



Company presentation

October 2021





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I. Company and Team

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Introducing Avant Wood

Avant Wood is a **wood modification technology** company headquartered in Finland

Backed by a strong, innovative and dedicated management team and advisors with in-depth experience in business and timber industry

Avant Wood patented **Thermo-Mechanical Timber Modification (TMTM™)**, a technology that improves wood properties in a sustainable and cost-effective manner



Löyly Sauna in Helsinki, Finland Developed using TMTM™ technology

- ▲ Today's increased focus on sustainability and energy efficiency is an excellent fit for the company's offering. Avant Wood's products help to minimize energy and hazardous chemical consumption, unnecessary use of wood and reduce CO₂ emissions in the construction and timber industries.
- ▲ TMTM[™] modified wood is a high-value construction material with a wide range of applicability from structural materials to flooring.
- Our technology can modify the characteristics of almost any low-value softwood species according to the requirements of the end-product, regardless of the diameter of the wood.
- The prototype technology has been successfully validated in 7 pilot installations globally



Vision, Mission and Values



We believe...

- That humanity can harness nature to benefit both the planet and all living things in it
- In working for our customers' best interest and our environment's wellbeing by developing technological solutions that will create sustainable economic success
- That our people are the driving force behind our technology and that they are the core focus of our company
- In our passion for highquality technological solutions and its continuous improvement

- To revolutionize the sustainable use of wood regarded as waste or lowvalue end-product at much higher rate
- To use our current Thermal Mechanical Modification Technology (TMTM) Technology and continually evolve this technology and the limitless future opportunities for new technologies
- To provide the tools for Manufactures to produce Products that save costs and fossil fuels
- Inspire the Manufacturing community to use the Avant Wood TMTM technology and make more attractive and longer-lasting products

- Avant will be widely known as a company that inspires people to fully utilize all of nature's gifts to humanity.
- Avant will be the leading brand of TMTM Technology, this brand will revolutionize the Timber industry.
- Avant will be widely known as a company the promotes new technologies to utilize Timber species from all over the world to its greatest attributes.
- Avant will help build a circular economy and promote the health of small, medium and large businesses.



Avantwood's Team

The Management

Avantwood's management combines technological innovation with experience on business development and successful investment exits



Marko Savolainen

Chief Executive Officer (CEO)

Marko Savolainen has a vast experience in leading companies to growth and delivering challenging targets. He is an expert in business transformation, leading through organizational change and launching new businesses. Marko has also experience on Mergers & Acquisitions on both sides.



Pekka Ritvanen

Chief Technology Officer (CTO)

Pekka Ritvanen is an experienced entrepreneur, a founding partner of AvantWood and Nextimber Oy. Having thirty years of experience in various international management positions, Pekka is also highly technically skilled with a Masters of Science in Automation from Tampere University of Technology.



Mikael Franck Chief Financial Officer (CFO)

Mikael is one of Avant Wood's founding members and has a long career in business construction, management and entrepreneurship. Experienced in several industrial and commercial fields, multinational and start-up companies. In addition to his financial background, he has served as Country Manager in both Finland and Sweden Nissan and was responsible for the import of Mercedes-Benz passenger cars.



Health & Safety Standards

Avant Wood is operating its processes aligned with ISO standards based on the plan=> do=> check=> act- philosophy that is inherent in **ISO 9001, ISO 14001, and ISO 45001.**

Every machine has **EU CE Mark Certification**. CE marking indicates that a product has been assessed by the manufacturer and deemed to meet EU safety, health, and environmental protection requirements.

Additionally, we comply with specific Finnish legislation. All this will provide additional assurance for our international customers.

We have a detailed manual with quality and **HSE** operations procedures for our machines and each installation will be accompanied by comprehensive training as part of the handover procedure that covers quality and **HSE requirements**.







II. Market Outlook

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Construction is Polluting

Traditional steel and concrete based construction materials are a major source of CO₂ emissions.

- 5-12% of all EU GHG emissions from construction materials
- Strong legislative pressure to find new, more sustainable materials, e.g. EU Green Deal
- Wood has a lot of potential but only if managed correctly.

Hundreds of low-value timber species are unutilized or underutilized globally.

- Up to 80% of harvested wood in the developing world is going to waste or being burned, especially tropical wood.
- Many central European countries, a significant amount of hardwood is allocated to the energy sector, due to small timber diameter.
- The potential of value-added and innovative hardwood utilization is underestimated within and outside the forest and construction sectors.

