



FlexSNG

Supply chain optimization

Topical workshop 03 November 2022



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Introduction

- Supply chain optimization
- Understanding the complexity
- Boundaries of the supply chain perspective



CREATIVE OPTIMIZATION

- Optimization at core (research and innovation)
- Woodflow – Decision support system
- Bioenergy supply chain optimization

Customers using decision support systems from Creative



SVEASKOG



Sydved



MELLANSKOG



VIDA



norra
skog



SCA



SÖDRA



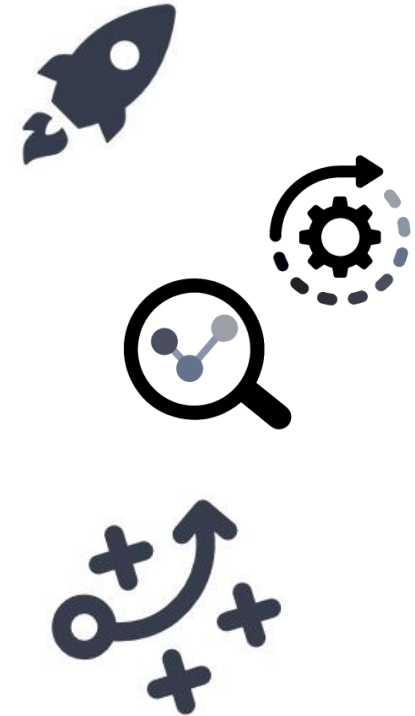
HOLMEN



storaenso

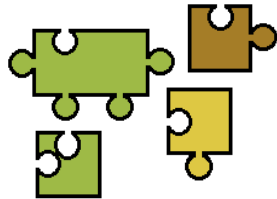


LKAB



Challenges in the supply chain - Bioenergy

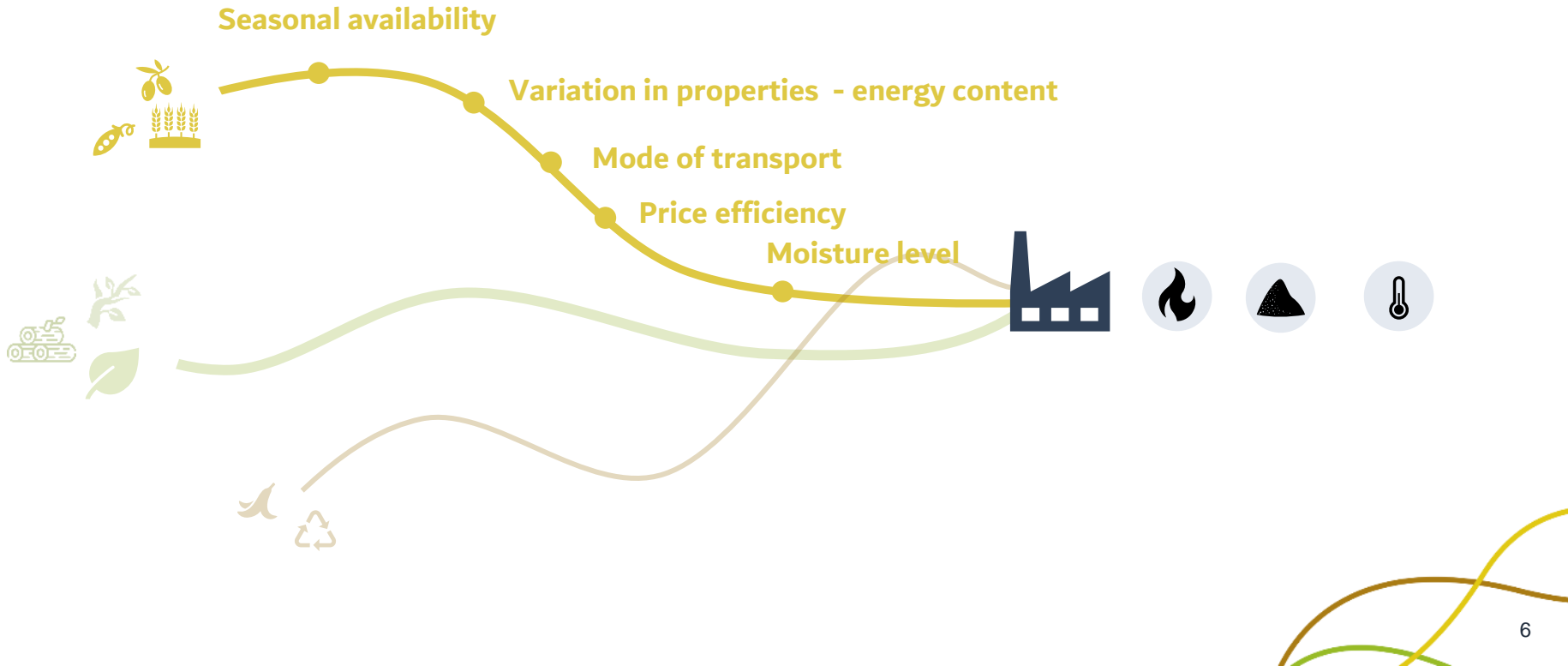
- Understanding the boundaries in the supply chain
- We also have to add the co-development and collaboration
- Modelling approach to real activities in the supply chain
- Differences between countries and geographical areas



