



VI ETABLERER DEN SIRKULÆRE VERDIKJEDE FOR TRE

Prosjektdeltaker | www.sirktre.no

Smart og langsiktig bruk av trevaren vi har tilgjengelig

Woodworks Konferanseuke
Kristine Nore
13. juni 2022



Partnere med del av verdikjede

● ● Omtre	● ● ● ● ● Norwegian Wood Cluster
● ● Ragn-Sells	● RingAlm
● Hunton	● Forestia
● ● Aanesland Fabrikker	● ● Looping
● ● Norsk Massivtre	● ● Boligpartner
● Landheim	● ● LY Hytta
● ● Statsbygg	● Sirkulær Ressurssentral
● Fragment	● Haugen Zohar Arkitekter
● Ola Roald Arkitektur	● Grape Architects
● ● Store Norske Boliger	● ● Standard Norge
● ● Viken Skog	● ● Norges Skogeierforbund
● ● Glommen Mjøsen Skog	● ● FutureBuilt
● Manufacturing Technology	

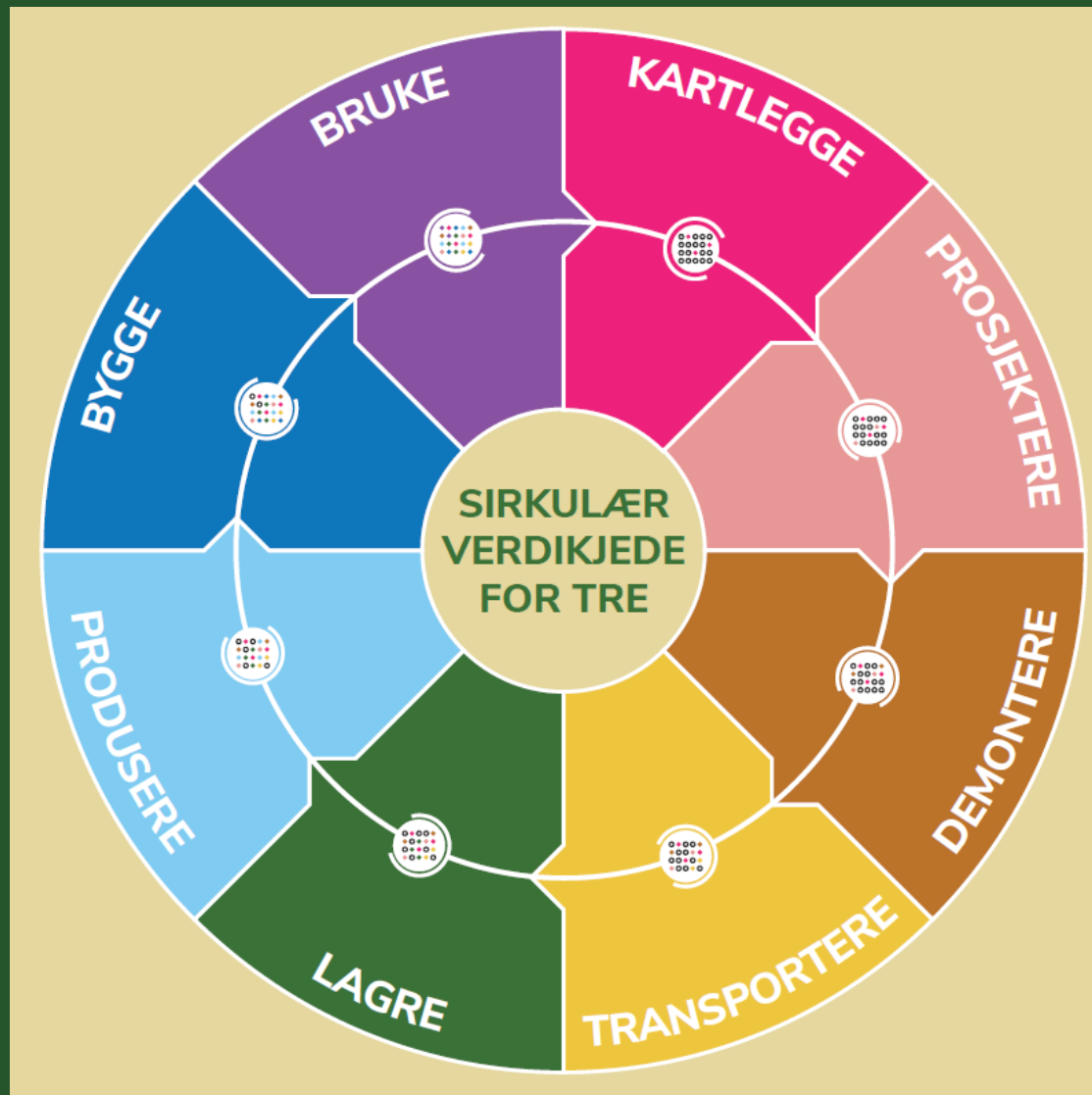
Viktige underleverandører

● Vill Energi	● ● Oslotre
● LPO arkitekter	● ● ØM Fjeld
● ● Båtsfjord kommune	● ● Treindustrien
● ● ● ● ● Byggevareindustrien	

