EXPANDFIBRE

Accelerating the development of sustainable bioproducts

fortum Metsä

What is ExpandFibre?

ExpandFibre (2020-2024) is a 50 M€ R&D collaboration and an Ecosystem launched by Fortum and Metsä Group and co-funded by Business Finland. It focuses on upgrading pulp fibre, hemicellulose and lignin from renewable and sustainable sources of straw and northern wood into new bioproducts. Its ambition is to meet the growing demands for sustainable textile fibres and other added value biomaterials.

The **research and development in ExpandFibre,** aiming at producing new ground-breaking technologies and smart business concepts, is divided into **seven research themes:**

- Textiles
- Biocomposites
- Packaging
- Lignin products
- Hemicellulose products
- Sourcing & fractionation
- Other fibre & wood products

ExpandFibre invites actors in these value chains to join in building a world-leading innovation ecosystem to eventually commercialize new bioproducts and green businesses

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www expandfibre.com

in ExpandFibre

ExpandFibre Programmes & Ecosystem

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ExpandFibre Ecosystem aims at developing novel bioproducts with a reduced environmental impact

Vision	**New bioproducts based on sustainable biomass contribute significantly to the reduction of the negative environmental impact of our everyday lives**
Mission	**ExpandFibre Ecosystem strives to meet the growing demand for sustainable bioproducts by developing ground-breaking materials and technologies and smart business concepts**

Short term objectives (2020-2024)

- Build knowledge-based **competitive advantage** among the ecosystem members
- Create/strengthen **test-beds for piloting** and proof-of-concept validations in the theme areas
- **Identify and fill in gaps** in the R&D landscape within ExpandFibre themes
- Create a thriving **business-driven innovation ecosystem for new biomass-based textile fibres**

Long-term objectives (2030 and beyond)

- Provide markets with new bioproducts that have **less than 20% of the carbon footprint** of the current products
- **Bring new revenue to ecosystem partners** through the increasing production and sale of new value-added bioproducts and technologies.
- Significantly **increase investments** into biomass-based value chains

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Metsä Group

Purpose

Advancing bio-economy and circular economy by efficiently processing northern wood into first-class products

Vision

The preferred partner in developing sustainable business

* 2021, internal sales eliminated
** Electricity and heat in total
*** Shares listed on the Nasdaq Helsinki

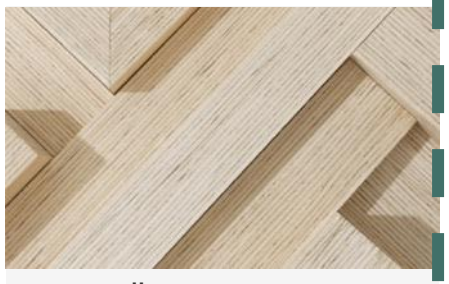
Metsä Group | Sales* EUR 6.0 billion | Personnel 9,500 | Renewable energy** 27.7 TWh

Metsäliitto Cooperative | The Group's parent company | Owned by nearly 100,000 Finnish forest owners

METSÄ FOREST

Wood Supply and Forest Services

Sales:
EUR 2.0 billion
Personnel:
850



METSÄ WOOD

Wood products

Sales:
EUR 0.6 billion
Personnel:
1,700

METSÄ FIBRE

Pulp and sawn timber

Sales:
EUR 2.6 billion
Personnel:
1,400

METSÄ BOARD***

Paperboard

Sales:
EUR 2.1 billion
Personnel:
2,400

METSÄ TISSUE

Tissue and greaseproof papers

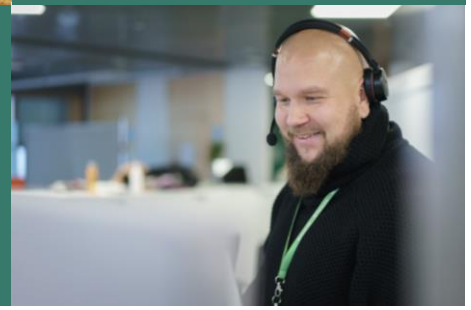
Sales:
EUR 0.9 billion
Personnel:
2,500

METSÄ SPRING | Innovation company

Participating in ExpandFibre

Metsä

Fortum Group is a major European clean power and gas company

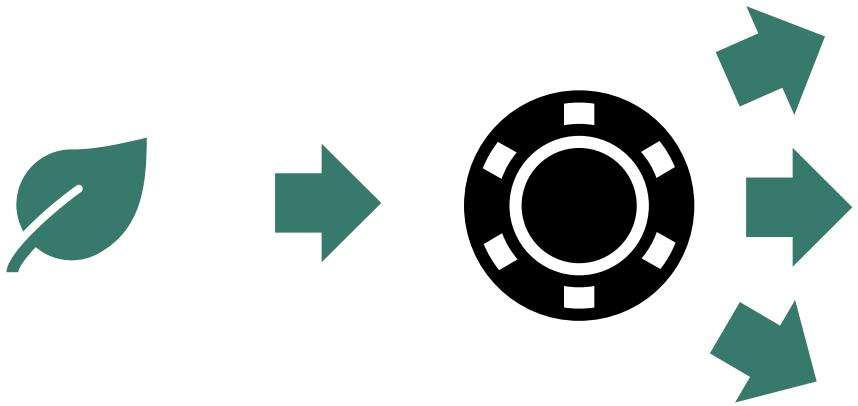
Hydro generation		Corporate customers and markets	
	Renewables and decarbonization		Circular solutions
Nuclear generation		Consumer solutions	

fortum
For a cleaner world

Fortum Bio2X: Provider of bio-based materials

Biomass

Fractionation



Bio2X Raw materials

- Cellulose
- Lignin
- Biochemicals

Applications

- Textiles
- Packaging
- Specialty papers
- Thermoplastics
- Adhesives
- Resins
- Fine chemicals
- Solvents
- Fuels

Our biorefineries turn biomass into novel, **high-value raw materials** for a wide range of industries.

Fortum Bio2X®

Fortum and Metsä Group aim to inspire a larger ecosystem to join the mission

ExpandFibre is built upon a strong partnership

- Both Fortum and Metsä Group have strategic targets to build new and sustainable biobased businesses of considerable scale.
- Focus is on different raw materials (straw for Fortum, wood for Metsä Group) but both companies have multiple complementing capabilities and solutions.

