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Biotalouden lisäärvotuotteet

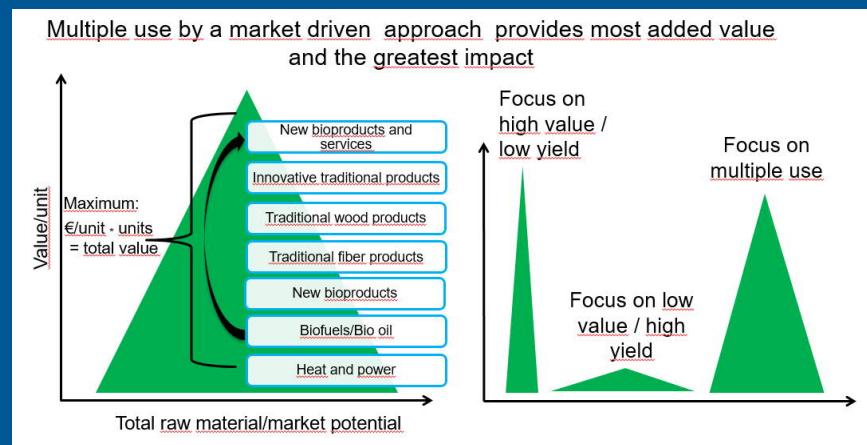
Biotalouspaneeli 1.12.2020

Jussi Manninen, VTT

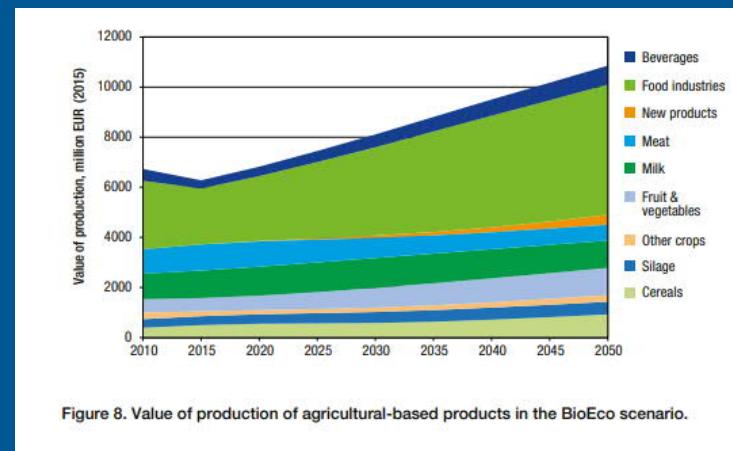
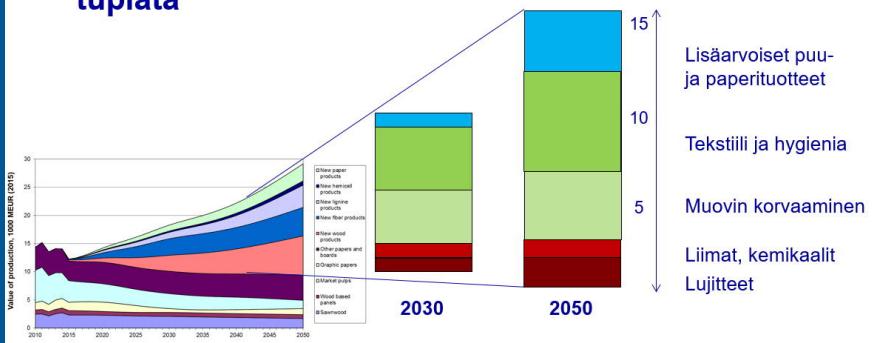
30/11/2020 VTT – beyond the obvious