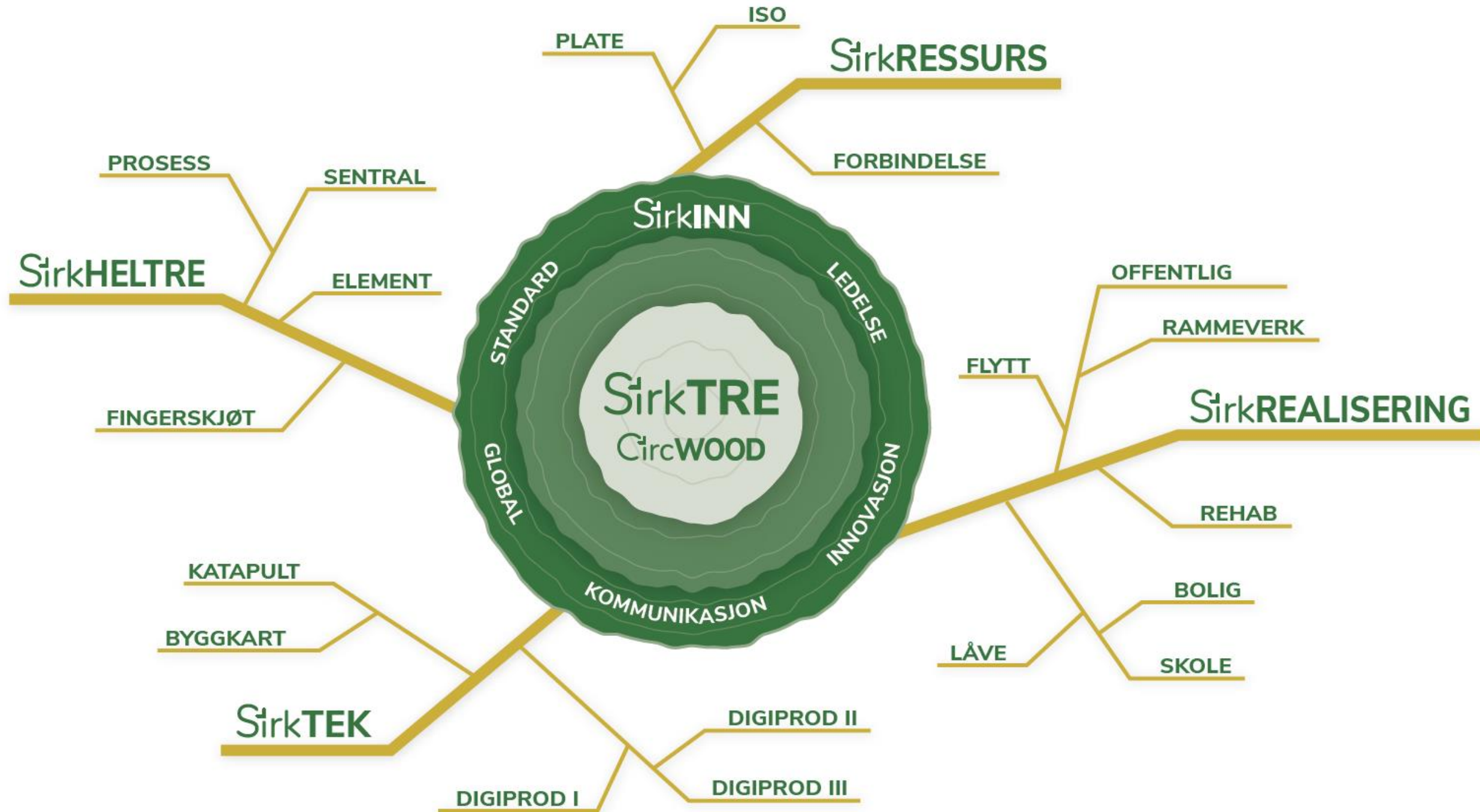
Forskningspartnere i CircWOOD

NIBIO	Norsk institutt for bioøkonomi	NMBU	Norges miljø- og biovitenskapelige universitet
HINN	Høgskolen i Innlandet	NTNU	Norges teknisk naturvitenskapelige universitet
NTI	Treteknisk	Trefokus	

Fargekode fra figur



SirkTRE



CircWOOD

Circular use of wood in Norway for improved sustainability and innovation

Mengder og kvaliteter av returtre i den sirkulære verdikjeden?

