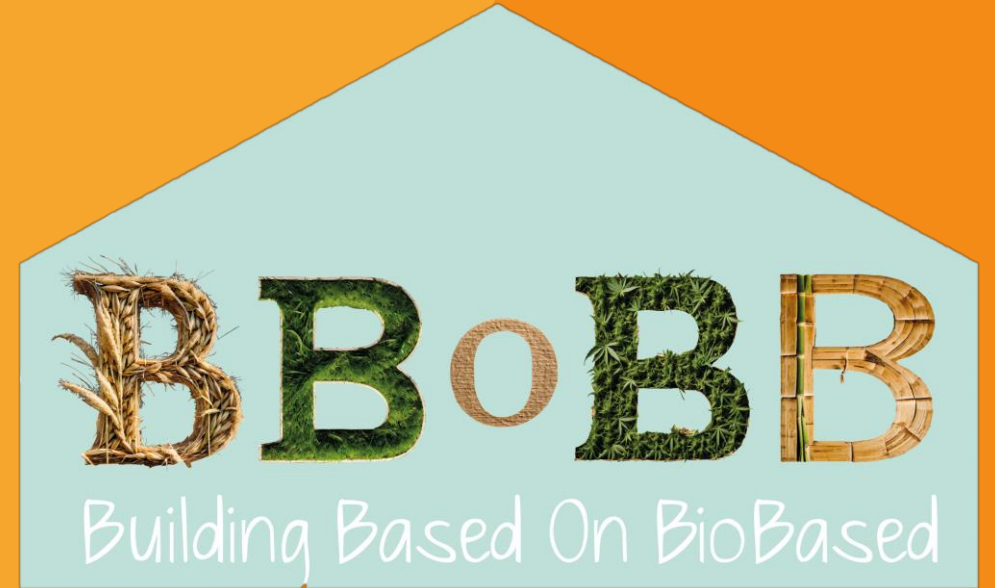


Dansk Bioøkonomi Konference  
2 October 2024  
Nykøbing Falster | Denmark

Thank you for your invitation!

Eileen Blackmore  
eileen@houseofdesign.nl



Interreg  
North Sea



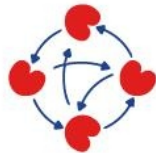
Co-funded by  
the European Union

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BBOBB

# Partner in the Dutch cluster

provinsje fryslân  
provincie fryslân



**CIRCULAIR  
FRIESLAND**

**HOUSE OF DESIGN**



**biosintrum**



**BBOBB**

**Interreg  
North Sea**



Co-funded by  
the European Union

# House of Design

Founded in 1996.

We design circular system strategies;  
herefor we initiate and organise projects;

together with product designers and architects,  
to make the change visible and tangible;

through participatory action research.

Our projects find place in the North of NL and Europe.