ExpandFibre Ecosystem complements the partnership

- The ExpandFibre Ecosystem, consisting of a multitude of bioeconomy players, has a central role in co-creating new technologies and concepts that complement the R&D efforts of Fortum and Metsä Group.
- All projects in the Ecosystem are on the same mission.

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ExpandFibre connects to multiple R&D initiatives by Fortum and Metsä Group

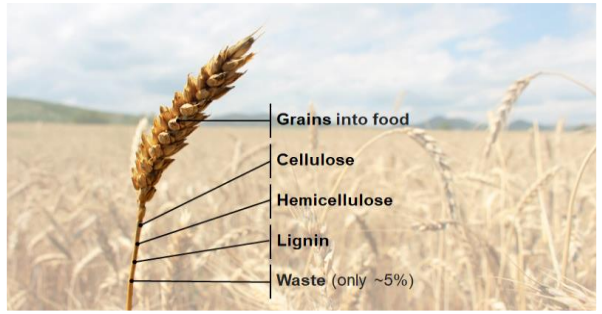
Collaboration with Chempolis and construction of the biorefinery in India (Fortum)

Demonstration of sustainable straw-based textiles (Fortum)

Development of novel materials utilising recycled plastics (Fortum)

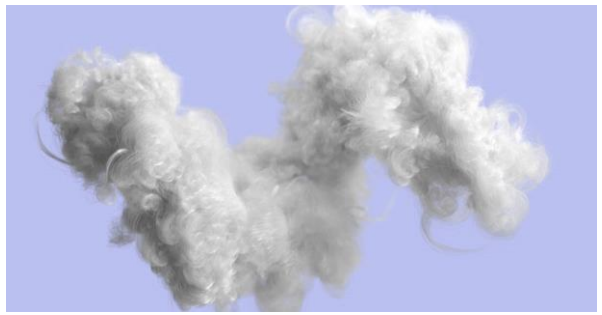
Development of a new 3D fibre-based packaging product to replace plastics (Metsä)

Sourcing & fractionation	Lignin	Hemicellulose	Textiles	Biocomposites	Packaging	Other fibre & wood products



High material efficiency through fractionation (Fortum)

Converting hemicellulose and lignin into value-added products (Fortum)



Development of sustainable textile fibre from paper-grade pulp (Metsä)

Establishment of Paperboard and Packaging Excellence Centre in Äänekoski (Metsä)

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ExpandFibre Ecosystem R&D&I focus points on the road towards the Vision 2030

Straw and wood as raw materials

Textiles

- New, sustainable textile fibres for wearable textiles and nonwovens
- Staple fibre analytics and performance testing
- New staple fibre applications and post-treatment technologies
- Recycling and traceability
- Business models to speed up global market entries

Biocomposites

- Raw material processing and converting
- Material properties
- Recycling and end-of-life
- Biocomposites containing fibres and lignin
- All-cellulose composites & natural fibre polymer composites
- Additive chemistry

Packaging

- New pulp-based plastic-replacing packaging solutions
- Tools and processes for designing sustainable packaging
- Barriers and binders based on natural polymers

Lignin products

- Lignin fractionation for material applications
- Lignin as functional ingredient for thermosetting resins as well as for thermoplastics and bio-composites
- Lignin dispersants
- Novel methods for lignin functionalization

Hemicellulose products

- Hemicellulosic sugar refining and separation
- Xylose, pentoses and furfural as industrial ingredients and platform chemicals
- Polymeric hemicellulose as industrial ingredients and platform chemicals

Sourcing & fractionation

- Sustainable, low emission agricultural residue supply chains and networks
- New fractionation technologies for processing of agro-residual and woody raw materials
- Process side-stream utilization

Other fibre and wood products

- New materials based on pulp fibres and wood for high-volume applications
- Novel chemistry for pulp fibre and wood modification
- Functional structures including hybrid materials
- Advanced 3D and 4D processing methods
- Fibre and specialty cellulose products from pulp, including MFC, MCC and chemically modified cellulose

Cross-cutting topics

- Replacing plastics and fossil-based materials
- Digitalisation & measuring
- Emerging technologies
- Sustainability assessment
- Design for circularity
- Piloting and test-beds for new applications
- Following regulatory environment

Vision for 2030

- **Investments** in commercial production of new bioproducts (textile fibres, biocomposites, other bioproducts, etc.)
- New bioproducts available to the markets with significantly **lower carbon footprint**
- Sales and/or out-licensing of **new technologies** related to new bioproducts
- **Professionals** trained for new bioproduct businesses
- **Sustainability awareness** increased throughout the value chains


fortum
Metsä
Valmet
LAB University of Applied Sciences
kemira
UNIVERSITY OF OULU
SULZER
SC GRAND
Sustainable Textile
Lignopure
SciTech Service
Lignum
TEKNOS
lignovations
OSMOS
IDEA DESIGN ASSEMBLY DELIVERY
LIXEA
Measurlabs
KiiLTO
FIBROBOTICS
LOUNAIS-SUOMEN JÄTEHUOLTO
KCL
piloting knowledge
GREEN INDUSTRY PARK
KOTA
Semantum
BRINTER
Printing Life One Layer At A Time
CH BIOFORCE
COATS
Elastopoli Oy
CONENOR
FIBERX
FINLAND
LIGNEASY
Mega Cellulose
Fraunhofer ICT
Fraunhofer WKI
AEP polymers
Lumir
Texon
MEGATREX
ADLUX
VALAISTUKSEN ASIANTUNTIJA
Bio-Co Group
chempolis
pure future
TAALERI
Bioindustry
Lindström
CelluloTech
encore PARTNERS
Excellence by Experience
NORDPAP
SOANE LABS, LLC.
yeşim
TrueMed
VALIDATED
HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI
Aalto-yliopisto
RI. SE
FINNISH TEXTILE & FASHION
CLIMATE FUND
HAMK
Häme University of Applied Sciences
sftec
ELOMATIC
Suominen
MiniMaid
PAPER PLATES
inweb
SUSTAINABLE MANUFACTURING
Pure Waste
SYNBIO POWERLABS
Brightplus
TOUCHPOINT
Sustainable Workwear
INNOVESTOR
3DTECH
Tampere University
Tampere University of Applied Sciences
Natural Indigo
Finland
TAPIO Technologies
WOODLY
PATTERNSFROM FINLAND agency
Boreal Bioproducts
woodio
SWECO
innomost.
LUT University
Centria
UNIVERSITY OF APPLIED SCIENCES
VIPETEC
SPINVERSE
INFINITED FIBER
GRADIA
NIMAR
FILTER
MIRKA
PLAFCO FIBERTECH
JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ
elyaf
DIENES
WaterCut
GloCell
Åbo Akademi
FOCUS
ON DESIGN
NORDIC BIOPRODUCTS GROUP
METGEN
TURKU AMK
TURKU UNIVERSITY OF APPLIED SCIENCES
aiju
Technological Institute for children's products & leisure
RESTER
prefere
resins
SAALASTI
WOOD KPLUS
VTT
Luke
LUONNONVARAKESKUS
COVEROSS
More life