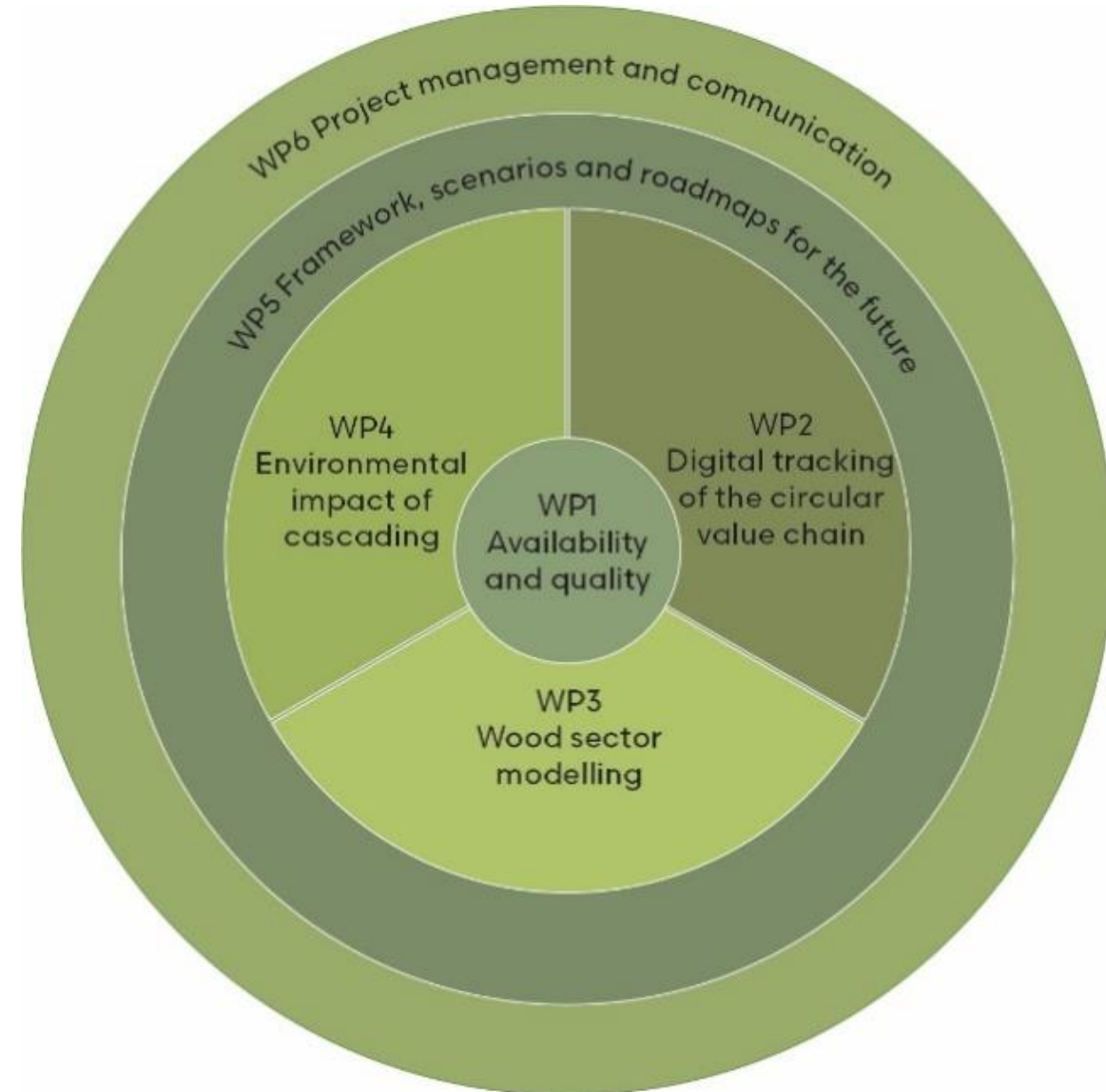
Bruk av returtre påvirker **etterspørselen og tilgjengeligheten** av i dagens marked?

Økonomiske, miljømessige og samfunnsmessige **effekter**?

Effektivt og sikker kobling og deling **informasjon om ressurser** i hele verdikjeden

Mulighetsrom for bruk av returtre?
Oppmuntres det til **gunstig atferd**?

Teknologier vi må utvikle for kvalitet på returtre og øke verdiskaping?