Challenges in the supply chain - Bioenergy



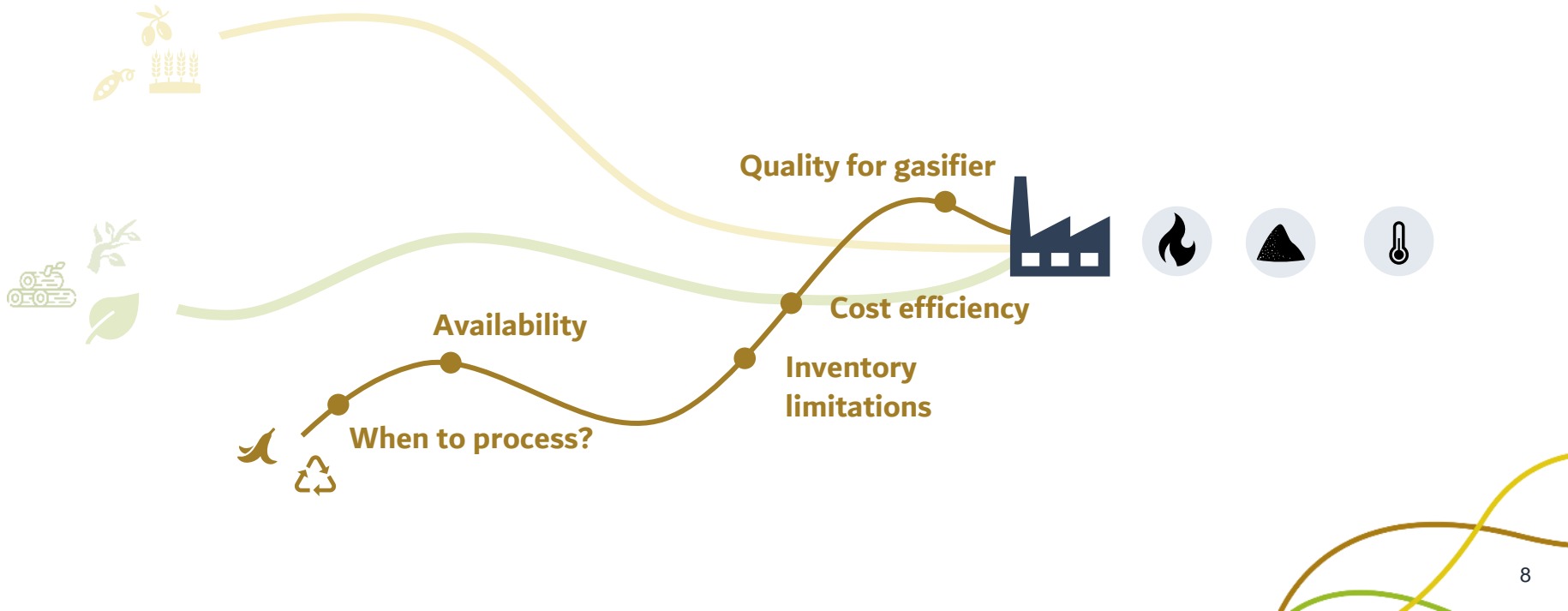
Challenges in the supply chain - Agro



Challenges in the supply chain – Forest biomass



Challenges in the supply chain – Municipality solid waste



Challenges in the supply chain – Gasification plant



Summarizing the complex challenges to solve in the FlexSNG supply chain

