration, freezing, and logistics might reduce energy use per unit of food processed. At the same time, they enable longer supply chains, higher trade volumes, and year-round availability of perishable products, which increases total energy demand in food logistics.

3. *Productivism paradox: Growth logic remains unquestioned*

The Productivism paradox questions the assumption that sustainability can be achieved within a continued growth-oriented production paradigm, in which maintaining or expanding production levels remains the central objective. While initiatives focusing on producing more food through sustainable practices are important, they may perpetuate growth-based logics that ignore structural issues such as food waste, overconsumption, and inequitable access, thereby reinforcing the unsustainable patterns they aim to change.

For instance, energy-efficient greenhouses and vertical farms aim to produce more vegetables with lower land use. Yet when oriented towards continuous yield

maximisation and premium export markets, they can drive high energy demand, reinforce unfair value distribution and unequal food access, while sustaining growth-oriented food supply structures rather than sufficiency-based models.

These paradoxes signal the need to think systemically and reflexively, avoiding reductionist solutions and taking into account rebound effects, behavioural responses, and power asymmetries. Internalisation must therefore go hand in hand with a critical rethinking of consumption patterns, dietary priorities, and production goals. This can be achieved through stronger uptake of co-creation and multi-actor approaches, ensuring that diverse perspectives and knowledge bases inform decision-making and help anticipate unintended effects.

In this light, concepts such as degrowth and sufficiency should be considered as legitimate reference frames for sustainability transitions, rather than as marginal perspectives. At the level of business practice, these orientations can be partially translated into operational approaches through business models that integrate the management of externalities within cooperative, solidarity-based, and sharing-oriented arrangements (Mehrabi & Giagnocavo, 2024). Such models do not abolish growth logics altogether, but they may contribute to rebalancing value creation by explicitly embedding social and environmental objectives into the core of the value proposition, offering alternatives to purely growth- and efficiency-driven paradigms.

Finally, recognizing and managing trade-offs remains a cornerstone of IOE, as reducing one category of externality may generate unintended effects in other dimensions. For instance, addressing social externalities in agricultural supply chains (e.g., living income) may raise household earnings but also create incentives for production intensification, potentially increasing environmental pressures (Adong et al., 2026). Conversely, environmental regulations (e.g., deforestation requirements) may generate social spillovers, such as exclusion of smallholders (Adong et al., 2026). Moreover, internalising one social externality may inadvertently generate other unintended social consequences: for example, raising farm-gate prices may encourage households to expand production using family labour, and without adequate labour safeguards this can increase risks of child labour or precarious working conditions. These dynamics highlight the need for systems-level thinking and for anticipating cross-dimensional trade-offs when designing pathways (both policy and business-oriented) for internalising externalities. Conducting integrated impact assessments across dimensions can help identify net-effects of internalisation efforts, rather than focusing solely on gross improvements in any single domain.

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4 Conclusion

Food systems continue to generate significant environmental, social, and health externalities. As long as these externalities remain largely invisible or unaccounted for, food systems will continue to reward short-term optimisation at the expense of ecological integrity, social equity, and public health. Internalising externalities is therefore not a marginal sustainability exercise, but a fundamental condition for reorienting food system dynamics towards long-term viability.

This report has shown that internalisation is neither a single intervention nor a linear pathway. Rather, it is a progressive, strategic, and context-dependent process that requires businesses to rethink how value is created, distributed, and governed across value chains. The 22 business-oriented recommendations presented here provide a structured yet flexible roadmap to support this process. Organised across four stages, i.e. Assess; Prioritise & Set Targets; Act; Anchor & Diffuse, they highlight that meaningful internalisation depends as much on governance, collaboration, and narrative coherence as on technical or operational change.

Taken together, the recommendations underscore four core insights. First, internalisation begins with making externalities visible and understandable, through robust assessment and quantification. Second, it relies on prioritisation and agenda setting, thereby shifting decision-making away from short-term cost minimisation towards longer-term strategic considerations. Third, it requires operational and organisational change, combining enabling conditions, concrete levers, and credible market signals to translate ambition into practice. Finally, internalisation must be embedded and diffused over time, through governance structures, learning mechanisms, shared narratives, and policy engagement that extend beyond individual firms and contribute to system-level change.

The further reflections developed in this report caution against simplistic interpretations of internalisation as a technical fix. Sustainability transitions in food systems are shaped by trade-offs and rebound effects that can undermine well-intended efforts. This illustrates why internalisation must remain reflexive and systemic. It also challenges growth-oriented logics.