Andel av
nasjonale
forpliktelser



SirkTRE

Tilgjengelig ressurs tre – i millioner m³

Skogen i Norge ~ 1000

2022 tømmer ~ 12

trelast ~ 3

2030 tømmer ~ 17

trelast ~ 4



~1

Stående i byggverk i Norge 150-250

2020 rivningsvirke ~ 3

2030 retur-trelast ~ 0,3

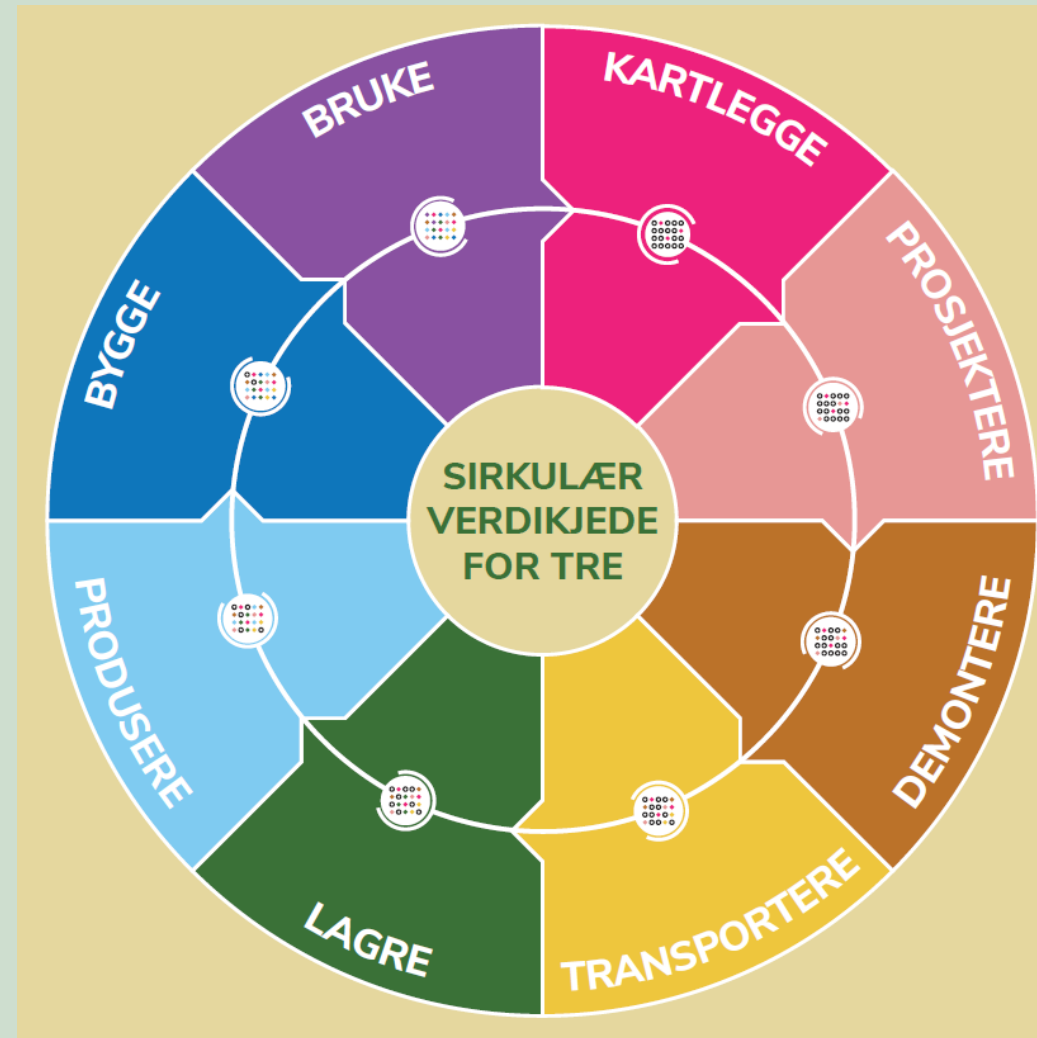


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SirkTRE

Erfaringer og løsninger fra SirkTRE

- Kartlegging av råvarebaser
- Standarder for foredling og bruk av returtre
- Teknisk mottak av returtre
- Rensing av forurensinger i og på returtre
- Løsninger for håndtering og sortering
- Opparbeider marked – demoprojekter
- Nye produkter



Bygging – vedlikehold - ombruk





SirkTRE

Bruke rester

Avkapp trelast - Knubbehus og gulv

Rest industri - Innovasjon

Flis - Materialgjenvinning

Et stort potensielt verdinettverk...



Risgjerdet, Oppdal

<https://www.byggogbevar.no/pusse-opp/tre/artikler/kubbehus-historisk>

SirkTRE

De- og remonterbart

- Tilrettelagt – enkelt i tre?
- Eksemplene til etterfølgelse
 - HasleTre
 - Aanesland fabrikker



SirkTRE

Logistikken – hvordan sikre en helsirkulær verdikjede i tre?

- Forretningsmodellen
- Akseptere midlertidighet
- Flyttbare, dekonstruerbare behandlingslokasjoner
 - basert på utviklingsstrategier i byer og regioner

DELEKULTUR ER AVGJØRENDE FOR Å LYKKES...



Hva søker du?