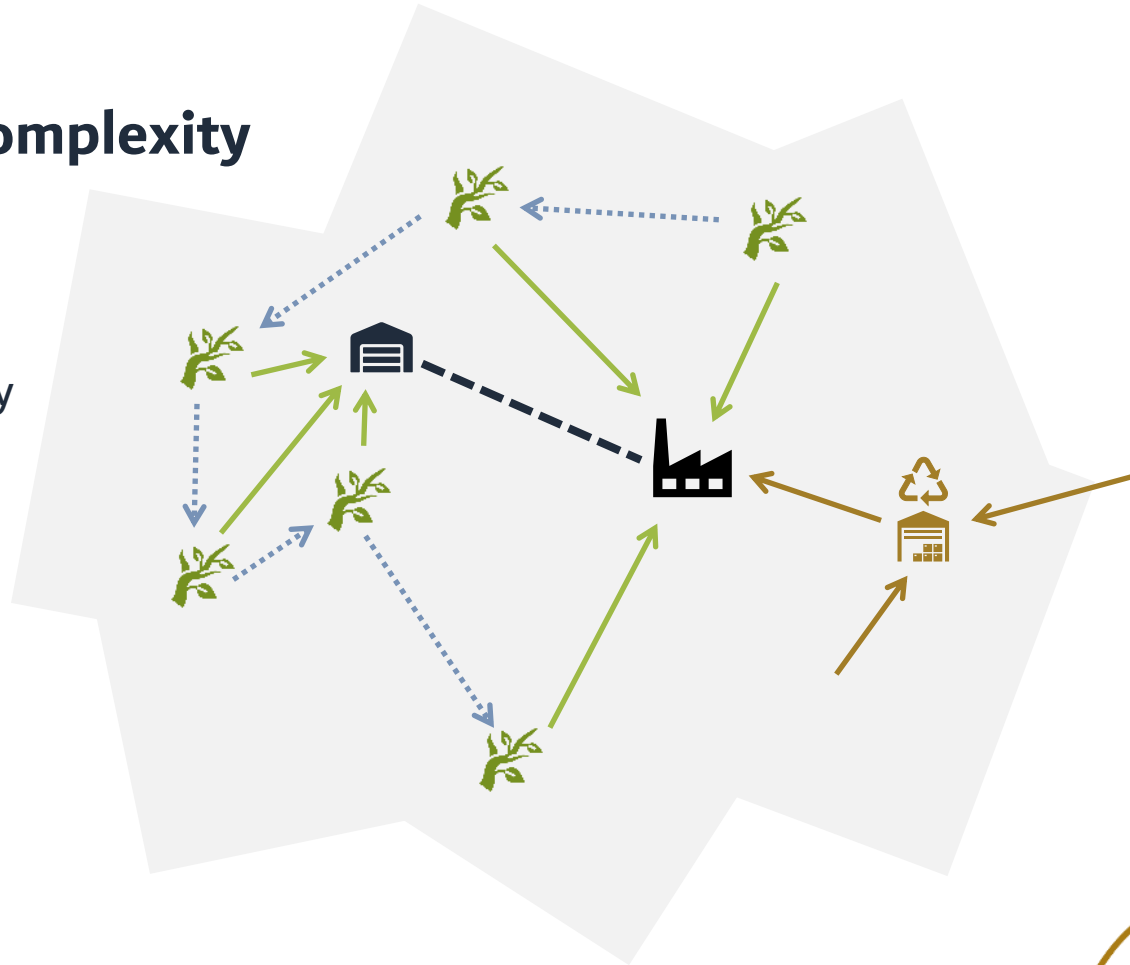
- Process selection – when and where (Chipping, micro-chipping, drying, sorting, mixing)
- Mode of transport
- Road network and correct distances
- Time periods
- Inventory utilization
- Seasonal variability
- Quality of feedstock
- Demand / campaigns for production
- Price and cost
- And more