Overview of the Ecosystem*

- **102 Ecosystem member organizations** in addition to Ecosystem hosts Fortum and Metsä Group
- Member organisation nationality:
  - **83 Finnish members** (81 %) and **19 international members** (19 %)
- Organisation types:
  - Industry: **38 members** (37 %)
    - *Large:* ***13 members***
    - *SME:* ***25 members***
  - Service and/or technology provider: **38 members** (37 %)
    - *Large:* ***5 members***
    - *SME:* ***33 members***
  - Total company members in the Ecosystem: **76** (75 %)
    - Large: 13 + 5 = **18** (24 % of company members)
    - SME: 25 + 33 = **58** (76 % of company members)
  - University: **12 members** (12 %)
  - RTO: **7 members** (7 %)
  - Others: **7 members** (7 %)

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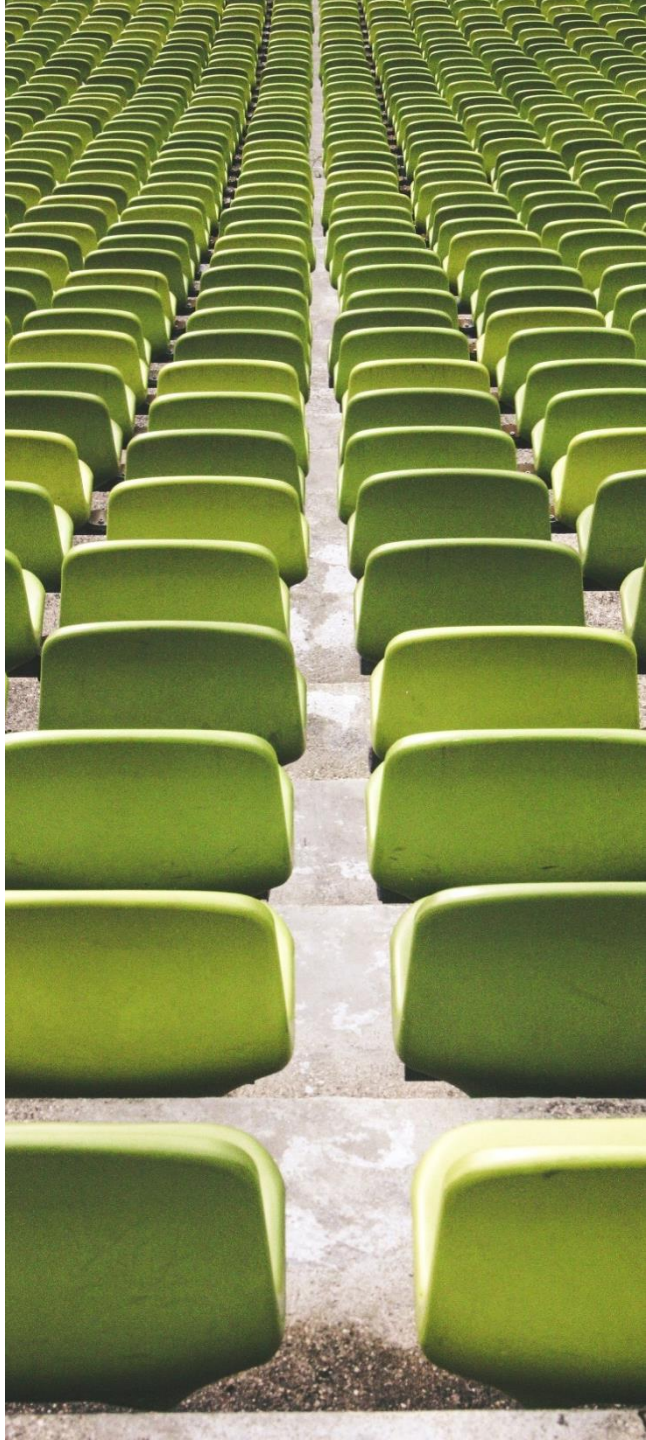
Situation as of June 2024



