INNOVATION FOR SUSTAINABILITY (I4S) METHODOLOGY

Purpose

As IFF strives to deliver first-to-market solutions that support the transition to a more sustainable world, we have established a goal for all new innovations to have a sustainability value proposition that supports people and planet by 2030. To quantify, track and measure our progress against this goal, IFF has developed the Innovation for Sustainability Assessment (I4S) scoring tool, which uses a proprietary methodology to evaluate the sustainability performance of our innovation projects.

The purpose of the I4S tool is to assess and identify sustainability benefits and risks related to our product innovations and promote better-informed decisions through transparency. In turn, this lends itself to further improvements for future product iterations, as well as identifies sustainability value propositions that can improve in-market product performance.

Methodology

The I4S scoring tool allows for an assessment of the sustainability risks and benefits of innovation projects – considering impacts across all life cycle stages of new products. Life cycle stages encompass raw material acquisition, production, transport and distribution, customer application, consumer use and end-of-life. It addresses relative impacts (which could be positive or negative), their magnitude, and their likelihood to materialize. IFF's internal assessment team collectively uses the I4S tool to assess the innovation by consensus, and the process and conclusions are clearly documented.

Impacts are always assessed compared to a given benchmark solution – and the magnitude and likelihood are assessed to establish if an impact is material. Where available, life cycle assessment (LCA) or other quantitative approaches will be used in the evaluation of an impact's magnitude. If no quantitative information is available, the subject matter experts, including an LCA expert, will provide estimates of directional impact (e.g., higher/lower, more/less). The basis and rationale of all assessments are documented. Figure 1 depicts the core sustainability assessment process for new innovations followed by further detail about the I4S scope, assessment team, benchmark for comparison, final score and threshold for sustainability value proposition.

Figure 1: Innovation for Sustainability model for new innovations.

*Impact categories in Figure 1 include some but not all categories.

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Scope

IFF manages the innovation process with a stage gate framework which accounts for R&D projects and other projects carried out within business-linked Innovation functions.

- For external reporting, I4S sustainability assessments are conducted for projects aimed at developing new products and/or solutions. Hence, it does not include projects aimed at, for example, cost reduction or process improvements that would not result in the launch of a new product.

- A product's launch date will determine the year its sustainability assessment will be reported. Launch is defined internally by a particular gate in our stage-gate framework, after which we typically offer products for sale to customers.

Assessment team

Approximately two months before a product/project launches, its scoring is completed by an assessment team, representing internal, cross-functional stakeholders with relevant competencies related to R&D, application, manufacturing, marketing, life cycle assessment and sustainability.

To ensure consistency and alignment, a sustainable innovation expert from IFF's Global Sustainability team also participates in all meetings.

Benchmark

One of the key choices in the assessment process involves identification of the benchmark against which the project should be assessed. The benchmark should be the currently dominant in-market solution, and may involve in-kind comparison, comparison to an alternative technology or a non-use scenario.

The choice of the proper benchmark is based on the market, available alternatives and customer and consumer expectations. A detailed proprietary model and decision tree has been developed to assist identifying the appropriate benchmark, which requires input from the assessment team.

Sustainability impacts

The impacts in scope for the assessment are selected from a list of potentially relevant sustainability criteria defined across the product's life cycle (see Appendix A). The criteria have been established based on our internal expertise in sustainability science and inputs from other sources, e.g., WBCSD's Portfolio Sustainability Assessment Framework; Cefic's Safe and Sustainable-by-Design; typical LCA impact categories; IFF's 2030 Do More Good Plan goals; and recurrent topics from common customer requests.

Criteria are identified by the assessment team and selected based on relevance. If a particular impact or supply chain stage is not affected by the innovation in question, it will not be considered in the assessment. Relevance is assessed by the innovation's potential impact versus the benchmark on IFF's own operations, IFF's (future) customers, sourcing activities and other stakeholders (e.g., consumers, NGOs and regulatory bodies, etc.). For example, if a new product has no impact on the use phase relative to the benchmark, all use phase criteria will be considered irrelevant to the assessment. Alternatively, if a new product enabled cold transport at an elevated temperature, for example, the use phase would be considered relevant and the impact (in this case, GHG emissions compared to a benchmark case) would be calculated. If a significant improvement was found, it would contribute to the benefit score. In this way, the entire life cycle is covered, and life cycle thinking is embraced.