Ultimately, internalising externalities is less about implementing a predefined set of actions than about deciding differently: deciding what to prioritise, how to measure success, how to share risks and value, and how to align short-term decisions with long-term resilience – both societal and business. The recommendations presented here are intended as a starting point, not a checklist, inviting businesses to engage iteratively, to learn through practice, and to contribute, collectively, to reshaping the conditions under which food systems operate. By doing so, businesses can play a decisive role in moving food systems away from the systematic externalisation of costs and towards pathways that are economically resilient, socially just, and environmentally sustainable.

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5 References

Adong, A., Kornher, L., Chichaibelu, B. B., & Arslan, A. (2026). The Hidden Costs of Coffee Production in the Eastern African Value Chains. *Sustainable Development*, *n/a*(n/a). https://doi.org/10.1002/sd.70658

Benton, T. G., Bieg, C., Harwatt, H., Pudasaini, R., & Wellesley, L. (2021). *Food system impacts on biodiversity loss—Three levers for food system transformation in support of nature*. https://www.chathamhouse.org/2021/02/food-system-impacts-biodiversity-loss/about-authors#block-mainnavigation

Bonnet, C., Delaere, F., Moinas, S., & Pouget Sebastien. (2023). *How can firms make healthier decisions ? Toulouse School of Economics & Danone*. https://www.tse-fr.eu/sites/default/files/TSE/documents/Rapports/2023_danone-tse_scientific_report.pdf

Carlisi, C., Hemerling, J., Kilmann, J., Meese, D., & Shipman, D. (2017, mai 15). *Purpose with the Power to Transform Your Organization*. BCG Global. https://www.bcg.com/publications/2017/transformation-behavior-culture-purpose-power-transform-organization

Delaere, F., Moinas, S., & Pouget, S. (2022). *Integrating health impacts in corporate decision-making tools : A case study on sugar in the Food and Beverage industry*.

Duluins, O., & Baret, P. V. (2024). The paradoxes of the protein transition maintain existing animal production and consumption systems. *Nature Food*, *5*(9), 725-730. https://doi.org/10.1038/s43016-024-01036-4

FAO, IFAD, UNICEF, WFP, & WHO. (2020). *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets. Rome, FAO.* https://doi.org/10.4060/ca9692en

Giagnocavo, C. (2023). B Corps, Benefit Corporations and Socially Oriented Enterprises in Canada. In H. Peter, C. Vargas Vasserot, & J. Alcalde Silva (Éds.), *The International Handbook of Social Enterprise Law : Benefit Corporations and Other Purpose-Driven Companies* (p. 455-469). Springer International Publishing. https://doi.org/10.1007/978-3-031-14216-1_22

IPCC. (2019). *Climate Change and Land : An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.* https://www.ipcc.ch/srccl/

Klomp, K., & Oosterwaal, S. (2021). *Thrive—Fundamentals for a New Economy*. https://www.managementboek.nl/boek/9789047014751/thrive-fundamentals-for-a-new-economy-kees-klomp

Mehrabi, S., & Giagnocavo, C. (2024). Business models and strategies for the internalization of externalities in agri-food value chains. *Agricultural and Food Economics*, *12*(1), 46. https://doi.org/10.1186/s40100-024-00338-2

Funded by the European Union

Mirzabaev, A., & Braun, J. von. (2022). True cost of food and land degradation. *Russian Journal of Economics*, *8*(1), Article 1. https://doi.org/10.32609/j.ruje.8.78376

OECD. (2018, février 1). *Due Diligence Guidance for Responsible Business Conduct*. OECD. https://www.oecd.org/en/publications/oecd-due-diligence-guidance-for-responsible-business-conduct_15f5f4b3-en.html

Simons, L., Nijhof, A., Janssen, M., Meijer, T., & Bander, Z. (2023). *The mission-driven transition approach to managing complex change processes*. https://mipo.sites.uu.nl/wp-content/uploads/sites/842/2023/08/Transmission-Framework-UK.pdf

Stein, L., Michalke, A., Gaugler, T., & Stoll-Kleemann, S. (2024). Sustainability Science Communication : Case Study of a True Cost Campaign in Germany. *Sustainability*, *16*(9). https://doi.org/10.3390/su16093842

True Price, Deloitte, EY, & PwC. (2014). *The Business Case for True Pricing Why you will benefit from measuring, monetizing and improving your impact*.

World Bank. (2016). *The Future of Food : Shaping the Global Food System to Deliver Improved Nutrition and Health. Washington, DC: World Bank Group.* https://www.worldbank.org/en/topic/agriculture/publication/the-future-of-food

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