



Международно Бизнес Училище
International Business School



REFAN
PARFUMERIE & COSMÉTIQUE



XVII International WoodEMA 2024 Scientific Conference

GREEN DEAL INITIATIVES, SUSTAINABLE MANAGEMENT, MARKET DEMANDS, AND NEW PRODUCTION PERSPECTIVES IN THE FORESTRY-BASED SECTOR

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Title of the paper: Evaluating the possibilities of LCA analysis in CAD software for wood products

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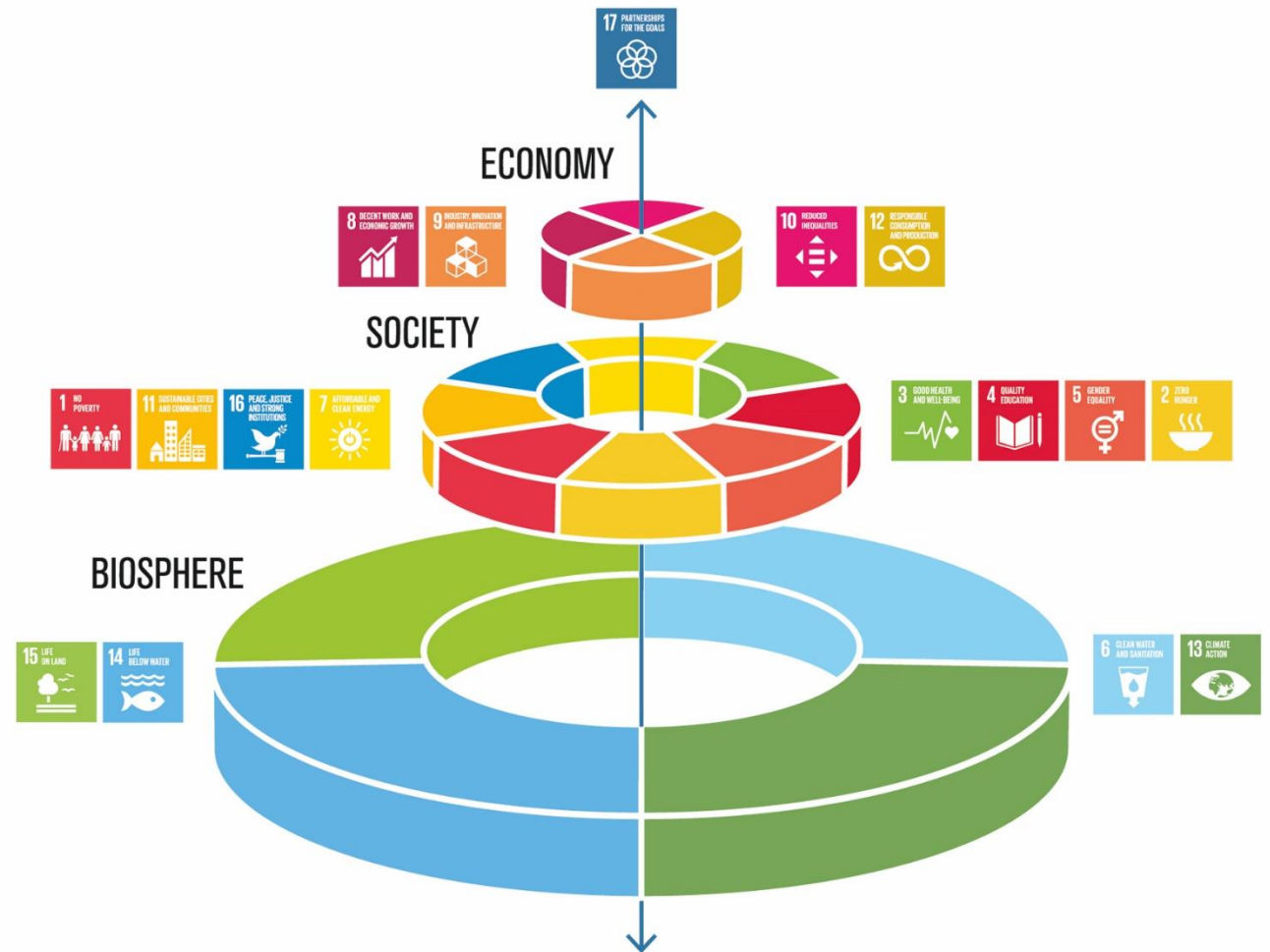
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LCA analysis

