

Product Sustainability

Targeting at least compliance, aiming at maximizing positive impacts from your products.



Product Sustainability context

Complex and changing regulatory environment.

- Compliance will involve assessment of your product/process sustainability performance.

Increase in stakeholders' requests related to ESG reporting requirements

- Competitive advantages will arise from sustainable portfolio management.



**Because product sustainability
goes beyond compliance or even
improved branding**

Product sustainability does not only aim at improving your company branding. It can also be used as a mean to decrease your financial risks.





Regulatory landscape assessment

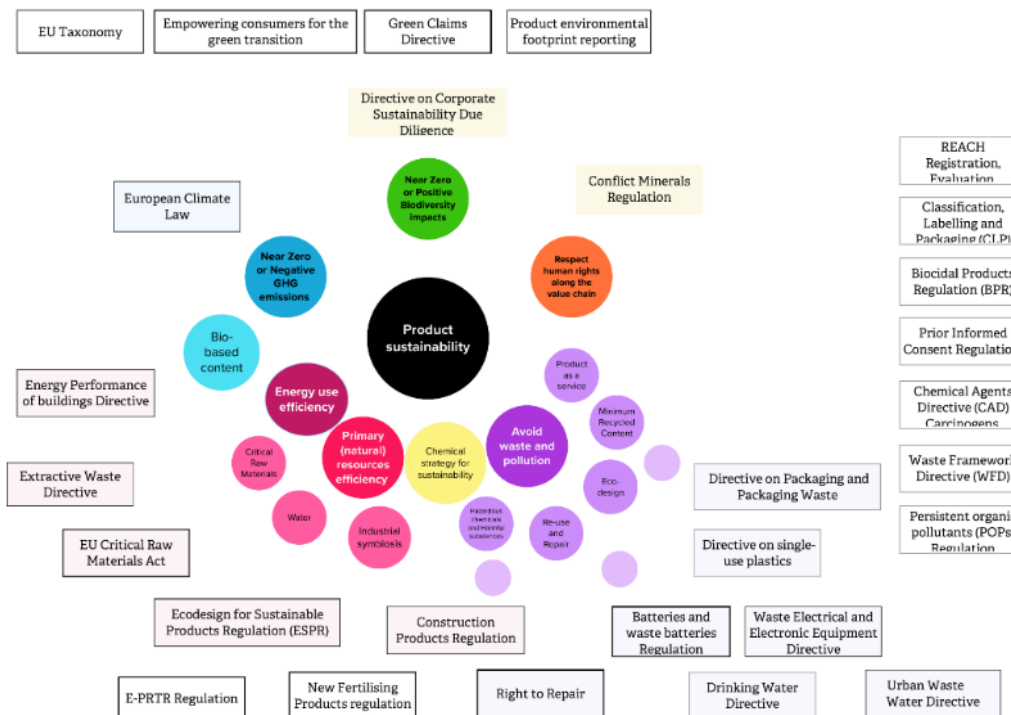
What we offer:

- Monitor global changes in product regulations or local implementations of product environmental requirements
- Filter relevant information, translate in priorities, timelines, and costs
- Evaluate the business impact of upcoming regulatory changes

How we do it:

Tailored to the needs and interest of the client: conduct ongoing or periodical monitoring on certain legislation types, chemicals, markets or for certain product types, using client subscriptions or Arcadis sources.

Circular Economy action plan



Targeted substances	Expected changes	Chemicals / Products in scope	Tresholds / other requirements	Impact on your activities	Regulation name & reference	Timeline	Additional notes
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Product or Portfolio Sustainability Roadmap



How we do it



- Product lifecycle screening
- Hotspots analysis



- Co-creation and brainstorm workshops
- Trainings



- Strategy review workshops
- Stakeholders engagement – internal and external (suppliers, clients, communities, authorities, ...)

What we offer:

- Baseline definition
- Targets setting
- Strategy definition
- Implementation roadmap



Environmental performance assessment and reporting



How we do it

- In-depth LCAs vs. screening LCAs
- Product Environmental Footprint (PEF)
- Activity-based Footprinting (ABF)
- Environmental Product Declaration (EPD)
- Product Carbon Footprint (PCF)
- Reviewed and verified LCAs for external use
- Following ISO 14040/44:2006 / PEF / EN 15804

Our toolkit

Chemicals registration expertise

What we offer:

- Methodology and scoping guidance
- Product lifecycle environmental impact assessment (fit-to-purpose)
- Substantiated data for credible reporting
- Science-based action plan



Product lifecycle environmental impact assessment

Arcadis aims at providing you with the most fit-to-purpose approach, while following relevant standards or methodologies.