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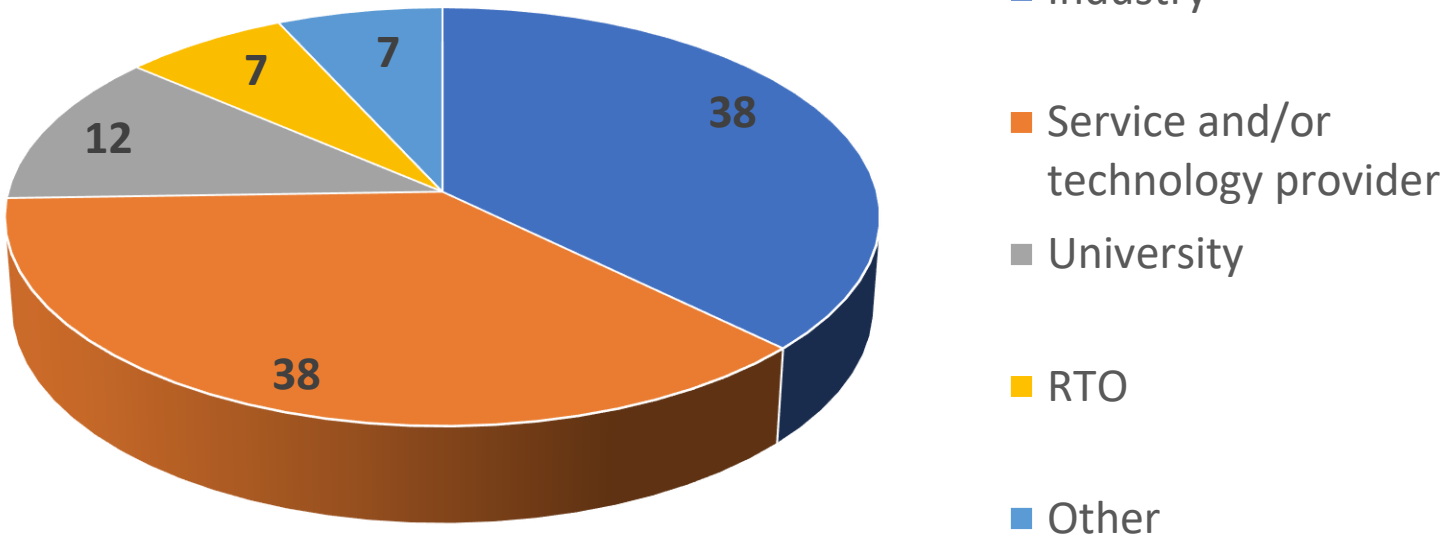
Member organizations by type:



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*Situation as of June 2024

ExpandFibre Project Ecosystem (29 pcs)

FinnFiberColor

LigninRESurf

ValCel

SynBioPro

SynBio Power House

ECOLABNET

FoN

Carbon neutrality empowered by handprint

NUMOBIO

HydBondCell

SUSBINCO

4everPack

telavalue

BIOPROT

FOLD

HiPer

FurBio

SmartRecovery

SUSTAFIT
Sustainable fit-for-purpose nonwovens

Bio C Value
High-value carbons from agricultural sidestreams

F3 Films For Future

CERAFIM
Cellular Agriculture for Food and Materials

GRAM

SmartLagring

MAP 1_A1

Super Bark

Perfect Wood

LIGNI COAT

Emission Free Pulping

Ecosystem projects (1/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
FinnFiberColor – From cellulose to new Finnish man-made cellulose fibers and sustainably colored textiles **(ended)**	Textiles	02/2021 – 01/2023	BF Research	**Aalto**, Fortum, Metsä Spring, Andritz, UPM, Kemira, Stora Enso, Orneule, Jokipiin Pellava, Tam-Silk, Sidoste
LigninReSurf – Novel Fiber Surfaces Functionalized by Lignins	Lignin & packaging	01/2021 – 12/2023	BF Research	**Åbo Akademi University (ÅAU)**, BOKU, IEM, CH Bioforce, St1, MetGen, Mirka, Kemira, 3D Tech
ValCel – Value for Cellulosics **(ended)**	Textiles & other fibre products	01/2021 – 12/2022	BF Co-innovation	**VTT**, Univ. of Helsinki, Univ. of Oulu, Kemira, Metsä Fibre, Metsä Spring, Brightplus, Liuotin Group, Pixact, TopAnalytica
SynBioPro – Synthetic biology as enabler for scalable production of renewable chemicals and fuels	Textiles, lignin, hemicellulose	01/2021 – 12/2022	BF Research	**VTT**, Tampere University, Fortum, Neste, Kemira, Mirka, Olfactomics
SynBio powerhouse ecosystem	All	08/2018 →	BF Growth Engine	**VTT**, Growing synthetic biology ecosystem of current 1500 connections
ECOLABNET – Network of service providers for eco-innovation **(ended)**	Biocomposites & cross-cutting	01/2019 – 12/2021	Interreg Baltic Sea Region	**Centria**, VAMK, Kaunas Univ. of Technology, Univ. of Tartu, Czestochowa Univ. of Technology, VIA Univ. College, Vilnius Univ., Lithuanian Business Confederation, Labsamera MB, Estrotech Ltd

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (2/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
FoN – Future of Nonwovens	Textiles & Biocomposites	05/2021 – 10/2023	BF Co-innovation	**VTT,** Anpap, CH-Polymers, Fortum, Infinited Fiber Company, Metsä Spring, UPM Kymmene, Suominen, Valmet
Carbon neutrality empowered by handprint	Cross-cutting	09/2021 – 09/2023	BF Research	**VTT,** LUT University, Borealis Polymers Oy, Fortum Power and Heat Oy, Oy Hartwall Ab, HyXo Oy, Höyrytys Oy, Konecranes Oy, Martela Oyj, Neste Oyj, Urbaser Oy
NUMOBIO – Advanced NUmerical MOdelling for rapid development of BIOcomposite applications	Biocomposites & cross-cutting	09/2021 – 09/2023	BF Research	**VTT**, Tampereen yliopisto, Metsä Fibre Oy, Huawei Technologies Oy (Finland) Co Ltd, Primo Oy, Parlok Oy, Profcomp Oy, Block Solutions Oy, Nature Line Cutlery Oy, Elastopoli Oy, Muoviteollisuus ry
HydBondCell – Control of hydrogen bond formation in cellulose structures - one application area a biomaterial-based filter membrane	Textiles, other fibre products & cross-cutting	09/2021 – 02/2023	BF Research	**Tampere University**, Mirka Oy, Fortum Power and Heat Oy, Teho Filter Oy, Filterpak Oy Ab Ltd, Eagle Filters Oy, Nanoksi Finland Oy, Valmet Technologies Oy
SUSBINCO – Sustainable Binders & Coatings Project preparation facilitated & coordinated by **CLIC Innovation**	Biocomposites, Packaging & Hemicellulose products	09/2021 – 11/2023	BF Co-innovation	**Åbo Akademi University (ÅAU)**, Lappeenranta-Lahti University of Technology (LUT), Natural Resources Institute of Finland (Luke), Tampere University (TAU), University of Eastern Finland (UEF), University of Oulu (UO), VTT Technical Research Center of Finland (VTT), CH-Polymers, Metsä Board, Mirka, Montinutra, Teknos, and UPM-Kymmene, Brightplus, CH-Bioforce, Kiilto, MetGen, and Valmet Technologies.