*planet*  
~~HUMAN~~ CENTERED DESIGN  
*for human use*

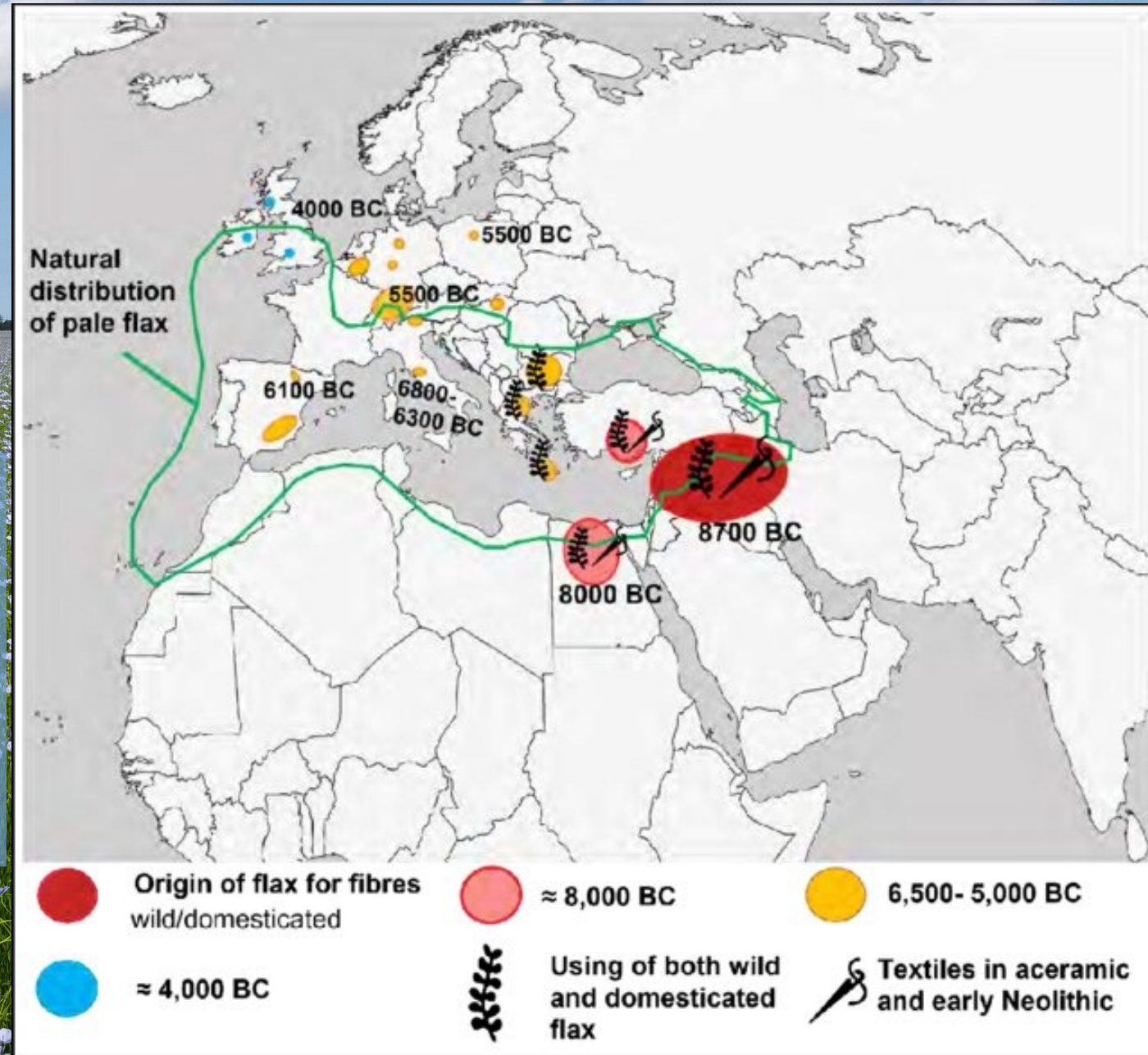
HOUSE OF DES/GN



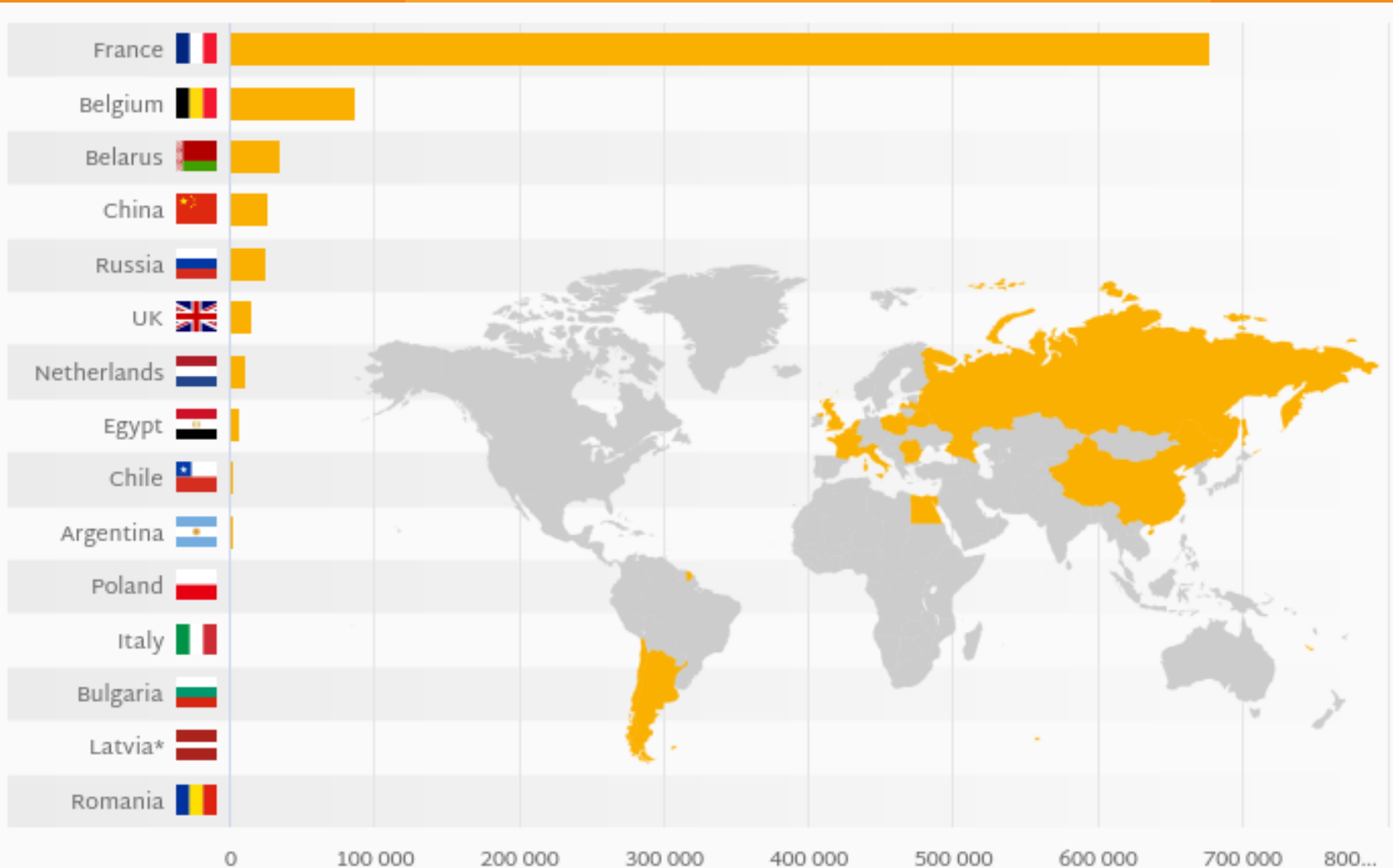