Construction & Timber Industry Trends:

Pursuit for Sustainability, Improved Materials

Global Environmental Regulations

Timber Going Mainstream in Urban Construction

Technological Breakthroughs in Process Control, Sensor Technology and Big Data / IoT Applications

Emerging Wood Modification Technologies



Demand for Sustainable Timber

Mass timber presents itself as a more sustainable alternative to traditional construction materials and methods, being **more energy-efficient** and **providing a long-term carbon fixation alternative** that is **urban** and **economically viable**



This same principle of long-term carbon fixation also applies to Sustainable Furniture and Flooring

Therefore, Mass Timber has immense potential to serve the demand by both governments and companies to **become Carbon Neutral**

However, there is a serious issue regarding Mass Timber: If the timber comes from deforestation or poorly managed forests, ecosystem degradation become a problem.

That's where Avant Wood comes in: as a provider of technology to produce sutainable, high-value mass timber using low-value wood



Market Potential for Sustainable Wood Furniture

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Wooden Furniture's material and aesthetic caractheristics make it highly demanded for both residential and commercial use, **outlining a promising market for AvantWood**



Source: FIOR Markets, "Wooden Furniture Market by Product Type (Softwood and Hardwood), Material (Laminates, Plywood, MDF and Others), Application, Distribution Channel, Region, Global Industry Analysis, Market Size, Share, Growth, Trends, and Forecast 2021 to 2028", February 2021



Market Opportunity for Avant Wood:

 Design: Wide Range of Modification possibilities
 Sustainability: as a substitute for endagered/sanctioned tropical wood species
 Durability: compared to traditionally chemically impregnated wood furtuniture
 Net Zero Carbon: Corporations are using their infrastructure and fixed assets as a way to

target their net ero carbon goals, as seen with their adoption of mass timber **Circular Economy**: TMTM allows the making of high quality furtniture with low quality wood that would be otherwise burned for energy



Market Potential for Mass Timber

Mass timber is the **use of solid wood panels for construction** applications that would otherwise use traditional materials such as concrete and steel

Demand for mass timber solutions is growing rapidily accross the world, since its benefits are not only **economically more efficient** but also **converging towards several sustainability goals** set by various private and public entities

Mass Timber Highlights

Lower Material and Labor Costs

• Less complexity compared with concrete and steel means lower costs

Lower Construction Time

• Usage of pre-fabricated wood panels greatly reduce construction time

Greater Fire and Seismic Resistance

- Large, solid and compressed masses of woods are harder to ignite
- Mass Timber performs better in earthquakes than concrete buildings

Aesthetically Appealing

• Exposed wood means greater connection to nature



World's tallest mass timber building in Norway





Estimated Market Size for Mass Timber (CLT)

Source: IMARC Group, "Cross-Laminated Timber Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast 2019-2024," Research and Markets, April 2019

Google has begun construction of its first 'mass timber' building in Sunnyvale, CA





Mass Timber going mainstream

'With timber buildings, the embodied carbon is negative because trees store carbon until they decompose'

The tyranny of concrete and its costly carbon footprint



Financial Times, May 21st 2021

'Mass timber, which uses prefabricated solid wood panels for low- to mid-rise construction applications, is already becoming popular in Europe and shows increasing commercial potential worldwide'

Mass Timber: Wood is prominent in construction's future, value for carbon removal to be determined

The Economist, 2020 Intelligence Report



'The hottest new thing in sustainable building is, uh, wood' The many, many benefits of using wood in place of concrete and steel

Vox Magazine, Jan 15th 2020





IV. Technology and Business Model

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TMTM[™] Technology

Thermo-Mechanical Timber Modification is an integrated process of drying, densification and thermo modification to enhance timber properties.

Patented TMTM[™] allows a very **high material yield and quality**, **80% reduced lead time** compared to conventional multi-facility wood treatment processes.

TMTM[™] minimizes energy consumption, cuts labour and material costs, and reduces environmental impact and improves overall business performance.

Scalable and automated TMTM[™]-Modification System

Integrated Process: all-in-one-line

Patented process control technology

High performance timber with a wide array of applications

Flexible and energyefficient process

Sustainability, no chemical impregnation







TMTM[™] Process I

A Batch loading

 Green timber is the best for TMTM-Modification, since Densification can be better performed
 Planks and cell plates are set onto base plate on top of each other



3) Thermal

Modification





Batch unloading Sensors are removed Batch is unloaded





Batch after Drying and the other after Thermomodification

4) Cooling & Moisture Content Stabilization







TMTM[™] Process II

TMTM[™] modification technology consists of following process phases

1. Heating to initiate drying and get temperature and relative humidity conditions required by TMTM[™] modification

2. Removal of water to reach desired moisture content and gradient
3. Densification under suitable moisture and temperature conditions to enhance wood hardness, strength, and abrasion properties