Søk

VEIVISER

Selge gamle byggevarer på nytt

- 1 [Bygge vare](#)
- 2 [Omsetning](#)
- 3 [Import av byggevarer](#)
- 4 [Resirkulering eller ombruk](#)

Bygge vare

Er produktet en bygge vare?

Byggevarer omfatter de aller fleste varer som skal bygges inn i bygninger og anlegg. Det kan være alt fra trevirke, betong, stål og isolasjonsprodukter til bjelker, dører, vinduer og VVS-produkter. Byggesett, som byggmoduler og prefabrikkerte våtrom, er også byggevarer. Produkter som brukes til kunst eller interiør er ikke byggevarer.

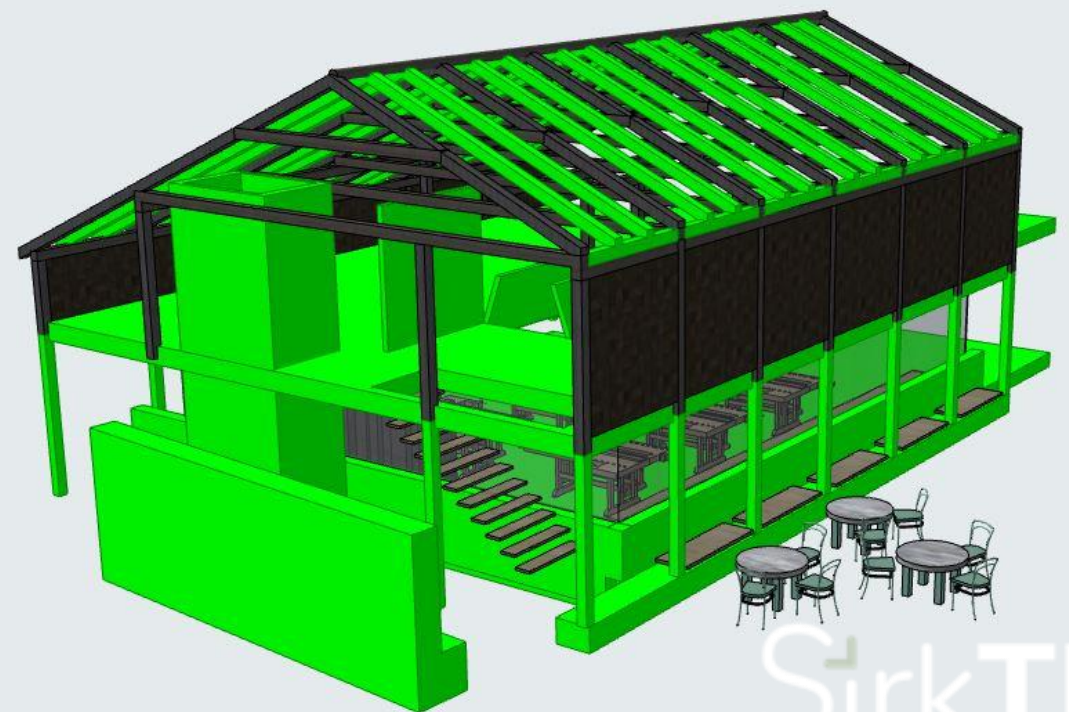
Standarder – treprodukter alene – 252 stykker