# Let's talk about FLAX

In ancient times

- 18th/19th century peak
- Decline of flax cultivation 1960-ies



# Let's talk about FLAX



Source: Faostat, \* Data from 2020

# Flax in North Sea Region

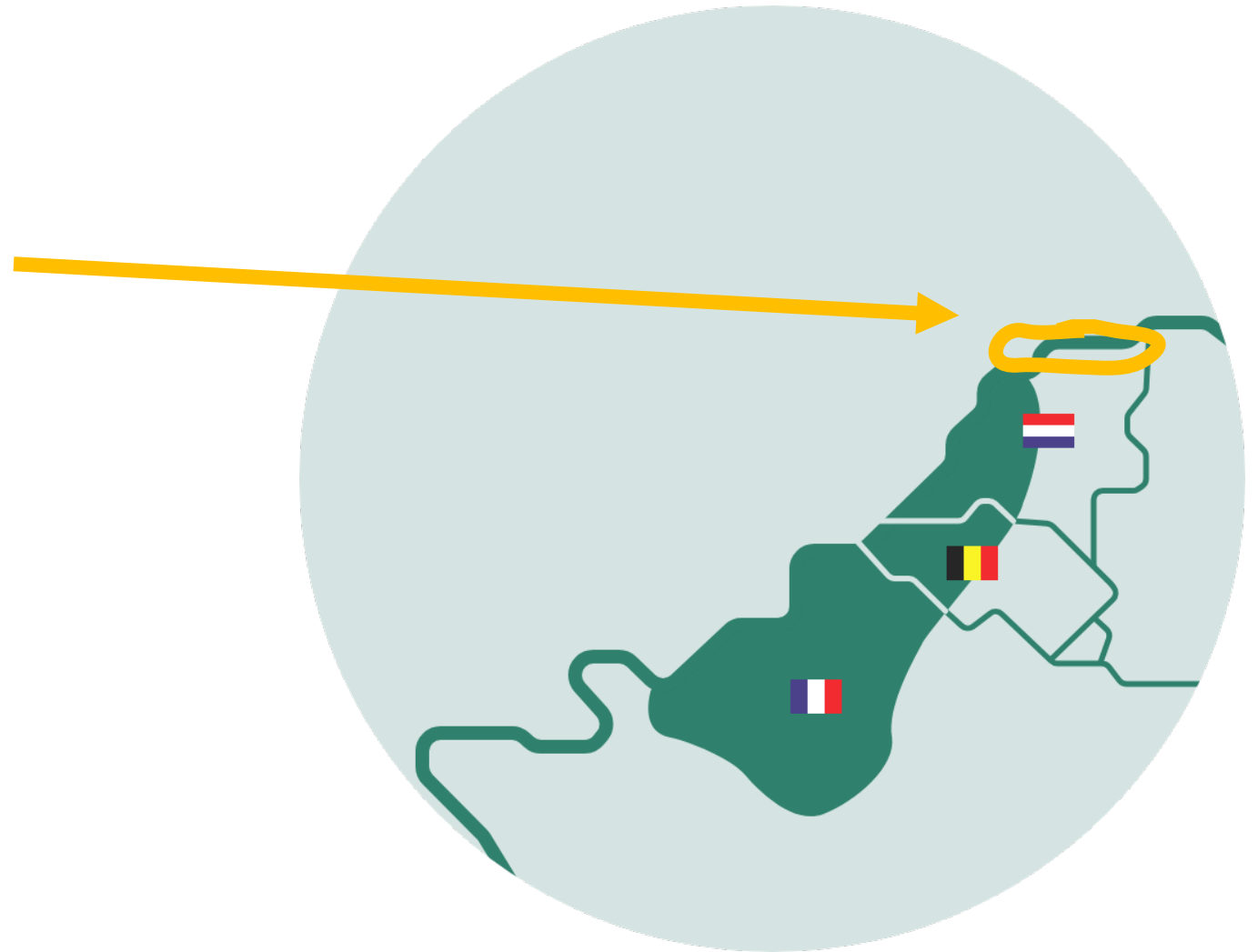
France: +/- 160,000 ha

Belgium: 20,008 ha

Netherlands: 3,600 ha + new region

Germany: 0 ha

Denmark:



In 2021: 2 ha – 4 farmers

In 2024: 65 ha flax – 14 farmers - in North Netherlands



# 1 ha is good for:

Long fibre



OR



OR



OR



+

Short fibre



+



Shives

WadKnuffel  
0,40 m<sup>2</sup>  
7.576 pieces

WadTas  
1,50 m<sup>2</sup>  
2.020 pieces

WadColbert  
1,70 m<sup>2</sup>  
1.783 pieces

WaddenGordijn  
6,60 m<sup>2</sup>  
459 pieces

Insulation  
54 m<sup>2</sup>  
0,6 houses

Panels  
89 m<sup>2</sup>  
0,3 houses

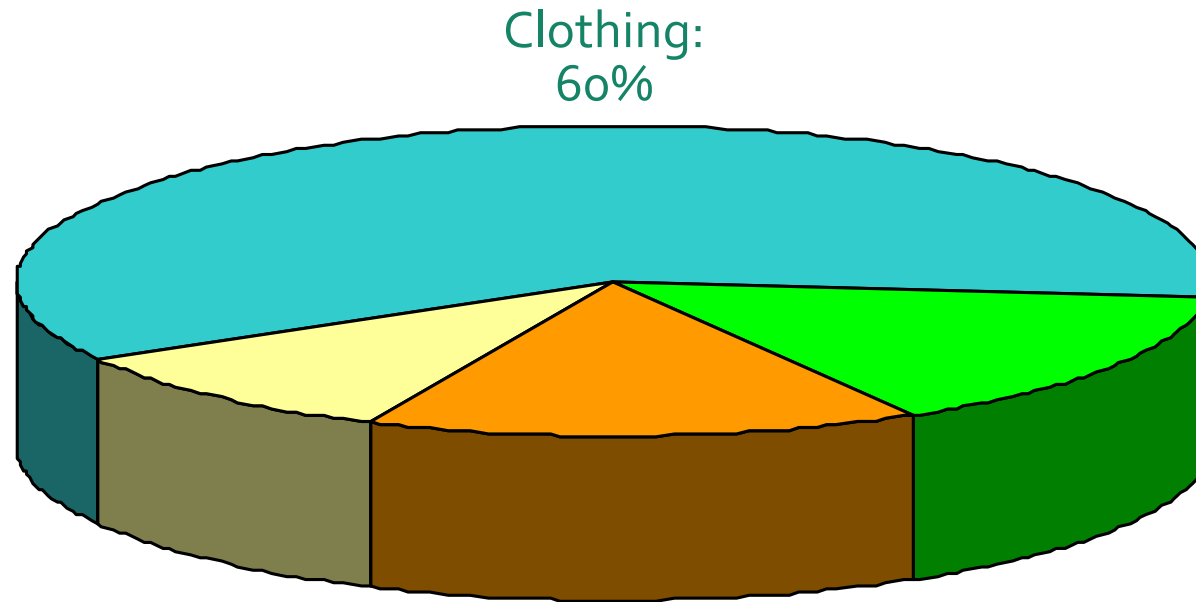
20% of the fibre = 80% of the profit

80% of the fibre = 20% of the profit



# Flax in products

## Current sales of flax fibres



House hold linen  
15%



Technical &  
industrial  
Purposes  
10%

decorative and  
uphostery  
15%



# Flax in products

.. and also for



# Flax from The Netherlands

## Flax long fibres for textiles:

- a. goes to China: 84%
- b. goes to Europe: 15%

## Flax long fibres for composite mats:

- a. goes to China: 0%
- b. goes to Europe: 1%

## Flax short fibres for textiles:

- a. goes to China: 60%
- b. goes to Europe: 40%

## Flax shives:

- a. for stables: 90%
- b. product < 5%
- c. board material < 5%

## Residual material for insulation: < 5%

## Flax seed for food:

(animal and human consumption);

- a. goes to China: <10%
- b. goes to Europe: > 90%

## Flax seed for oil:

- a. goes to China: 0%
- b. goes to Europe: 100%



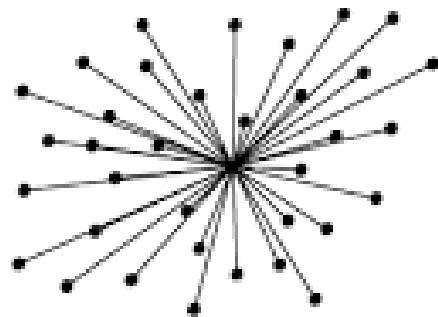
# Local Value Chain: Flax

Almost 85% of the long flax fibre of NSR is exported to China

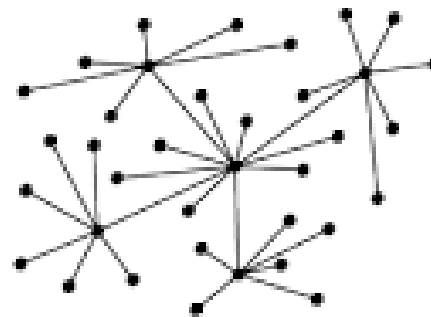
What steps are needed to scale up the flax biobased economy in the NSR?

>>

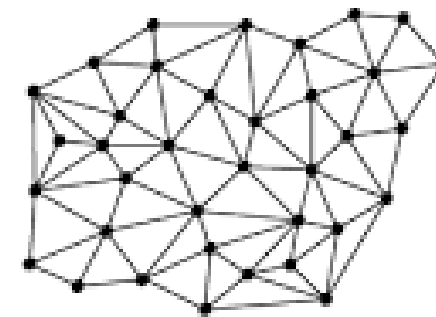
Setting up local value chains in the NSR and link them together creating a **distributed system**