A science-based sustainability action plan



How we do it



Scope definition is a key success factor. We support you in understanding what you need, your target, and how to achieve it.



Data gathering is a challenge for everyone. We support you in understanding what you need to collect and how.



Impact assessment is subject to selecting adequate methodologies, standards and tools. We support you with fit-to-purpose and reliable approach.



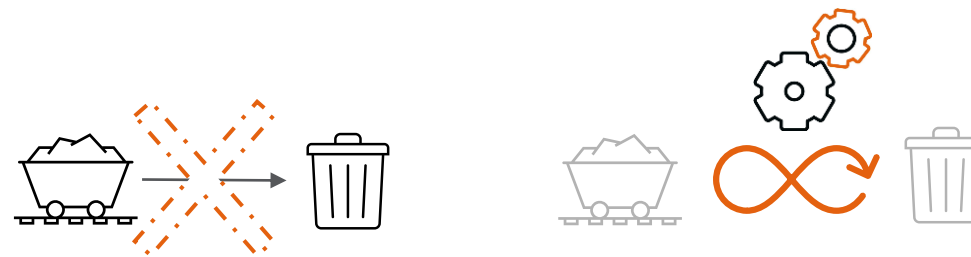
Making credible **reporting** (incl. claims) and setting-up an effective **action plan** is crucial. We support you in assessing relevancy and significance as well as compliance.



Product value chain assessment

What we offer:

- Product lifecycle environmental performance assessment
- Circularity assessment
- Scope 3 emissions accounting
- Compliance monitoring (incl. Digital passport, ESPR, Green Claims)
- Sustainable procurement guidance



How we do it



- Environmental Impact Assessments
- Lifecycle analysis
- Circularity assessment



- Scope 3 (Cat 3.1. accounting)
- Product Carbon Footprint, including upstream emissions
- Suppliers' engagement guidelines



- Assess eco-design, recyclability scenarios
- Safe and Sustainable by design approach
- Waste reduction assessment and roadmap



- Sustainable procurement KPI's and roadmap
- Certifications benchmarking
- Suppliers' engagement
- Assess product lifecycle compliance with regulations



Sustainable products portfolio management

What we offer:

- Sustainable products portfolio strategy definition
- Product portfolio categorization (PEFCR approach)
- Compliance monitoring (incl. Digital passport, ESPR readiness)
- Claims/communication guidance

Company & value chain

- GHG reporting (GHG protocol scope 1, 2 & 3)
- Scenario analysis
- Supplier engagement