Referanse	Komite	Engelsk tittel	Utgave			
CEN/TR 12872:2014 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Guidance on the use of load-bearing boards in floors, walls and roofs	2014-12	EN 14323:2021 (en) EN 14755:2005 (en)	CEN/TC 112 CEN/TC 112/WG 7 CEN/TC 112 CEN/TC 112/WG 11	Wood-based panels — Melamine faced boards for interior uses — Test methods Extruded particleboards — Specifications
CEN/TR 17810:2022 (en)	CEN/TC 38 CEN/TC 38/WG 22	Durability of wood and wood-based products — Interpretation document for standards related to efficacy requirements and specifications of wood preservatives	2022-04	EN 14951:2006 (en) EN 15197:2007 (en)	CEN/TC 175 CEN/TC 175/WG 38 CEN/TC 112 CEN/TC 112/WG 11	Solid hardwood panelling and cladding — Machined profiles elements Wood-based panels — Flaxboards — Specifications
CEN/TS 1099:2007 (en)	CEN/TC 112 CEN/TC 112/WG 2	Plywood — Biological durability — Guidance for the assessment of plywood for use in different use classes	2007-08	EN 16351:2021 (en)	CEN/TC 124 CEN/TC 124/WG 3	Timber structures — Cross laminated timber — Requirements Wood and wood based products — Dosage of the total organic carbon (TOC) in wood and wood based products
CEN/TS 13810-2:2003 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Floating floors — Part 2: Test methods	2003-04	EN 16718:2015 (en) EN 300:2006 (en)	CEN/TC 38 CEN/TC 38/WG 26 CEN/TC 112 CEN/TC 112/WG 1	Oriented Strand Boards (OSB) — Definitions, classification and specifications Particleboards — Definition and classification
CEN/TS 14966:2005 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Small scale indicative test methods for certain mechanical properties	2005-05	EN 309:2005 (en) EN 310:1993 (en)	CEN/TC 112 CEN/TC 112/WG 1 CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of modulus of elasticity in bending and of bending strength Wood-based panels — Surface soundness — Test method
CEN/TS 15534-2:2007 (en)	CEN/TC 249 CEN/TC 112 CEN/TC 112/WG 11	Wood-plastics composites (WPC) — Part 2: Characterisation of WPC materials Lightweight Particleboards — Specifications	2007-05 2014-03	EN 311:2002 (en) EN 312:2010 (en)	CEN/TC 112 CEN/TC 112 CEN/TC 112 CEN/TC 112/WG 11	Particleboards — Specifications Plywood — Classification and terminology — Part 1: Classification
CEN/TS 16368:2014 (en)	CEN/TC 112 CEN/TC 112/WG 4	Sandwich boards for furniture (SWB-F) — Factory made products — Definition, classification and test methods for determination of performance characteristics	2013-11	EN 313-1:1996 (en) EN 313-2:1999 (en)	CEN/TC 112 CEN/TC 112/WG 2 CEN/TC 112 CEN/TC 112	Plywood — Classification and terminology — Part 2: Terminology Plywood — Bonding quality — Part 1: Test methods
CEN/TS 16526:2013 (en)	CEN/TC 112 CEN/TC 112/WG 2	Plywood — Classification by surface appearance — Part 4: Parameters of ability for finishing, guideline	2007-08	EN 314-1:2004 (en)	CEN/TC 112 CEN/TC 112 CEN/TC 112	Plywood — Bonding quality — Part 2: Requirements
CEN/TS 635-4:2007 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of characteristic 5-percentile values and characteristic mean values	2009-11	EN 314-2:1993 (en) EN 315:2000 (en)	CEN/TC 112 CEN/TC 112/WG 2 CEN/TC 112 CEN/TC 112/WG 11	Plywood — Tolerances for dimensions Wood fibre boards — Definition, classification and symbols
EN 1058:2009 (en)	CEN/TC 112 CEN/TC 112/WG 1	Particleboards — Determination of moisture resistance — Part 1: Boil test	1995-02	EN 316:2009 (en) EN 317:1993 (en)	CEN/TC 112 CEN/TC 112	Particleboards and fibreboards — Determination of swelling in thickness after immersion in water Wood based panels — Determination of dimensional changes associated with changes in relative humidity
EN 1087-1:1995 (en)	CEN/TC 112 CEN/TC 112/WG 6	Cement-bonded particleboards — Determination of hard body impact resistance	1995-10	EN 318:2002 (en)	CEN/TC 112 CEN/TC 112/WG 4	Particleboards and fibreboards — Determination of tensile strength perpendicular to the plane of the board
EN 1128:1995 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of duration of load and creep factors	2013-04	EN 319:1993 (en) EN 320:2011 (en)	CEN/TC 112 CEN/TC 112/WG 1 CEN/TC 112 CEN/TC 112/WG 11	Particleboards and fibreboards — Determination of resistance to axial withdrawal of screws Wood-based panels — Determination of moisture resistance under cyclic test conditions
EN 12369-1:2001 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Characteristic values for structural design — Part 1: OSB, particleboards and fibreboards	2001-01	EN 321:2001 (en) EN 322:1993 (en)	CEN/TC 112 CEN/TC 112/WG 4 CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of moisture content Wood-based panels — Determination of density
EN 12369-2:2011 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Characteristic values for structural design — Part 2: Plywood	2011-06	EN 323:1993 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of dimensions of boards — Part 1: Determination of thickness, width and length