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (3/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
4everPack – Circular business from reusable packaging for fast moving consumer goods	Packaging	08/2021 – 07/2023	BF Research	**VTT**, University of Vaasa, Brightplus, MetsäBoard, Borealis, Berner, Kiilto, Kotipizza, S-group, Kesko, HUS, City of Helsinki, Kamupak, NordicID, UpCode, Tomra
Telavalue – Value Chains for Sustainable Production, Use and Cycles of Textiles	Textiles, Other fibre products & Cross-cutting topics	02/2022 – 01/2024	BF Co-innovation	**VTT**, LAB UAS, Turku UAS, Kemira Oyj, Pure Waste Textiles Oy, Touchpoint Oy, Rester Oy, Image Wear Oy, Fiare Solutions Oy, Reima Oy, Fortum Power and Heat, Metsä Spring Oy, Valmet Technologies Oy, Mirka Oy, Freudenberg Home and Cleaning Solutions Oy, Lounais-Suomen Jätehuolto Oy (LSJH), Helsingin seudun ympäristöpalvelut -kuntayhtymä (HSY), Saimas Spinnery Oy, Coveross Oy, Finnish Textile & Fashion
BioProt – Development of bio-based and antimicrobial nonwoven materials and use as protective equipment	Textiles & Other fibre products	01/2022 – 12/2023	BF Co-innovation	Research institutes: **LUT**, VTT, JYU, Luke, LAB, University of Helsinki Companies: Lifa-Air, Premix, Teknikum, Teknos In-Kind partners: HUS, Mehiläinen, Berner, Optitune, Spinnova
FOLD – Novel folding technology for light-weight design structures and protective packaging	Packaging, Other fibre products, Cross-cutting topics	01/2022 – 12/2023	BF Co-Innovation	**VTT**, Aalto, Metsä Board, Anpap, Elomatic, Lumene, Mirka, Orfer, Soften, Stora Enso

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (4/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
HiPer – High Performance Cellulose-based Composites	Biocomposites, Other fibre products	05/2022 – 04/2024	BF Co-innovation	**VTT**, Valmet Technologies Oy, Sulzer Pumps Finland Oy, Paptic Oy, NMC Cellfoam Oy, Isku Interior Oy, Metsä Fibre Oy, Volar Plastic Oy, Koskisen Oy & CH-polymers Oy
FurBio – Furfural-derived Resins and Biocomposites	Biocomposites, Hemicellulose products & Cross-cutting topics	09/2022 – 08/2025	BF Research	**University of Oulu**, Brightplus, Fortum, Inhan tehtaat, Metsä Spring, Valve Ventures, Woodio
SmartRecovery	Lignin products	01/2023 – 12/2024	BF Research	**VTT**, Fortum, Metsä Fibre, Andritz, LignEasy, ProSolve, PrefereResins
SUSTAFIT – Sustainable fit-for-purpose nonwovens	Cross-cutting topics, Textiles & Other fibre products	10/2022 – 09/2024	BF Research	**Tampere University of Applied Sciences**, VTT Technical Research Centre of Finland, Aalto University, Fortum Power and Heat Oy, Valmet Automation Oy, Kemira Oyj, Sulzer Pumps Finland Oy, UPM-Kymmene Oyj, Lounais-Suomen Jätehuolto Oy, SharpCell Oy, Nordic bioproducts group Oy, Lixea Sweden Ab, Fiber-X Finland Oy, Anpap Oy, Spinnova Oyj, Paptic Oy, Nordic Biotech Group, SJT Investment group Oy, Rester Oy, Mirka Oy
BioCarbonValue – High value biocarbons from agricultural sidestreams	Cross-cutting topics, Sourcing & fractionation of straw, Lignin products, Biocomposites	01/2023 – 12/2024	BF Research	**VTT**, Fortum, Neova Group, Sumitomo SHI FW, City of Heinola, Premix, Carbofex, CarboCulture, PUHI, FifthInnovation

**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (5/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
F3 – Films for Future	Packaging	09/2022 – 08/2025	European Regional Development Fund (ERDF)	**VTT,** LUT**,** Ahlstrom , Berndorf Band GmbH, CMPC Ventures SpA, Colombier Finland Oy, Domtar, DS Smith Paper Limited (GBCE), Fiber-x Finland Oy, Fortum Power and Heat Oy, General Mills Inc., Graphic Packaging International LLC, Henkel AG & Co. KGaA, Joutsen paino Oy, Kelheim Fibres GmbH, Kemira Oyj, KLABIN SA, Leipa Group GmbH, LIST Technology AG, Mega Cellulose Oy, Metsä Board Oyj, MM Kotkamills Boards Oy, Neenah Gessner GmbH, Nordic Bioproducts group Oy, Paroprint Oy, Philip Morris Products SA, Pixact Oy, Solenis LLC, Sulzer Pumps Finland Oy, Suominen Oyj, Suzano SA, Sylvamo Corporation, Yangi, Unilever, UPM-Kymmene Oyj, Valmet Technologies Oy
CERAFIM – Cellular Agriculture for Sustainable Food and Materials	Hemicellulose products	05/2022 – 04/2024	BF Co-innovation	**VTT**, Brightplus, enifer, Fazer, Fortum Bio2X, HighMetal, Kemira, onego Bio, Spinnova, UPM, Valio
GRAM – Green adaptable method for refining lignocellulosic materials to high-value components	Lignin products	05/2023 – 04/2025	BF Research	**University of Oulu**, Åbo Akademi, Fortum, UPM, Nordfuel, Sherwin-Williams