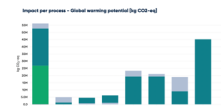
Product & Portfolio

- LCA (ISO14040/44)
- EPD (EN15804-A2)
- Portfolio analysis

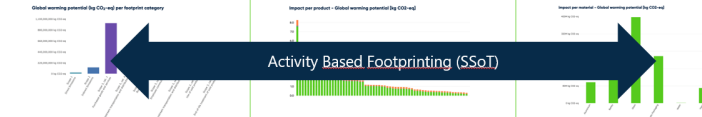


Process & material

- Hotspot analysis
- Scenario analysis



How we do it



- Environmental Impact Assessments
- Lifecycle analysis
- Circularity assessment



- Product Category Rules definition (PEFCR)
- Hotspots analysis

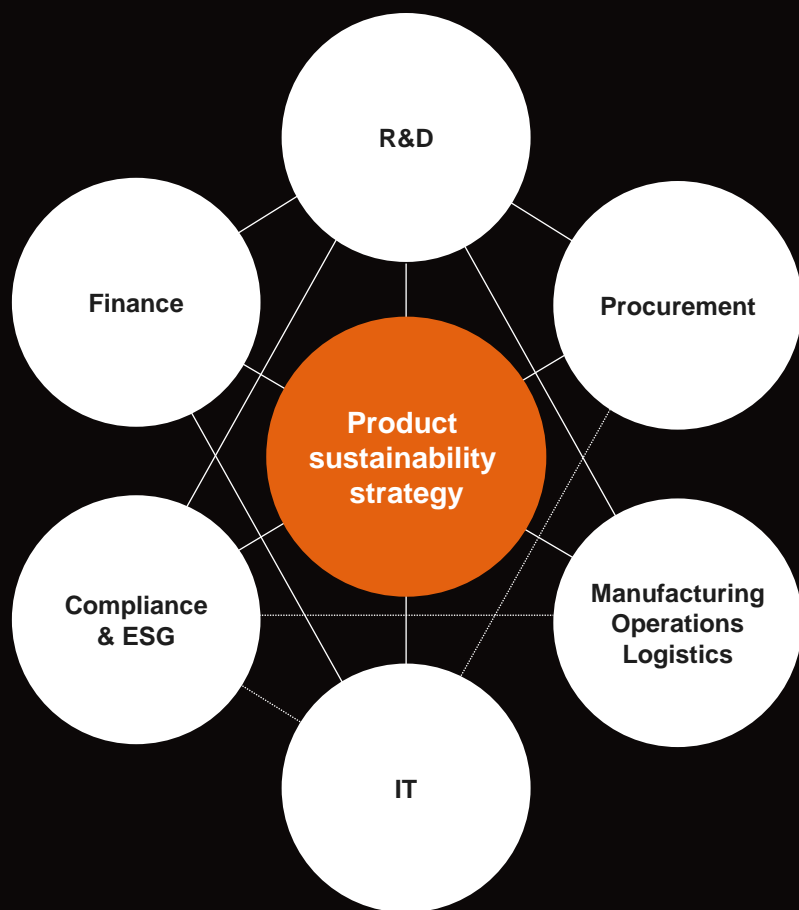


- Circular economy strategy (substitution, eco-design, industrial symbiosis)
- Sustainable and Safe by Design
- ESPR and Digital passport readiness assessment



- Claims and communication guidance
- Certifications benchmarking
- Stakeholders' engagement

Depending on the company maturity or level of ambition, we support the different functions in the organization to develop or implement product sustainability.



Regulatory compliance assessment for

- **Compliance and ESG** reporting
- **Manufacturing, Operations, Logistics** : anticipate impact on operations
- **Procurement** : anticipate requirements to be put on suppliers, selection criteria
- **Finance** : anticipate financial impacts of regulations



Product lifecycle environmental impact assessment as a tool for

- **R&D** : research for alternatives/substitutes, eco-design
- **Manufacturing, Operations, Logistics** : environmental performance, industrial symbiosis opportunities, ...
- **ESG reporting** : substantiated data



Digital services are key to be involved to collect and structure data required to perform such assessment as well as to enable automation of the assessment method.



Target setting and strategy definition will involve and have impact on all the levels of the organization.

Product sustainability leadership

We are the right partner to maximize positive impacts from your products.



References

Product Sustainability

 ARCADIS



Confidential client (pharmaceuticals)

Product Environmental Footprint (PEF) strategy

Client challenge:

Develop a science-based, consistent and robust methodology to perform product carbon footprint and lifecycle environmental assessment. Monitor the implementation of Group's sustainability strategy at product level.

Solutions:

- Develop product category rules in alignment with existing standards
- Piloting products carbon footprint
- Develop harmonized methodology for product carbon footprint
- Ensure group's sustainability strategy targets can be reflected in product environmental footprint assessment