4. Thermal modification to reduce equilibrium moisture content and permeability to decrease shrinking and swelling and improving the dimensional stability

5. Cooling to avoid post-drying defects

6. Moisture content stabilization to achieve desired final MC, even colour, according to the clients requirements.

Yielding the following positive results:

Improved characteristics such as resistance, strength and hardness as well as visual, mechanical and biological characteristics

- A Extended colour gamut and full colour penetration
- Hardness + 20-100% and MOE/MOR + 15-30%
- Less or no swelling & shrinkage in exterior application

Eco-friendly

No chemical substances are added in the modification process, residues may be utilized in energy or bio-polymer production

▲ Energy savings of 10-15%

Cost-effective

- Using technology to add value to end products using residues and cheaper raw material
- A Reduced modification time by 70-90%
- Increased wood utilization in 12-25%



TMTM[™] Modification Workflow



TMTM[™] Units and Systems

1. TMTM-Modification Units and Systems

TMTM Modification Testing Unit 1200

Location	Under construction
Year of manufacture	2021
Capacity (32 mm wood thickness)	0,37 m3
Cell plate level dim (l x w x h)	1,2 x 0,6 x 0,8 m 0,72 m2
Cell plates inside / outside	40 (50) pcs levels outside
Unit dim. (l x w x h)	1,8 x 3,1 x 3,7 m
Unit weight	~ 4500 kg

Scalable and automated TMTM-Modification System

- Several modifiaction units in the same system add capacity and flexibility
- Batch loading and unloading can be done by automatic handling system





New Features:

- Electrical mechanical cylinders for densification (Surface pressure max 10 kg/cm2 in densification, =72000 kg)
- Real time batch/wood weight measuring by Load Cell Sensors
- High pressure water spraying system
- New steam generator model
- Automatic greasing of fan bearings
- New cell plate structure
- New control system



End-Product Properties

TMTM[™] end-products high performance is backed by both scientific research and real world application



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Scientific Paper published by researchers at the Universiy of Eastern Finland covering the properties of modified wood

Wonder Wood Case Study

Wonder Wood uses TMTM[™] heat modification to improve the natural properties of wood such as durability, dimensional stability and resistance against decay.

• Results in beautiful warm tone and color throughout the wood

• The process is environmentally friendly, free of any toxic additives and low on allergens









Products and Services Offering

Avantwood Process Control System

- The Avantwood control system and patented software enable a real-time process follow-up
- It obtains flexible optimization of wood modification phases considering the endproduct requirements.
- The offering includes the control software, hardware, control parameters for different timber species, and end-product characteristics and process sensors.
- Customer Support and Sales (CSS), Consultancy, and Continuous R&D
- We serve customers with proactive maintenance and timber modification software updates.
- Continuous product and TMTM[™] R&D secure the production of sustainable, economical, and innovative wood solutions to exploit new timber species and to obtain customers' new end-product applications.

Next Gen Unit



- Modular product architecture
- Based on standardized, easily scalable structures

Process Control technology



New IPR's (SW&HW)



TMTM™ Lock-Wood

- Avant Wood's provides Forest Optmization solutions that allow an sustainable way to enhance the utilization of timber, with a more economically efficient use of small-diameter wood
- Small-diameter wood usually has low-value uses in the timber industry, such as burning for biofuel and fertilizer, with Avant Wood's solutions it can be used for higher-value Glulam Boards
- ▲ Utilization of cores residue from plywood manufacturing, as well as other small diameter material from harvesting to produce glulam boards using TMTM[™]
- ▲ Small diameter timber usually has low yield and low added value applicability in the industry. TMTM™ Lockwood allows for the creation of costumer specific high value end products.

That is in line with the **Circular Economy** principles, in which the carbon captured is locked in a higher-value, longer lifetime product such as **mass timber** and **furniture**, instead of being released to atmosphere as fuel burning





Lock Wood Glulam boards are a lower price competitive alternative to Cross Laminated Timber (CLT)





Client Strategy

Avant Wood's process is all-encompassing solution for the entire timber value chain, being capable of adding value to both upstream and downstream timber operators.