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (6/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
SmartLagring – Smart storage and supply of straw for biorefinery	Sourcing & Fractionation	11/2022 – 10/2025	Swedish Energy Agency, Bio+ programme	**RISE**, Södra, Fortum Power and Heat, Gasum
MAP 1_A1 – Green chemicals, resins and adhesives	Lignin, Biocomposites	01/2022 – 12/2026	Austrian Research Funding Association (FFG)	**Wood K plus**, Heraeus Deutschland GmbH, Prefere Resins, Fortum
SuperBark – Safe, sustainable and high performance adhesives and coatings from industrial softwood bark	Packaging, Other fibre products, Sourcing & fractionation of straw & Cross-cutting topics	09/2023 – 08/2027	CBE JU	**VTT Technical Research of Finland**, Fraunhofer ICT, Riga Technical University, Holzforschung Austria, Luxembourg Institute of Science and Technology, ICP Pulp and Paper Institute, Tecnalia, CLIC Innovation, Adler Coatings, Metsä Wood, Goričane, Kastamonu Entegre
PerfectWood – Durable wood materials in future products	Other fibre products	01/2024 – 12/2026	BF Co-Research	**VTT Technical Research Centre of Finland**, Aalto University, Versowood Oy, Raute Oyj, Metsä Wood, Lappset Group Oy, Palonot Oy, Novenberg Oy, Elomatic Solutions Oy
LIGNICOAT - Sustainable coatings based on lignin resins and bio-additives with improved fire, corrosion and biological resistance	Lignin	06/2021 – 11/2024	EU H2020 / BBI JU	**TECNALIA**, VITO, VTT, BARPIMO, AEP POLYMERS SRL, FORESA TECHNOLOGIES S.L., ARDITEC ASSOCIATION, VENCOREX FRANCE SAS, AXIA INNOVATION GmbH, WESTLAKE EPOXY BV, IRIS COATINGS SRL, NORCE, ECOAT, ITACyL

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Ecosystem projects (7/7)*

Project name	Theme(s)	Duration	Funding scheme	Partners
Emission Free Pulping	• Other fibre products • Cross-cutting topics • Lignin products • Hemicellulose products • Packaging	12/2023 →	Business Finland Co-Research	**VTT**, ANDRITZ, Arauco, Metsä Group, Valmet, Aalto University, LUT University, University of Helsinki, University of Oulu, Åbo Akademi University Other partners in the EFP program: Stora Enso, UPM, Chalmers University of Technology, KTH Royal Institute of Technology, Mid Sweden University

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**Note: Ecosystem projects as of June 2024 – listing updated as new projects join the Ecosystem*

Why should you join the ecosystem?

The ExpandFibre Ecosystem is an opportunity to:

- Finding innovation and collaboration partners – incl. access to exclusive member events and the ExpandFibre Ecosystem platform
- Finding new business opportunities
- Cross-discipline and end-to-end value chain cooperation
- Sharing thoughts and ideas with those who share the same vision for a sustainable future
- Connection to the Business Finland Veturi ecosystem funding scheme
- Being a part of a large-scale go-to-market vehicle

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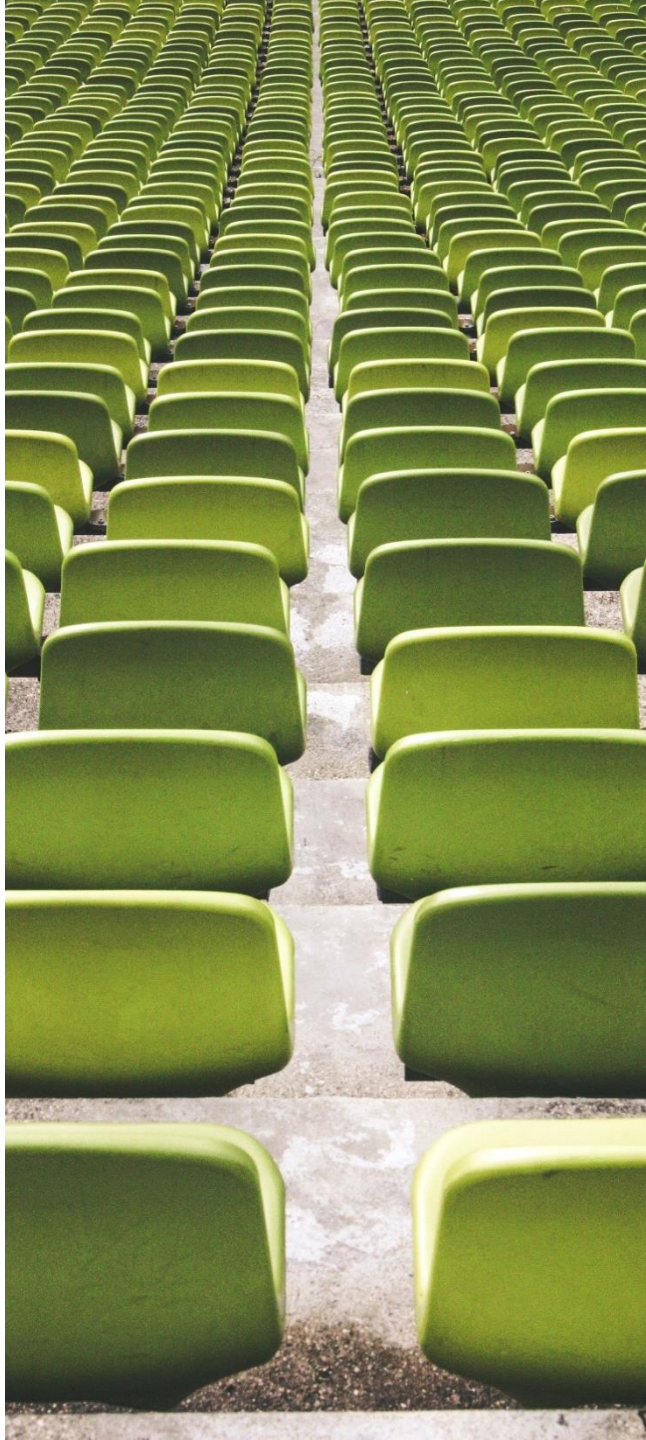
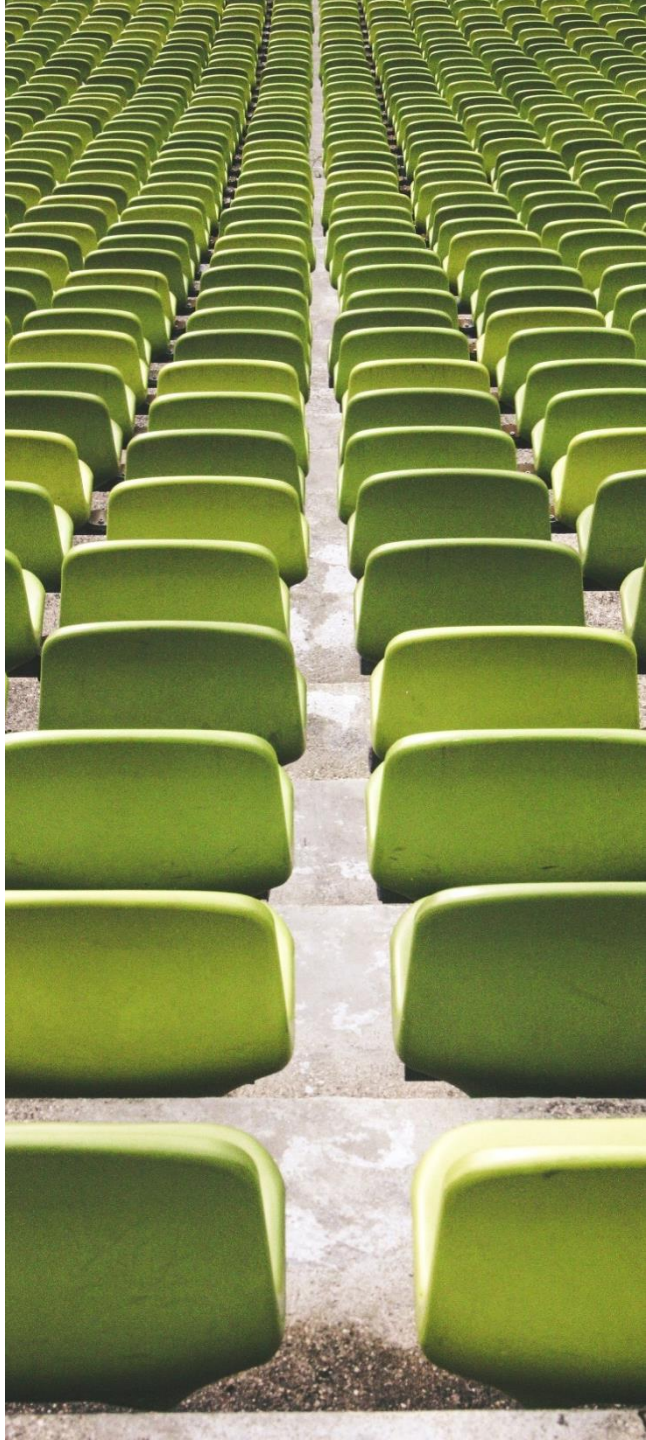