centralised



decentralised



distributed



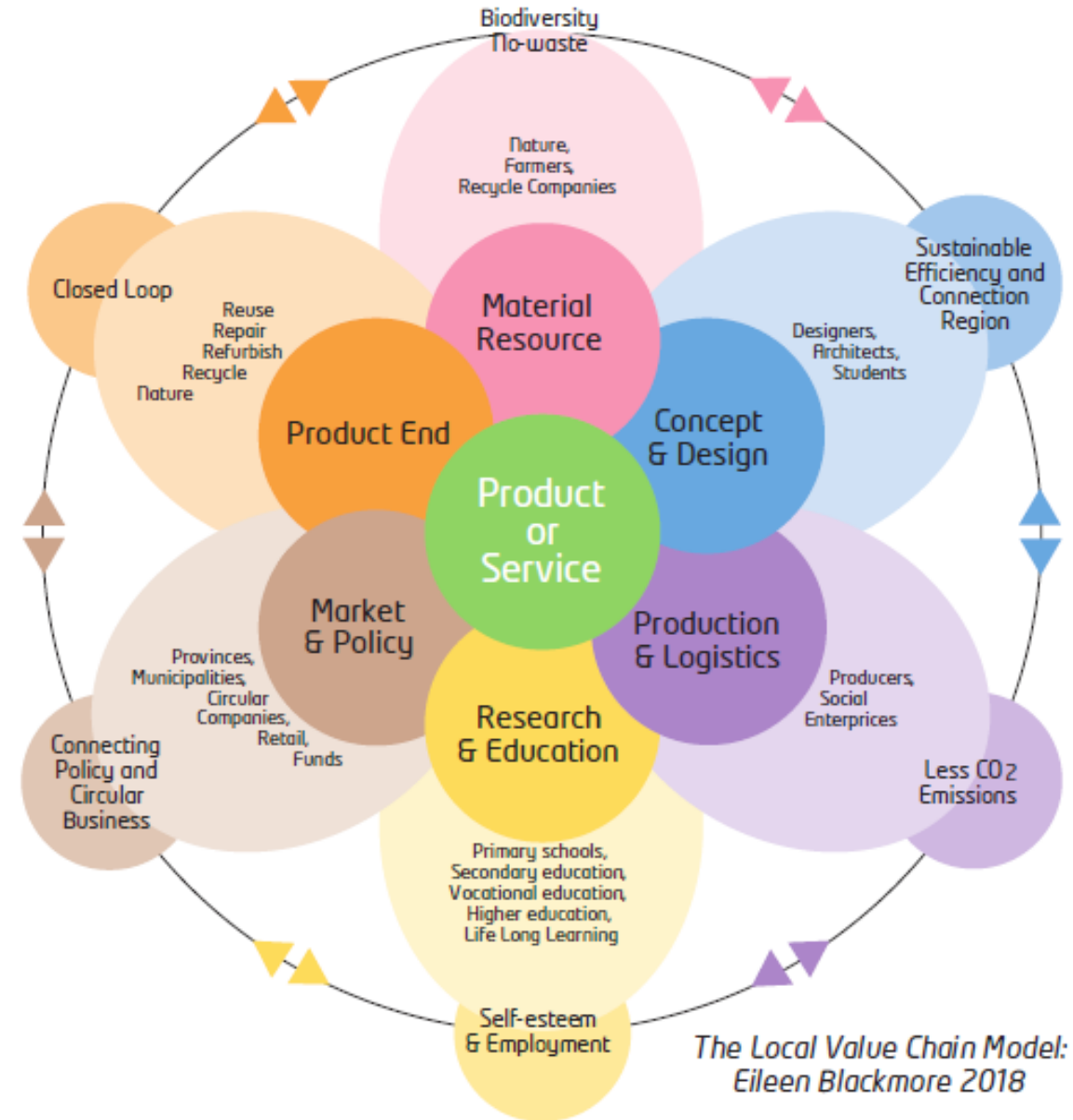
# Local Value Chain: Flax

Creating a distributed system

Setting up local value chains in the NSR.

Cooperations between:

- Farmers
- Designers and architects
- Factories and producers
- (Vocational and Higher) Education institutes
- (Launching) Customers, governance
- Repair, Remake, Recycle facilities



# BBoBB – crops in NSR

Flax



Hemp



Cattail



Miscanthus



# Some Value Chain activities in BBoBB

- Mapping > what **links are missing** in the value chains?
- Identify **the orchestrators and initiatives** in the region
- How can **policy** contribute?
- Insights on **impact to environment** including these crops in cultivation plans
- Designers and architects create **tangible examples** using different crops
- Sessions to inspire **all value chain members** from farmers to policy makers