EN 12369-3:2008 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Characteristic values for structural design — Part 3: Solid-wood panels	2008-11	EN 324-1:1993 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of dimensions of boards — Part 2: Determination of squareness and edge straightness
EN 12775:2001 (en)	CEN/TC 112 CEN/TC 112/WG 9	Solid wood panels — Classification and terminology	2001-01	EN 324-2:1993 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Sampling, cutting and inspection — Part 1: Sampling and cutting of test pieces and expression of test results
EN 12871:2013 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of performance characteristics for load bearing panels for use in floors, roofs and walls	2013-06	EN 326-1:1994 (en) EN 326-2:2010+A1:2014 (en)	CEN/TC 112 CEN/TC 112/WG 4 CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Sampling, cutting and inspection — Part 2: Initial type testing and factory production control Wood-based panels — Sampling, cutting and inspection — Part 3: Inspection of an isolated lot of panels
EN 13017-1:2000 (en)	CEN/TC 112 CEN/TC 112/WG 9	Solid wood panels — Classification by surface appearance — Part 1: Softwood	2000-11	EN 326-3:2003 (en) EN 382-1:1993 (en)	CEN/TC 112 CEN/TC 112/WG 4 CEN/TC 112 CEN/TC 112/WG 3	Fibreboards — Determination of surface absorption — Part 1: Test method for dry process fibreboards Fibreboards — Determination of surface absorption — Part 2: Test method for hardboards
EN 13017-2:2000 (en)	CEN/TC 112 CEN/TC 112/WG 9	Solid wood panels — Classification by surface appearance — Part 2: Hardwood	2000-11	EN 382-2:1993 (en) EN 408:2010+A1:2012 (en)	CEN/TC 112 CEN/TC 112/WG 3 CEN/TC 124 CEN/TC 124/WG 1	Timber structures — Structural timber and glued laminated timber — Determination of some physical and mechanical properties Fibreboards — Specifications — Part 1: General requirements
EN 1328:1996 (en)	CEN/TC 112 CEN/TC 112/WG 6	Cement bonded particleboards — Determination of frost resistance	1996-08	EN 622-1:2003 (en) EN 622-2:2004 (en)	CEN/TC 112 CEN/TC 112/WG 3 CEN/TC 112 CEN/TC 112/WG 3	Fibreboards — Specifications — Part 2: Requirements for hardboards Fibreboards — Specifications — Part 2: Requirements for hardboards
EN 13353:2008+A1:2011 (en)	CEN/TC 112 CEN/TC 112/WG 9	Solid wood panels (SWP) — Requirements	2008-11	EN 622-2:2004/AC:2005 (en)	CEN/TC 112 CEN/TC 112/WG 3	Fibreboards — Specifications — Part 3: Requirements for medium boards Fibreboards — Specifications — Part 4: Requirements for softboards
EN 13354:2008 (en)	CEN/TC 112 CEN/TC 112/WG 9	Solid wood panels (SWP) — Bonding quality — Test method	2008-11	EN 622-3:2004 (en) EN 622-4:2019 (en)	CEN/TC 112 CEN/TC 112/WG 3 CEN/TC 112 CEN/TC 112/WG 11	Fibreboards — Specifications — Part 5: Requirements for dry process boards (MDF) Cement-bonded particleboards — Definition and classification
EN 13381-1:2020 (en)	CEN/TC 127 CEN/TC 127/WG 1	Test methods for determining the contribution to the fire resistance of structural members — Part 1: Horizontal protective membranes	2020-07	EN 622-5:2009 (en) EN 633:1993 (en)	CEN/TC 112 CEN/TC 112/WG 6 CEN/TC 112 CEN/TC 112/WG 6	Cement-bonded particleboards — Specification — Part 1: General requirements Cement-bonded particleboards — Specifications — Part 2: Requirements for OPC bonded particleboards for use in dry, humid and external conditions
EN 13446:2002 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of withdrawal capacity of fasteners	2002-05	EN 634-1:1995 (en)	CEN/TC 112 CEN/TC 112/WG 6	Plywood — Classification by surface appearance — Part 1: General Plywood — Classification by surface appearance — Part 2: Hardwood
EN 13810-1:2002 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Floating floors — Part 1: Performance specifications and requirements	2002-12	EN 634-2:2007 (en) EN 635-1:1994 (en)	CEN/TC 112 CEN/TC 112/WG 6 CEN/TC 112 CEN/TC 112/WG 2	Plywood — Classification by surface appearance — Part 3: Softwood Plywood — Classification by surface appearance — Part 5: Methods for measuring and expressing characteristics and defects
EN 13879:2002 (en)	CEN/TC 112 CEN/TC 112/WG 4	Wood-based panels — Determination of edgewise bending properties	2002-05	EN 635-2:1995 (en) EN 635-3:1995 (en)	CEN/TC 112 CEN/TC 112/WG 2 CEN/TC 112 CEN/TC 112/WG 2	
EN 13986:2004+A1:2015 (en)	CEN/TC 112 CEN/TC 124 CEN/TC 124/WG 3	Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking Timber structures — Glued laminated timber and glued solid timber — Requirements	2004-10 2013-06	EN 635-5:1999 (en)	CEN/TC 112 CEN/TC 112/WG 2	
EN 14080:2013 (en)	CEN/TC 175 CEN/TC 175/WG 4	Timber and wood-based materials in external windows, external door leaves and external	2006-11			