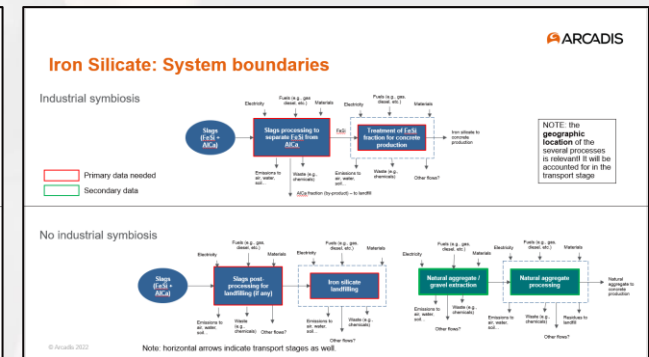
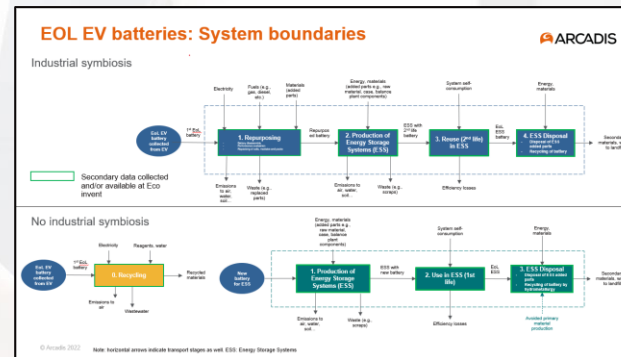
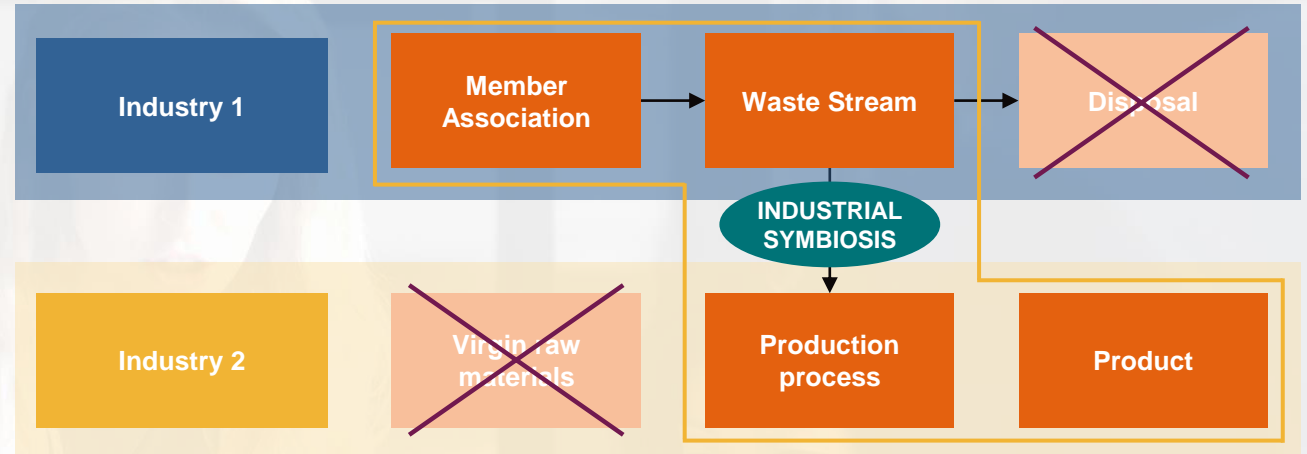
Industrial symbiosis analysis

Client challenge:

Evaluate potential opportunities of industrial symbiosis for waste streams generated by its members.
 Evaluate and quantify benefits in environmental and financial terms for 2 cases

Solutions:

- Research on the topic of industrial symbiosis in the copper sector (drivers / barriers / success stories / policies)
- Present to the association the potential opportunities identified
- LCA study on two opportunities to evaluate their environmental benefits
 - End of Life Vehicles EV batteries in energy storage applications
 - Iron silicate replacing aggregates
- Market analysis of the two opportunities to evaluate the economic feasibility (market size estimation and cost analysis)



Roadmap towards circular business model

Client challenge:

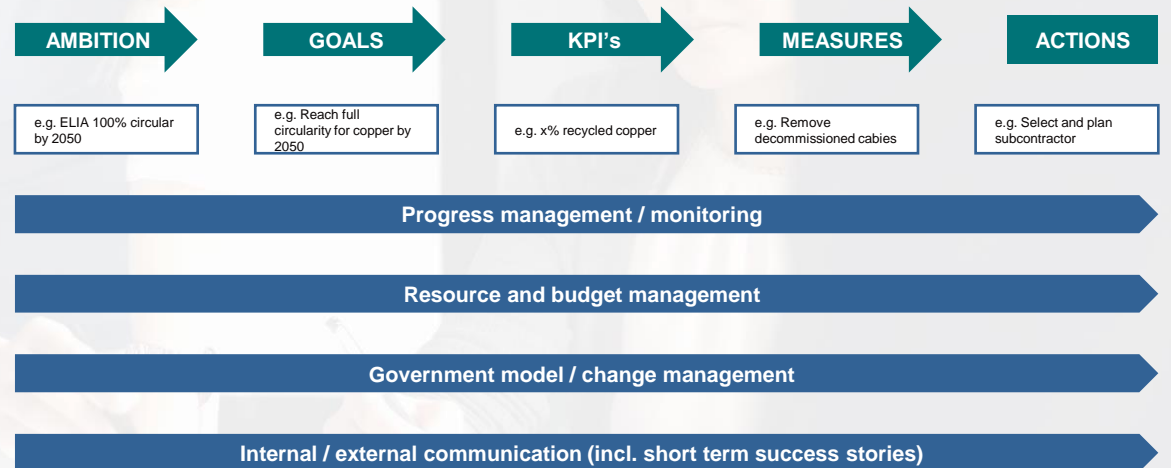
Understand what circular economy would mean for this sector.

Increase stakeholder engagement.

Develop a roadmap to include circularity in the business model.

Solutions:

- Organisation of a management workshop to introduce the concept of circularity and analyse opportunities
- Definition of circularity and overview of policies that are relevant for the sector
- Exploration and identification of the business case of circular economy applied to the client
- Development of roadmap and support in the implementation
- Evaluation of actions required based on legislative requirements in e.g., EU Taxonomy, CSRD, Environmental liability directive



Activity-based product environmental footprint

Client challenge:

Understand the footprint of a test strip manufacturing site.
 Guide the company with interpretation of results and definition of sustainability actions to improve sustainable production.

Solutions:

- Activity-based footprinting of the site
- Efficient ISO-conform LCA footprint of the value chain of all products produced on site
 - Data gathering
 - Data analysis
 - Evaluation and reporting
 - External verification

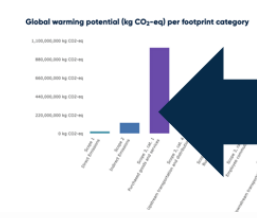


Glucose Testing



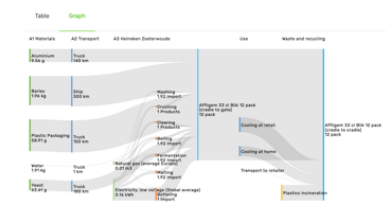
Company & value chain

- GHG reporting (GHG protocol scope 1, 2 & 3)
- Scenario analysis
- Supplier engagement



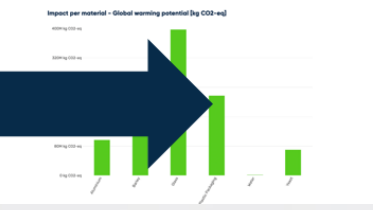
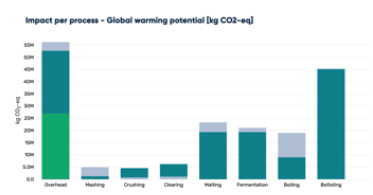
Product & Portfolio

- LCA (ISO14040/44)
- EPD (EN15804-A2)
- Portfolio analysis



Process & material

- Hotspot analysis
- Scenario analysis



Activity Based Footprinting (SSoT)

Sustainability strategy

Client challenge:

Develop a definition for their sustainability strategy.

Solutions:

- Collaborate with a core group dedicated to the definition of the basis of the strategy through several workshops with key stakeholders
- Define the vision, values, communications, roles, needs, and actions for the association
- Set a direction to move forward with the finalisation of the strategy



Re-use of tertiary packaging

Client challenge:

“Passive shippers” used to transport “cold drugs” globally requesting a proper waste management system at location of delivery.

Ensure proper reuse of Passive Shipper by implementing return flow and re-use process in collaboration with the pharmaceutical producer. Increase circularity.

Solutions:

- Design of return flow and re-use process
- Identify and manage operational changes – reverse logistic flow
- Communicate with suppliers and distribution centers, build business case
- Financial assessment: assess the financial impact of the new process
- Environmental assessment using LCA: comparing different scenarios (number of re-use cycles, % lost in the flow, ...)



