



## nova-Institute's Sustainability Department



# Life Cycle and Sustainability Assessments

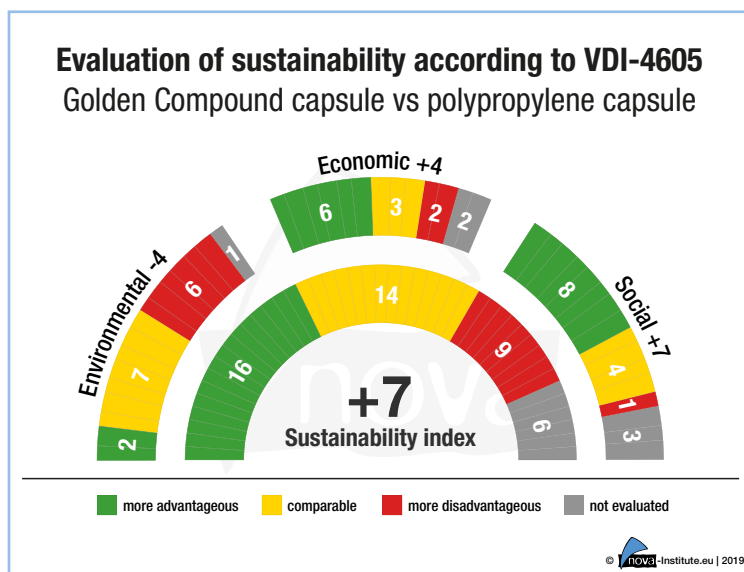
## Use our knowledge to your advantage - 25 years of expertise in chemicals and materials from renewable feedstocks

Life Cycle Assessment (LCA) is the most reliable method to identify environmental issues within a process and verify claims of sustainability advantages. It identifies hot spots in processes, materials and products, providing a benchmark against which improvements can be measured. It provides transparent and reliable data to compare products, enabling producers, providers and customers to make well informed decisions.

Sustainability assessments go beyond classic life cycle assessments, for example, they integrate questions of safety as well as social and economic aspects.

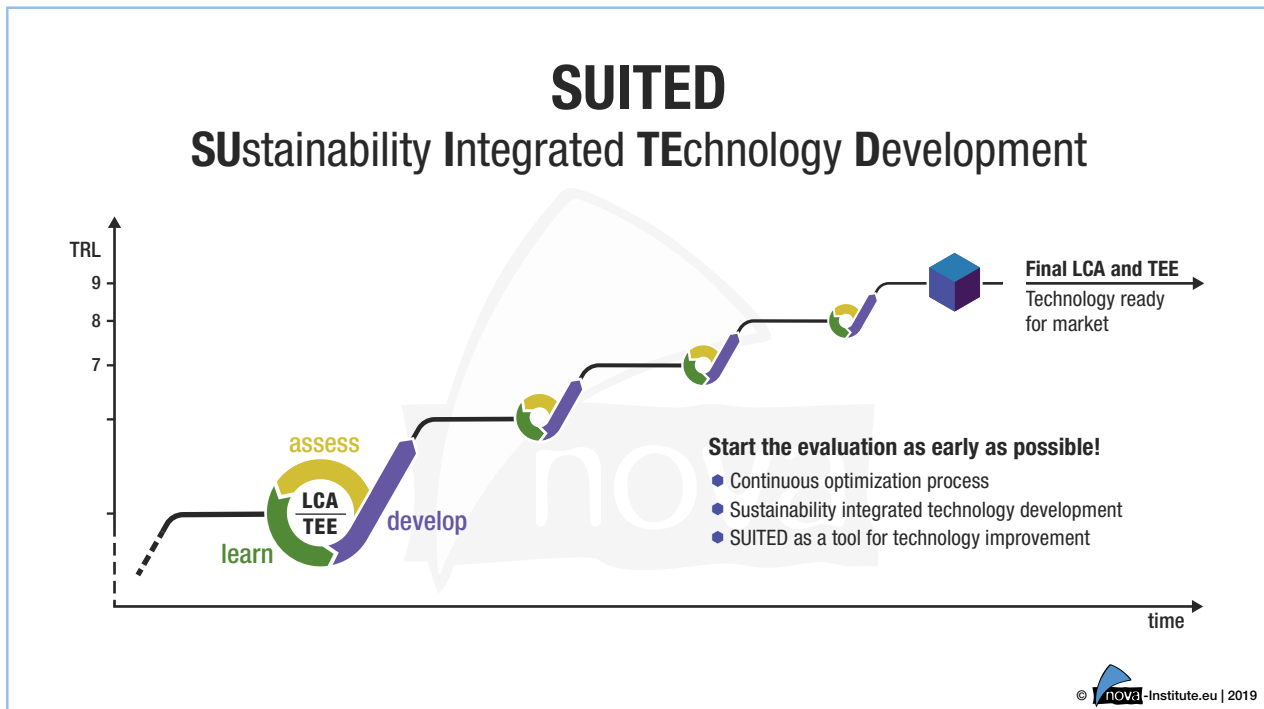
## Our sustainability services in detail

- Tailor-made Life Cycle Assessments based on
  - ISO 14040:2006, ISO 14044:2006,
  - ILCD handbook, EUR 24708 EN
  - EN 16760:2015 Bio-based products
    - Life Cycle Assessment
  - Product Environmental Footprint (PEF) 2016
- Develop customized carbon footprint calculation tools
- Critical reviews of LCA studies
- Evaluation of sustainability, VDI guideline 4605, Oct. 2017
- Social Impact Assessment (SIA)
- Techno-Economic Evaluation (TEE) and Life Cycle Costing (LCC)
- SUsustainability Integrated TEchnology Development (SUITED)
- Support in sustainability certifications and labelling