LÅVE



til TradLab



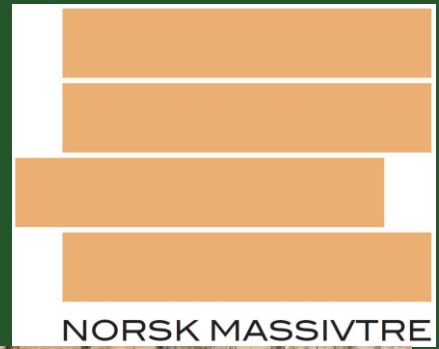
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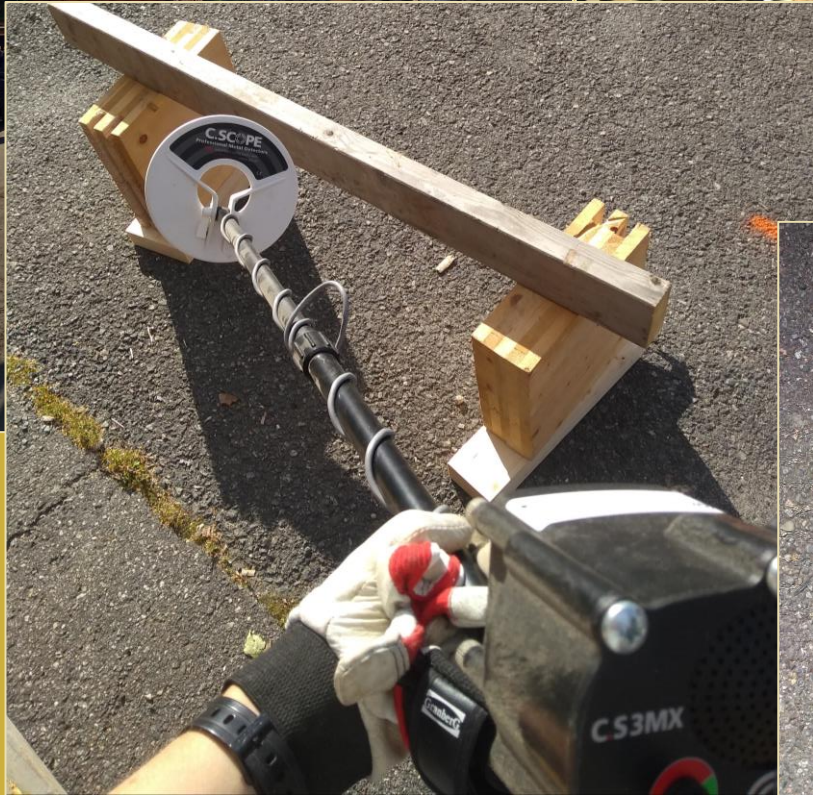
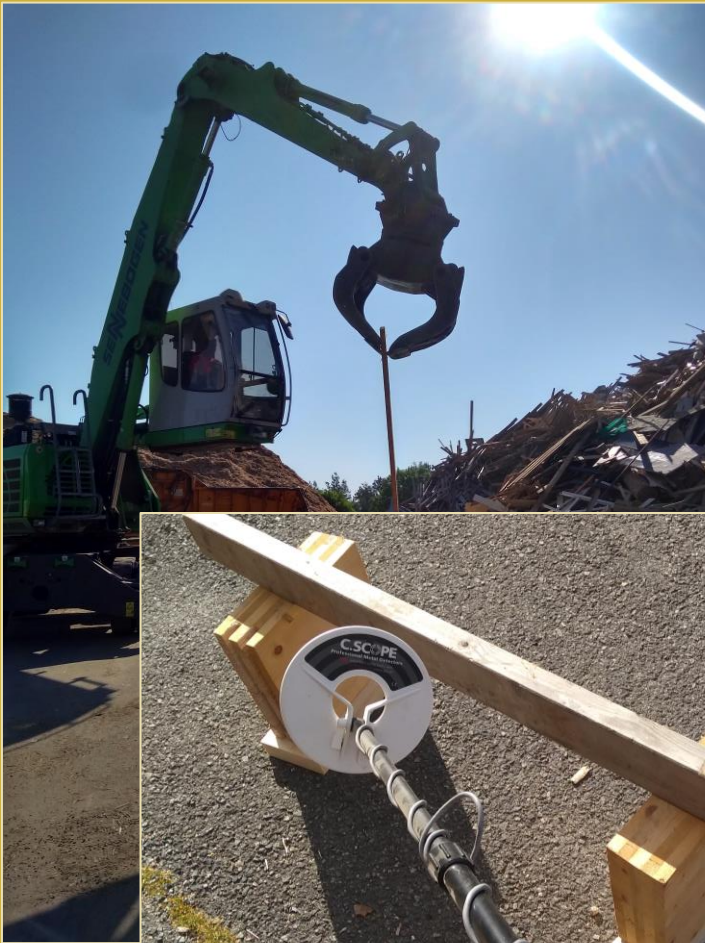
Søndre Lunde

fra garasje til
badstue & tester



SirkTRE

Sortering og rens anno 2022



SirkTRE

Takk!

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SirkTRE