Soil decontamination lifecycle assessment

Client challenge:

The client has developed a soil decontamination process aiming at removing PFAS while improving circularity by enabling re-use of decontaminated soil. The client is requested by its customers to report about the climate impact of this solution.

Solutions:

- Considering the confidentiality of process data and reporting purposes, Arcadis supported the selection of adequate LCA methodology and reporting format.
- Arcadis performed the lifecycle assessment in alignment with the client’s requirements, while ensuring compliance with standard requirements.
- Climate change impact of the process was evaluated and put in comparison with existing reference.



2 Environmental Performance – Results

2.1 Environmental impacts

The following environmental impacts refer to the functional unit. In other words, they describe the impacts related to the remediation of 1 ton (wet mass) of contaminated soil via the soil washing process, as described by the system boundaries.

Table 4. Environmental impacts according to the categories selected by the EPD 2018 method.

Parameter	Unit	Upstream	Core	Downstream	Total
Global warming potential	kg CO2 eq.	Confidential			
Acidification (fate not incl.)	kg SO2 eq				
Eutrophication	kg PO4--- eq				
Photochemical oxidation	kg NMVOC				
Abiotic depletion, elements	kg Sb eq				
Abiotic depletion, fossil fuels	MJ				
Water scarcity	m3 eq				
Ozone layer depletion (ODP) (optional)	kg CFC-11 eq				

The global warming potential indicator (climate change) reports a total impact of **XXX CO₂ eq** per ton of soil entering the treatment process.

Product Carbon Footprint and Scope 3 GHG emissions accounting

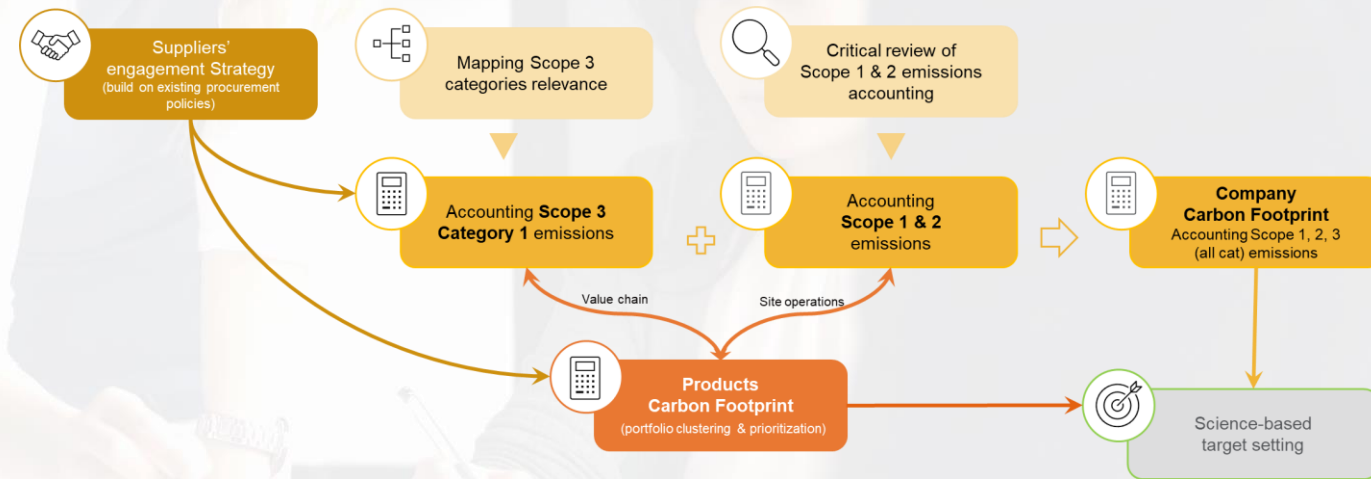
Client challenge:

The client is increasingly facing the demand for Product Carbon Footprint (PCF) reporting from its customers.

The company is required to report its Scope 3 GHG emissions and faces major challenges to account for Scope 3 category 1 emissions.

Solutions:

- Arcadis supported the client in piloting Product Carbon Footprint (PCF) calculations for a group of products, following Together for Sustainability guidelines. We developed a dedicated tool and guidelines to enable future PCF calculations.
- Arcadis supports further to company's climate strategy definition with product portfolio carbon footprinting and accounting of Scope 3 GHG emissions related to purchased goods and services.



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