Why join? The ExpandFibre value proposition to non-Finnish members

The ExpandFibre Ecosystem is an opportunity to:

- Networking and collaborating with the Finnish innovation value chains
- Gaining overall visibility of and to the Finnish R&D landscape
- Cross-discipline and end-to-end value chain cooperation
- Better insights and connections to existing and upcoming project preparations between companies, and between companies and research institutes
- Sharing thoughts and ideas with those who share the same vision for a sustainable future
- Being a part of a large-scale go-to-market vehicle

EXPANDFIBRE fortum Metsä



Why join? The ExpandFibre value proposition to projects

The ExpandFibre Ecosystem is an opportunity to:

- Increase the visibility of the project and its results via dissemination
- Validate project results through dedicated workshops
- Find partners to take project results to the market to speed up commercialisation
- Identify and create next projects and find partners for them
- Expand the project scope and find new materials/technologies/other solutions to test
- Exchange ideas with those who share the same vision for a sustainable future, and engage in cross-sectional collaboration

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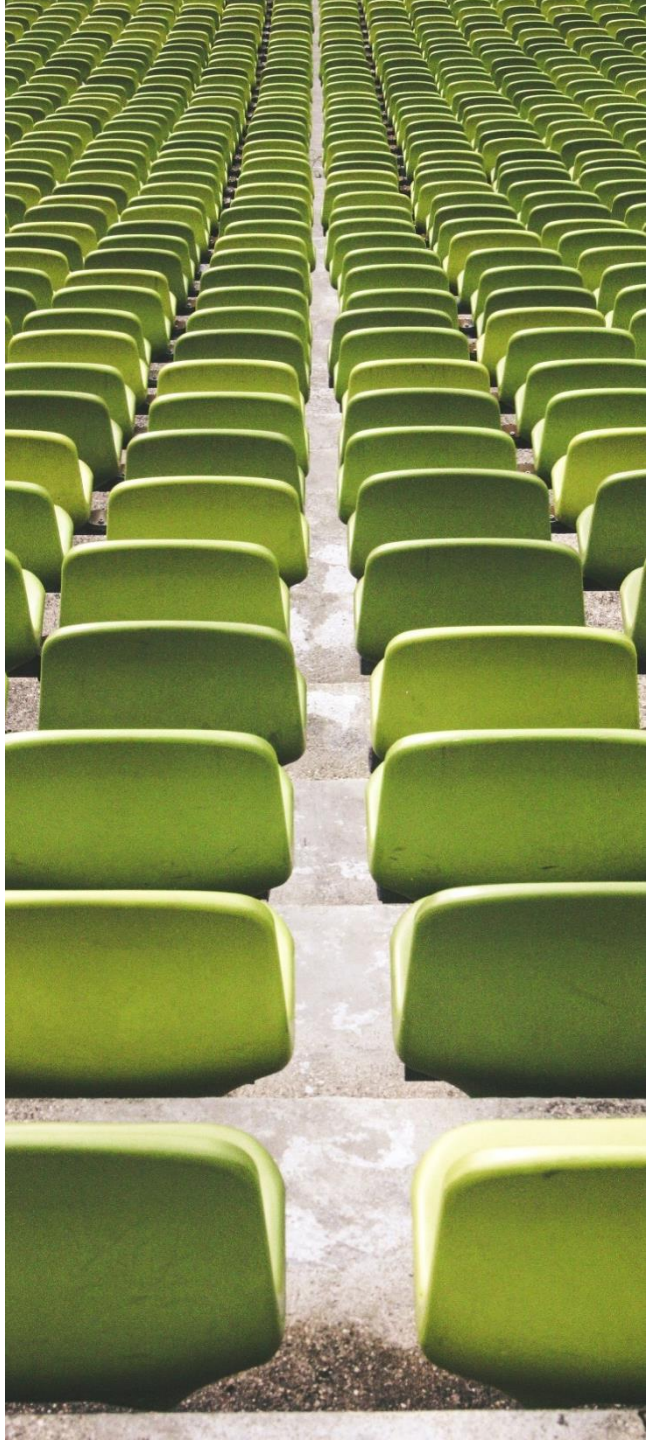