Increased complexity

Understanding
processes and
resource capacity
/utilization



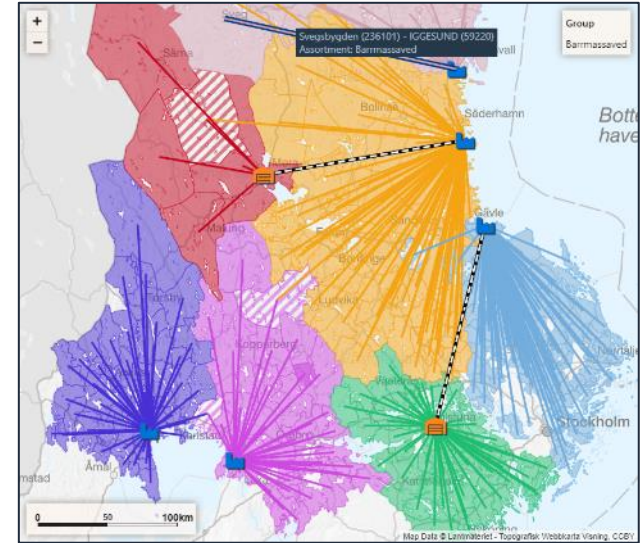
Woodflow



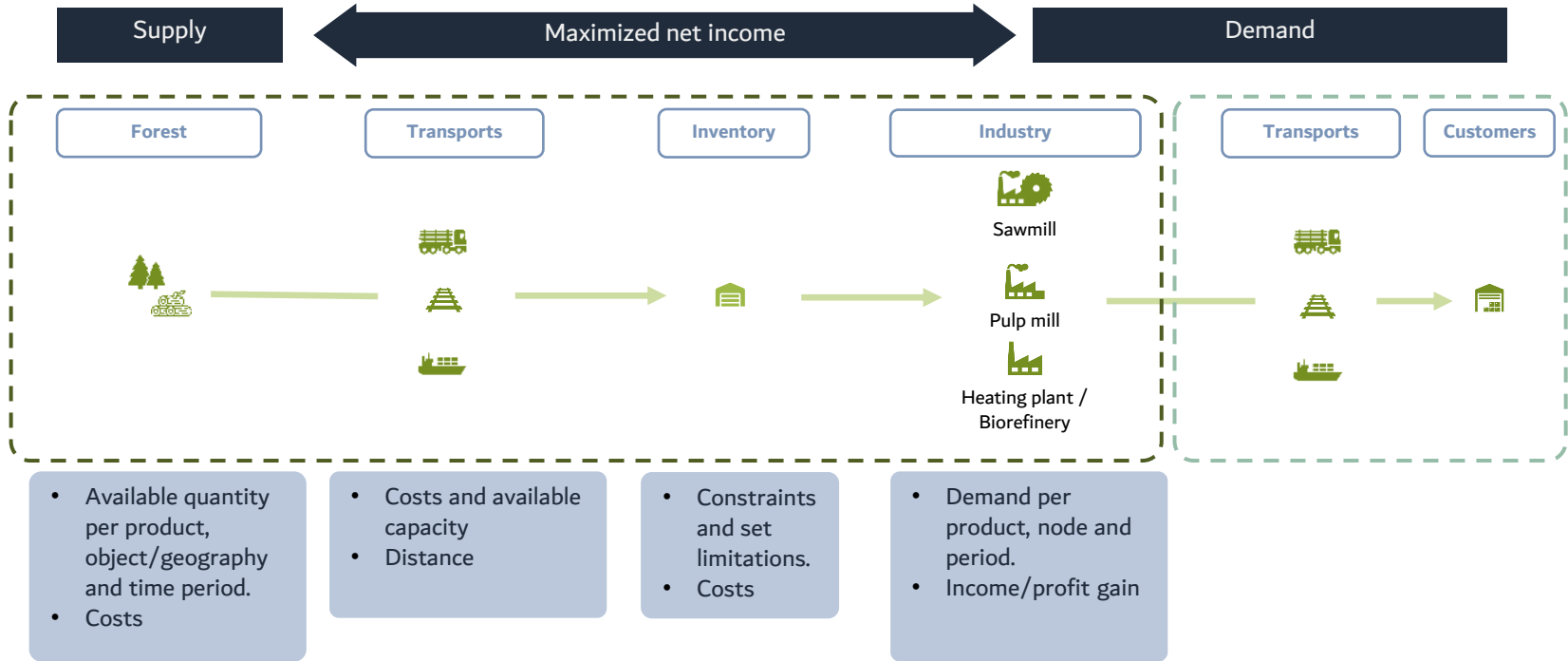
Optimizer + Processes

A decision support system optimizing timber flow from forest to mill with data-driven intelligence by identifying inefficiencies and optimizing resource allocation

- ✓ Woodflow improves transportation planning increasing revenue and reducing costs
- ✓ Used on operative, tactical and strategical level in the value chain.
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- ✓ Solves transportation disruptions of all complexities using data such as distances, costs, capacity, etc.
- ✓ Designed for applications globally with a high degree of customization to suit local markets
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Woodflow



Further development - FlexSNG specific processes

- Quality over time and yield
- Resource sequencing and utilization
- Handling of campaigns and recipes for gasifier
- Co-handling of assortments in the value chain
- Collaboration between partners
- And more



Available feedstock and case studies

Feedstocks identified as interesting in case studies through screening availability and price



Looking ahead in the project

- Adapting conditions for the individual case studies
- New inputs & constraints for the optimization model
- Attributes, activities, process performance, resource utilization etc.
- Further development to modelling approach

Thank you!



www.flexsng.eu

info@flexsng.eu

<https://www.linkedin.com/company/flexsng-project-h2020/>

<https://twitter.com/flexSNG>