Avant Wood Solution for Sawnmill Operators: TMTM[™] sawn wood treatment prior to sale/export allows for both a **faster drying** as well as **higher** added value to the material Avant Wood Solution for Industry Operators: TMTM[™] allows significant wood enhancing capabilities addressed to a wide array of finished products, with faster drying, greater diversification of raw materials and higher sustainability standards



Avant Wood's Scalability

Avant Wood is able to scale its technology to other countries

With its patented TMTM[™] technology and manufacturing process, Avant Wood can easily leverage its network of component suppliers in order to assemble machinery in other countries with a local third-party industrial manufacturer



From a Corporate Finance perspective this scalability aspect in Avant Wood business make it very advantageous to Investors

- A scalable production process with a table supply chain means that Avant Wood will be capable of addressing global demand for its solutions in a relatively short time
- The use of third-party industrial manufacturers translate in less Capital Expenditure, less Fixed-Asset depreciation and a better overall capital structure.





Business Model

Avant Wood drive is to **optimize its customers' processes**, working to provide a global scalable solution for local timber industry challenges

One aspect of this involves a regional organizational structure to ensure short local decision-making paths and, thus, faster customer contacts.

This business model will direct customers' differing needs, challenges, and purchasing processes.

Potential clients in both upstream and downstream timber

Diversified streams of revenue with high growth potential

Applicable to several different types of timber in markets with high growth potential such as Asia Manufacturing and selling of turn-key machinery projects based on its patented TMTM[™] technology

Licensing of TMTM[™] technology

Continuous customer support with maintenance and timber modification software updates, addon sales and consultancy

Continuous product and TMTM[™] process R&D is secured by manufacturing of sustainable, economical and innovative wood and glulam solutions by applying TMTM[™] technology



V. Current Traction and Global Opportunity

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Proof of Concept

7 units up and running around the world, with different industries, applications and timber species, showing that Avant Wood's solution is both versatile and scalable







Global Opportunity

- Avant Wood's solution is scalable for local challenges
- TMTM has been tested in several different timber species
- Showcasing Avant Wood's truly global market potential

TMTM[™]- tested timber species

- Spruce Picea abies
- Pine Pinus sylvestris
- Siberian Larch Larix sibirica
- Silver Birch Betula pendula
- Aspen Populus tremula
- Alder Alnus incana
- Maple Acer platanoides
- Beech Fagus sylvatica
- Oak Quercus robur
- Cherry Prunus

Global Forest Management



- Teak Tectona grandis
- Walnut tree Juglan
- Mahogany Swietenia macrophylla
- Jatoba Hymenaea courbaril
- Afzelia Afzelia africana
- Iroko Chlorophora exelsea
- Eucalyptus Grandis Urophylla, Brazil, Saligna, South-Africa & Australia, Eucalyptus Nitens, Australia
- Acacia- Acacia mangium, Vietnam
- Rubberwood- Hevea brasiliensis, Vietnam



Global Pipeline

Global Potential Representative and Partner Network



European Market Opportunity:

The European Market presents a great opportunity for Avant Wood, such as mass timber going mainstream, as well as sustainable furniture. Furthermore, Net Zero Carbon Commitments and Tropical Timber Import Restrictions by the EU are also significant drivers of growth for Avant Wood



R&D project negotiations with Europe's largest window/door manufacturer.



Several R&D projects under way with major Finnish forest company-LOI/ Partnership

Asian Market Opportunity and Current Traction:

The world's fastest growing, the Asia-Pacific market has a large space for growth and development, since it still is the largest importer of sawn-wood in the world and has a rising demand for value-added wood products



Joint government funded project with LUKE for R&D unit and several customer projects in **Vietnam** 600k€ + many customer contacts



Two LOI signed with **Malaysian** clients $(1,2M \in)$, several new ongoing, will start testing samples of Oil Palm Trunks (OPTs) in 2H 2021



Discussion with Fairventures Worldwide gmbH, a German company with projects in **Indonesia**

Tests completed with the customer in NZ, Radiata pine (opportunity 4M€), LOI to be signed



Market Potential in Asia



Sawn-wood net trade

Sawn-wood consumption (2018)





The world's fastest growing, the Asia-Pacific market has a large space for growth and development, since it still is the largest importer of sawn-wood in the world and has a rising demand for value-added wood products

Asia has the largest consumption of sawn-wood in the world, being the second largest producer and the largest importer.

ASIA-Pacific was a net importer of 55 million m³ of sawn wood, if 10% of that is converted into TMTM[™], demand for new TMTM[™] units is 1.000 with 5.000 m³ annual capacity per unit. The potential market estimate is € 1-1,5 billion by 2022

Avant Wood is well positioned to benefit from this great market potential

Appointed Asian-based representatives, Matthias Gelber and Frank Amptmeijer (ProperLy Asia Sdn Bhd) to establish exposure, PR, sales and marketing network in Asia.