Sisältö

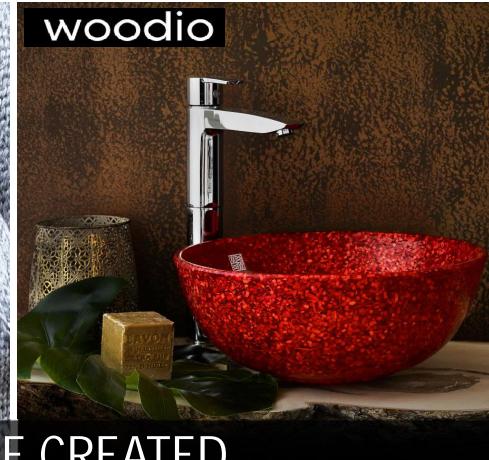
- Yhteenvetokalvot
- LUKE:n ja VTT:n koostama tulevaisuuden näkymä biotuotteisiin



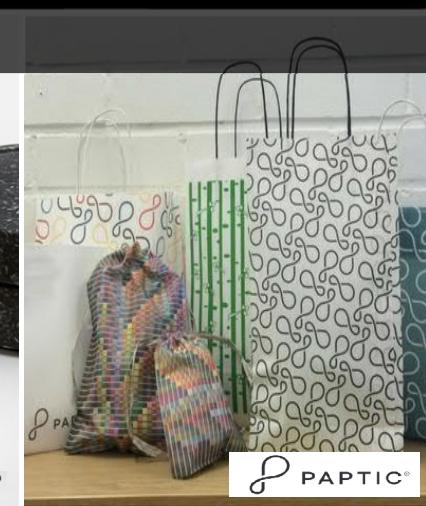
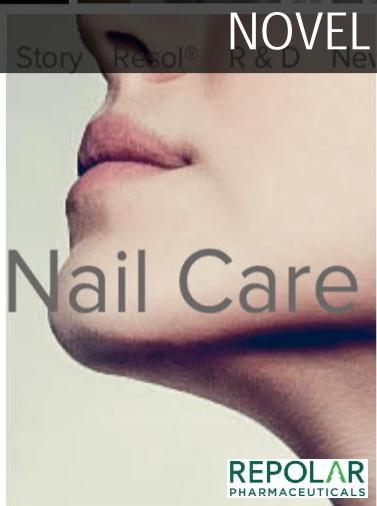
Uusilla metsäteollisuuden tuotteilla metsäsektorin arvonlisä voitaisiin jopa tuplata



Arasto, Koljonen, Similä (eds.). 2018. Wealth from bioeconomy - Integrated bioeconomy and low carbon economy futures for Finland, VTT Technical Research Centre of Finland Ltd.



A GROWING NUMBER OF FINNISH START-UPS HAVE CREATED NOVEL WOOD-BASED PRODUCTS





Metsä Spring ja Valmet rakentavat Äänekoskelle koelaitoksen merkittävän uuden lisäarvotuotteen kehittämiseksi metsäteollisuuteen

Metsäsaari | Lentoasemantti | 20.6.2020 12:00 EET



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UPM aloittaa uuden sukupolven biojalostamon rakennustyöt Saksassa

Innovaatioilla parempaan tulevaisuuteen:
Fazerin ksylitolitehdas voitti Tähtiteko 2020 -kilpailun



Onnistumisen elementit

- Uudet tuotteet vastaavat globaaliiin asiakastarpeeseen, ovat kilpailukykyisiä sekä niiden tuotanto on kannattavaa
- Ehjä ketju ja pitkäjänteinen panostus huippututkimuksesta soveltavan tutkimuksen kautta kaupallistamiseen ja investointeihin
 - Nyt kaupallistamisen kynnyksellä olevat tuotteet ja teknologiat pohjautuvat reilu vuosikymmen sitten aloitettuun työhön
- Ennakoitava ja kilpailukykyinen toimintaympäristö joka houkuttelee uusiin investointeihin



Role of Finland in global bioeconomy product market - outlook 2035

**Antti Arasto
27.11.2020**

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Global trends impacting local production

- Global megatrends
 - Population growth and increase in living standards with more and more focus put in wellbeing in wealthy economies
 - Increased concerns about resilience and biodiversity
- These lead to carbon neutrality and recyclability creating value along the production chain with increasing focus on ethics
- On the process level more efficient use of resources is an asset in global context with traceability and data opening up new possibilities in product safety and transparency