Membership of ExpandFibre Ecosystem

- As a principle, ExpandFibre Ecosystem welcomes organisations as well as existing projects and project applications as a part of the Ecosystem, if their **vision is in line with ExpandFibre vision** and if they work in the ExpandFibre Theme areas.
- By joining the Ecosystem, you join a mailing list and give permission to use your organization's / project's name and logo on the ExpandFibre website and other similar communications materials.
- ExpandFibre will send a questionnaire to each member annually, asking for **certain public KPI's** to track the progress of the ecosystem.

ExpandFibre Programme Managers
(=ExpandFibre Management Group) manage all membership issues:

- **Fortum**

  Matti Sonck

  Development Manager, Bio2X, Fortum

  matti.sonck@fortum.com

  +358(0)40 1388014

- **Metsä Group**

  Katariina Kemppainen

  SVP, Group R&D, Metsä Spring

  katariina.kemppainen@metsagroup.com

  + 358(0)50 3752212

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Process to join the Ecosystem

1. **Contact ExpandFibre Programme Managers** (by email or through the website contact form) to discuss and align common interests. See https://www.expandfibre.com/join for more information
2. If interests are aligned, you will receive a link to an **online form** to provide information about your organisation or project.
3. ExpandFibre management decides on the approval and informs the member / project of the decision, and upon a positive decision collects their logo and adds them to the Ecosystem mailing list

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Ecosystem events & communication

- ExpandFibre targets to create awareness, facilitate match-making, identify gaps and initiate the preparation of new R&D projects through:
  - Actively meeting with ecosystem members and creating new links between them, with the help of the ExpandFibre Ecosystem platform tool
  - Arranging theme related workshops, ecosystem events and a public annual seminar
  - Co-operating and coordinating initiatives with other ecosystems
    - e.g. CLIC Innovation and its ecosystems (4Recycling), FinnCERES Materials Cluster & other Business Finland Veturi ecosystems

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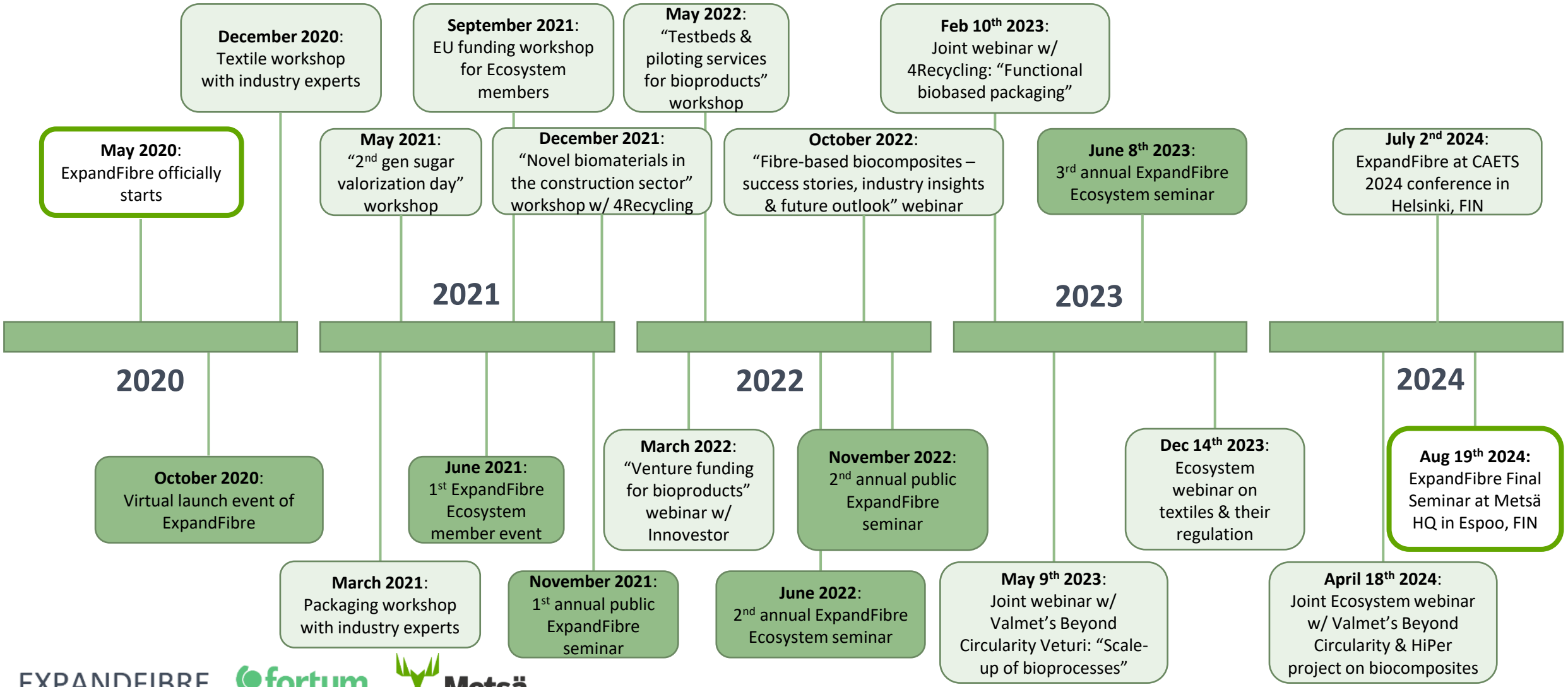
ExpandFibre event summary

Seminars

Workshops & webinars



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Join us to meet the growing demand for sustainable bioproducts – we need players from every part of the value-chain

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