Legislation changes in SEA region regarding round wood exports have created a potentially huge opportunity for alternatives to existing wood processing methods. TMTM[™] by Avant Wood will meet all those significant issues.





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Financial Projections

- In 2020 Avant Wood presented a strong sales operation, although the Covid-19 global pandemic slowed down customer decision process.
- Lead times are quite long, but the company is expecting contracts later 2021

Avant Wood Oy Projected P&L

(In 000s EUR)	2021	2022	2023	2024	2025
Sales	960	8.150	46.350	79.750	114.000
(-) COGS (Cost of Goods Sold)	-660	-5.070	-26.928	-46.515	69.680
Gross Profit	300	3.080	19.422	33.235	44.320
(-) SG&A (Sales, General, Administrative Expenses) (-) R&D	-795 -250	-2.705 -605	-7.995 -1.618	-12.183 -2.763	-16.460 -4.144
EBITDA	-745	-230	9.809	18.289	23.716
(-) Depreciation & Amortization	-50	-100	-100	-100	-100
EBIT	-695	-130	9.909	18.389	23.816

Current Sales Pipeline (total sales leads in million EUR)



- Short-to-medium term sales growth drivers include sustainable furniture, flooring and plywood as well as the global economic recovery that is pushing higher timber prices
- Long term drivers include Lock-Wood Glulam Boards for several Mass Timber and flooring applications as well as the growing demand from Asia and for sustainability solutions globally.



Valuation

Avant Wood Oy Discounted Cash Flow Valuation

In 000s EUR, for the next 5 years)

		2021	2022	2023	2024	2025	Rate is a
EBIT		-695	-330	9709	18189	25000	compan Capital
Operational t	tax	20%	20%	20%	20%	20%	conserv
Net Operatio After Taxes (I	nal Profit NOPAT)	-556	-264	7767	14551	20000	Equity F risks of capital I
(-) CAPEX		-1300	-2000	-500	-500	-500	To calcu
(+) Depreciat	ion	50	100	100	100	150	growth r
Changes in W Capital	/orking	-102	-1403	-6905	-4140	-7385	
Free Cash Flo	W	-1.908	-3.407	622	10.171	11.318	33.896
Pre-Money	10.000]					
Valuation	10.000			Disco	ount Ra	ate: 30.7%	6
Series A Funding	2.000	The Di WACC • Av • Av	iscount Ra <i>C = Cost of</i> ant Wood ant Wood Calc	te is the V Debt x %D 's Cost of I 's Cost of I culated usi	Veighted A Debt + Cost Debt = 5% Equity = 47 Ing Capita	Average Cost t of Equity x 9 7% I Asset Pricing	of Capital (WACC) %Equity g Model (CAPM) =
Post-Money Valuation	12.000	 Risk Free Rate + Industry Beta x Equity Risk Premium Risk Free Rate: 10Y Finnish Bond Yield: -0.2% Industry Beta: 1,32 (based on Global Timber ETF) Equity Risk Premium: 36.0% 					

In this valuation, a 30.7% Discount Rate is applied, based on the company's Weighted Average Cost of Capital (WACC). This number is conservative, assuming a higher Equity Risk Premium and captures the risks of investing in the an early capital round such as this Series A.

To calculate the Terminal Value, a 0.5% growth rate for the cash flows was used

The higher risk of investing in an early capital round is implied in the model with a high Equity Risk Premium of 36%

In the following years, assuming a good environment for Avant Wood global sales, the Equity Risk Premium will go down, decreasing the Discount Rate and therefore increasing the valuation



Future







Investment Proposal

Avant Wood aims to raise € 2 million in this Series A The funds will used in both capital and operational expenditure

Series A Valuation (pre-money)

Series A Funding

Use of Funds:

CAPEX

OPEX Valuation (post-money)

Shareholder Structure before Series A:

Founders & Management	53%
	4 20/
Finianala Finance Oy	12%
Jari Vepsäläinen	11%
Nextimber Oy	8%
Karuna Capital Pte Ltd	3%
Individual Investors*	13%

Total Equity

 $\ast 207$ other individual investors whose equity share is less than 1%

€ 10.000.000 € 2.000.000

€ 1.300.000

€ 700.000

€ 12.000.000

100%

Shareholder Structure after Series A:

Founders & Management	44%
New Investors	17%
Finlandia Finance Oy	10%
Jari Vepsäläinen	<u>9%</u>
Nextimber Oy	7%
Karuna Capital Pte Ltd	2%
Individual Investors*	11%



100%