Fibre products adding value to cellulose

- Fibre products have traditionally been a second stronghold of Finnish wood based bio economy.
- Currently the trend of declining demand in paper products seconded with a shift to e-commerce has strengthened the trend towards packaging products.
- New & emerging product groups: flexible packaging, textiles, fashion textiles, hygiene and medical products



Construction materials and systems

- Timber frame and façade are already the predominant construction principles in single-family and linked houses as well as leisure and second homes. The biggest potential to use more wood lies in multi-storey apartment buildings, but also in a variety of educational and institutional service buildings
- Concrete/steel/wood hybrid structures
 - Even greater, but somewhat hidden potential
 - Wood, wherever technically and economically feasible to use, can positively contribute to the overall environmental footprint and handprint of the building, even if considerable volumes of concrete or steel are being used
 - Hybrid structures also enable innovative solutions in terms of structural engineering, architecture, and interior design



Efficient use of resources formerly known as side streams now adding significant value

- Lignin and bark are the largest current industrial side streams from Finnish forest industry
- Concrete plasticizers, paint and coating industry, adhesives, insulation materials, fire retardants, antimicrobial products, water treatment and agriculture, automotive and electrical devices, aromatic chemicals from lignin
- Wider chemical industry
 - Large proportion of the current fossil-based chemicals can be replaced with renewable alternatives, to bring new functionalities to the market, contribute to reducing the dependence on fossil fuels and overall feedstock diversification in the chemical sector
 - Platform chemicals, solvents, polymers for plastics, surfactants, adhesives, lubricants



Food products with improved sustainability

- Finnish food system can have a strong position in the future due to beneficial climate, water and production hygiene conditions as well as new technology and highly-educated primary sector actors
- Current large production and export categories
 - Dairy, meat and other animal products with improved sustainability (Lower environmental footprint, improved animal welfare, more efficient converting of non-competitive (not human edible) and local feed resources into high quality edible foods)
 - Oats, oat products, barley malt and other cereal based products
- Emerging food products
 - Plant-based food ingredients and products (proteins, fibres, oils, and bioactive components)
 - Fish and other aquatic products
 - Cellular agriculture-based products



Value added products from forest, field and beyond

- Food ingredients
- Functional ingredients
- Pharmaceuticals
- Cosmetics
- Wellness products
- Feeds, fertilizer products and growing media



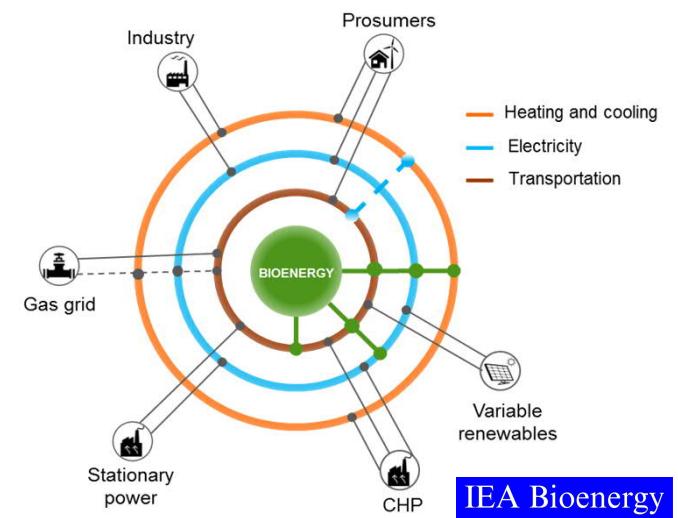
Immaterial opportunities and knowledge

- Recreational use, immaterial goods and education
- Digitalisation & services
 - Digitalisation is one key enabler of bioeconomy transformation. It contributes to two key steps in the long term development of the bioeconomy through 2035
 - 1) RD&D of the future technologies
 - 2) operations of the bioeconomy value chains.
 - Consulting, technology know how



Energy

- Getting significantly more out of existing bioenergy value chains
- Balancing of power and heat grids
- Bioenergy enabling transition and debottlenecking hard to decarbonise sectors
- Enabler for negative emission concepts



Energy system will be significantly more distributed,
interconnected and more flexible than today's!

Iso KIITOS kaikille tekijöille!



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