# FLAX in North NL 2024

BBOBB



## Agro



## Industry



## Construction



Who selects the land?	Who decides the use of the land?	Who supplies the inputs?	Who grows the crops?	Who harvests the crops?	Who transports the product?	If necessary, who owns storage?	If necessary, who dries the product?	Who processes the product?	Who produces (construction) material?	Who applies the product?	Who owns the building?	Who is the end user of the building?	Who is the owner of the materials?
Flax Cooperation Northern NL together with Van de Bilt Zaden en Vlas	Flax Cooperation Northern NL together with Van de Bilt Zaden en Vlas	Flax seeds are bought from Van de Bilt Zaden en Vlas	Different farmers in the North of NL (in 2024 14 farmers)	Flax harvesting machines are hired from Van de Bilt Zaden en Vlas	Farmers store the rolls of flax	Farmers store the rolls of flax before Van de Bilt collects them. Then Van de Bilt stores the rolls to be scutched.	If flax seed is harvested, first the farmers then Van de Bilt stores and dries the seeds.	Scutching is done by Van de Bilt	Long fibres go to wet spinning mills	Yarn for industrial textile or fashion	Cloth or garments	Composites, upholstery or fashion brands	Recycle companies or fashion brands
		Sowing is done by different agricultural contractors		Flax harvesting machines will be bought in 2025 by Flax Cooperation NNL x Van de Bilt	Van de Bilt Zaden en Vlas arranges transport			Rippling by Van de Bilt	Short fibres go to dry spinning mills	Industrial textiles industry	Cloth or carpets	Upholstery or industry	?????
								?????	Short fibres go to construction companies	Industrial textiles industry	Carpets for composites	Upholstery or industry	?????
									Shives goes to insulation companies	Insulation construction industry	construction industry	construction industry	?????
									Seed for linseed oil processing	Oil pressing industry	Flooring industry / linseed paint industry	Flooring companies / paint companies	Flooring companies / paint companies
Who is involved throughout the biobased value chain?		Who spreads knowledge?		Who conducts research?		Who finances?		Who sets boundaries?					







CROP	FLAX													
REGION	South West Flanders													
Flow	Land selection	Land management	Sowing	Growing	Harvesting	Storing	Transporting	Drying	Semi-finished	Production semi-finished	Processing materials	Realised building, products	exploitation, sale	Re-use
Explanation	Who selects the land?	Who decides the use of the land?	Who supplies the inputs?	Who grows the crops?	Who harvests the crops?	Where is the product stored	If necessary, who owns	If necessary, who dries the	Who processes the product?	Who produces (construction)	Who applies the product	Who owns the product		
First flow	Flax processors have flax grown under contract with farmers. South West Flanders has 30 flax processing companies (43% of the 71 processors in Europe in 2019)	First line flax processors in make contracts with independent farmers and farming companies	Several companies supply the seeds such as Braet NV, Albert Brille, ...	First line flax processors in cooperation with independent farmers and farming companies (fields are in fact rented to the processors)	First line flax processors do the harvesting	At the farms or at the first line flax processors	First line flax processors	Flax is first retted on the field itself, only then it is rolled up and transported for storage	Scutching is done by 30 first line flax processors, mainly long existing family businesses in the close region	Long fibres go to spinning mills in Asia or Poland (e.g. Flemish Lambrecht in subsidiary company in Oekonek) to make yarns for the textile industry. Few spinning mills in Flanders (e.g. Sofacover)	Textile industry for the production of linen clothing	Linen clothing - Fashion brands	?????	?????
km	0	0	?	0	<50km	<50km	<50km	0	<50km	<50, 1.100 or 10.000				
Second flow									About 20 secondary processors process the short flax fibres (the rags) into raw materials (this can be the same companies as the first processors)	Short fibers: Good fibers are made into car upholstery, ultra-light composites. Lower quality into paper, acoustic / isolation material, plasters and compresses, etc.	Yarn for interior decoration applications. 6 West-Flemish regional weavers in niche high end interior and decoration linnen	> High end linen appare! > upholstery / decoration > household linen > technical: fabrics for print and dye, composite, embroidery, artist canvas	?????	?????
									<50km	Location?	<50, 1.100 or 10.000 km to BE	regional		
Third flow									Cotonisation of flax by regional processors (e.g. Vanneste Jos)	>Flax seeds for nutrition purposes, processed by 4 regional family businesses; Vandeputte, Scaldis, Linagro, Braet >Also for paints applications	Building materials; > sheet material, walls (Faay NL) > thermic / acoutstic isolation (Isovias NL)		?????	?????
Km									<50km	<50km				

# Finding the balance

How can we divide the  
North Sea Region:

Food – Feed,  
Product – Building,  
Nature - Living

To become less dependent of other  
continents.



We need you to make the change  
from plastic soup to veggie soup ;-)

as a launching customer  
as an orchestrator  
as a designer  
as a farmer  
be a customer

Thank you!  
[eileen@houseofdesign.nl](mailto:eileen@houseofdesign.nl)