Assessment of benefits, risks, & threshold

The innovation's benefits and risks are scored separately using a proprietary rating system and the final score is a calculated product of the two. There is a quantitative threshold for this final score that establishes whether or not the innovation has a sustainability value proposition.

The risk score is further extended by the category of "showstopper" risks, which are extraordinarily severe risks, as defined by IFF, in accordance with several external and internal policies and regulations, Codes of Conduct, frameworks, and other initiatives. If identified, these must be mitigated, or the risk score will immediately drop to below the threshold for a sustainability value proposition. For example, if a raw material for a product was part of a supply chain that, based on country of origin, had a high risk of child labor and no known measures in place to prevent it, this would be considered a showstopper risk and would prevent the product from having a sustainability value proposition. An innovation being assessed as having a "sustainability value proposition" needs to show a material sustainability benefit with a high likelihood to occur, without an unmanageable showstopper risk.

Limitations

One of the key limitations of the methodology is that it is often relying on qualitative data, expert estimate and educated reasoning, due to limited availability of information and resources. Secondly, it inherently deals with limited data availability and quality. In innovation projects, certain details and market/competitor information is not available. Finally, the list of sustainability criteria is to be regarded as comprehensive but not exhaustive. Future practices and/or legislations may be included as part of the continuous improvement of this assessment process.

Documentation

The assessments are conducted with a standardized template to ensure that all projects are evaluated and documented in the same way. All assessments are kept separate and stored in internal spreadsheets.

New innovations that have a sustainability value proposition supportive of people and planet [%] have been assured to a limited level of assurance starting in 2023. For more information on the assurance standards used, the level of assurance obtained and the assurance process, please see the ERM CVS Assurance Statement at the end of the 2023 Do More Good Report, available in the Report Library of iff.com.

Previous assessments

In 2022, the IFF Global Sustainability team conducted trainings on the Innovation for Sustainability assessment model with more than 100 innovation employees, including portfolio managers, project managers, and application and manufacturing scientists. We also initially screened more than 250 innovation projects against the model's criteria using a pilot version of the assessment, resulting in key insights related to environmental or social risks and benefits that informed our product development processes in 2023.

Going forward, we expect to add other features or edits to the assessment as we discover new opportunities to expand its rigor, practicality, impact or value to IFF and its stakeholders.

Appendix A – Sustainability criteria

	Upstream		Downstream	
	Sourcing	**Production**	**Use Phase**	**End of Life**
Climate Action, Energy, Performance	❏ Greenhouse gas emissions ❏ Energy Use	❏ Greenhouse gas emissions ❏ Production yield ❏ Material efficiency ❏ Energy use / source	❏ Greenhouse gas emissions ❏ Industry transformation ❏ Energy use	❏ Transport emissions ❏ Energy use
Water	❏ Water consumption	❏ Water consumption	❏ Water consumption	❏ Water consumption
Waste & Circularity	❏ Waste, pollution, other emissions ❏ Recycled / Bio-based / Renewable ❏ Raw material scarcity	❏ Waste, pollution, other emissions ❏ Recycling of production side streams	❏ Waste, pollution, other emissions ❏ Circularity ❏ Durability ❏ Food waste	❏ Bio-accumulation ❏ Biodegradability
Regenerative Ecosystems	❏ Land use change use / deforestation ❏ Biodiversity	❏ Land use change use / deforestation ❏ Biodiversity	❏ Land use change use / deforestation ❏ Biodiversity ❏ Animal welfare	
Health, Safety & Regulatory	❏ Material hazards and safety ❏ GMO materials ❏ Regulatory trends	❏ Chemical process hazards and safety ❏ Occupational health hazards and safety ❏ Regulatory trends	❏ Consumer safety ❏ GMO materials ❏ Health & wellbeing ❏ Nutrition ❏ Regulatory trends	❏ Hazards to the environment ❏ Regulatory trends
Responsible Sourcing	❏ Human rights[1] & other social aspect ❏ Sourcing certification ❏ Traceability along the supply chain			

✔ Avoided, enabled, improved, promoted, supported, protected
0 Neutral, unremarkable, not applicable, not relevant
✘ High risk, high impact, concern area, hindered
? Unknown, uncertain, lack of data

1) Forced labor, Child labor, No freedom of association, Occupational health & safety issue, Unfair wages Discrimination, Harsh or unhuman treatment, Excessive working hours / unregular employment