Results of the evaluation of sustainability according to VDI-4605 of coffee capsules commissioned by Golden Compound GmbH.  
Publication link: [www.bio-based.eu/ecology](http://www.bio-based.eu/ecology)

# Life Cycle and Sustainability Assessments



## Unique strengths of nova-Institute's Assessments

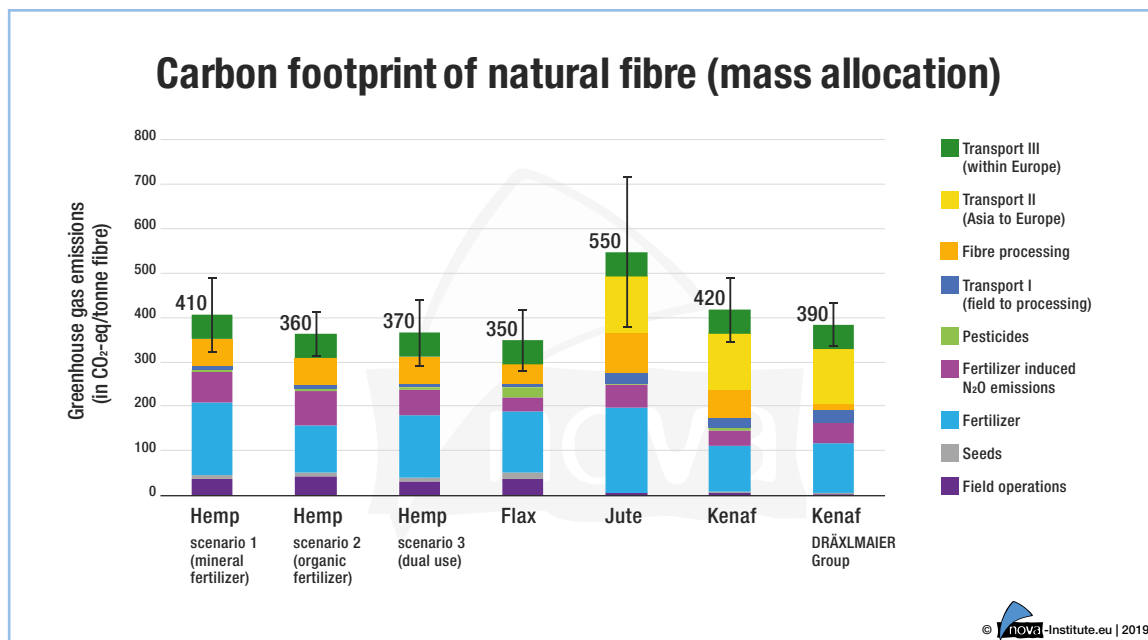
- Iterative approach with valuable learning outcomes for further process and product development
- Able to cover early stage production systems (low TRL) for optimization and continuous feedback loop within process scale (SUITED)
- Applying a wide range of methods suitable for the goal and scope of the specific process or product (system expansion, avoided burden and mass, energy, economic and RED/FQD allocation)
- Comprehensive sensitivity and uncertainty analysis incl. scenario analysis and Monte Carlo simulations
- Professional presentation for optimal communication of the results: LCA can be a powerful communication tool to stakeholders
- Beyond sustainability: Comprehensive knowledge in the area of bio- and CO<sub>2</sub>-based materials and fuels e.g. to optimize the raw material, technology, product strategy and to find the right partners

# Life Cycle and Sustainability Assessments

## LCA and Sustainability Assessments for chemicals and materials from renewable feedstocks

nova experts have comprehensive experience in LCA, TEE, LCC, SIA and sustainability assessments on:

- Chemicals and building blocks
- Fine chemicals
- Polymers and plastics
- Fibres and biocomposites
- All renewable carbon feedstocks
  - Biomass (food, non-food, biowaste)
  - CO<sub>2</sub>
  - Recycling
- Biorefineries, chemical recycling, biotechnology



Carbon footprint and sustainability of different natural fibres for biocomposites and insulation materials, nova-Institute 2019  
Publication link: [www.bio-based.eu/ecology](http://www.bio-based.eu/ecology)

# Our knowledge and expertise to your advantage

## Advanced research for your needs

You are looking for the right partners to establish a value chain? You are considering alternative process routes for your product or raw materials? You need more information on your potential markets and customers? The influence of recent policy decisions on your business is not clear or you are looking for politically induced trends?

You are thinking about a sustainability communication strategy? We at nova are an interdisciplinary team with specialists in the fields "Technology & Markets", "Economy and Policy" and "Communication". Our expertise in diverse industries guarantees you a comprehensive service that perfectly fits your needs.

## Efficient and consistent: all services from a single provider. Consider all aspects of sustainability with comprehensive scenarios in LCA, TEE, LCC and SIA

nova-Institute's free publications on sustainability:  
[www.bio-based.eu/ecology](http://www.bio-based.eu/ecology)

## Selected customers



# Our expert team for you



## Experts from the Sustainability Department



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The sustainability department works in close cooperation with the nova department "Technology & Markets" for a detailed insight into the processes, with the nova department "Economy & Policy" for a deep understanding of the economic and political framework and with nova department "Communication" for an optimal communication of the results.



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**nova-Institute** is a private and independent research institute, founded in 1994; nova offers research and consultancy with a focus on the transition of the chemical and material industry to renewable carbon. We offer our unique understanding to support the transition of your business into a climate neutral future. nova-Institute has 35 employees and an annual turnover of more than 3 million €.

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