- Useful methodology, tool
- Time, resource consuming
- Mostly after the product has been launched
- Digital twins for production planning

- Design phase?
- Real time assessment?
- Industry?
- Wood?

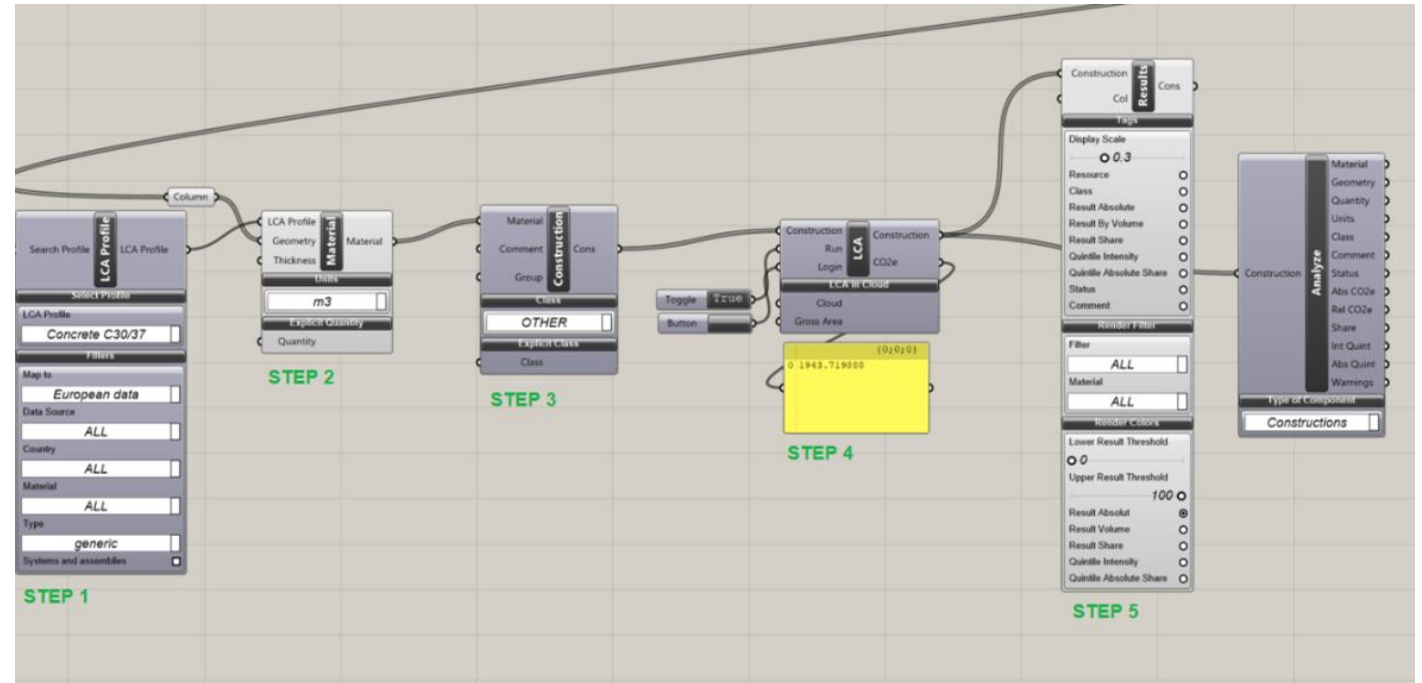
- Fusion, Rhino, NX, Solidworks



Azote for Stockholm Resilience Centre

Rhinoceros

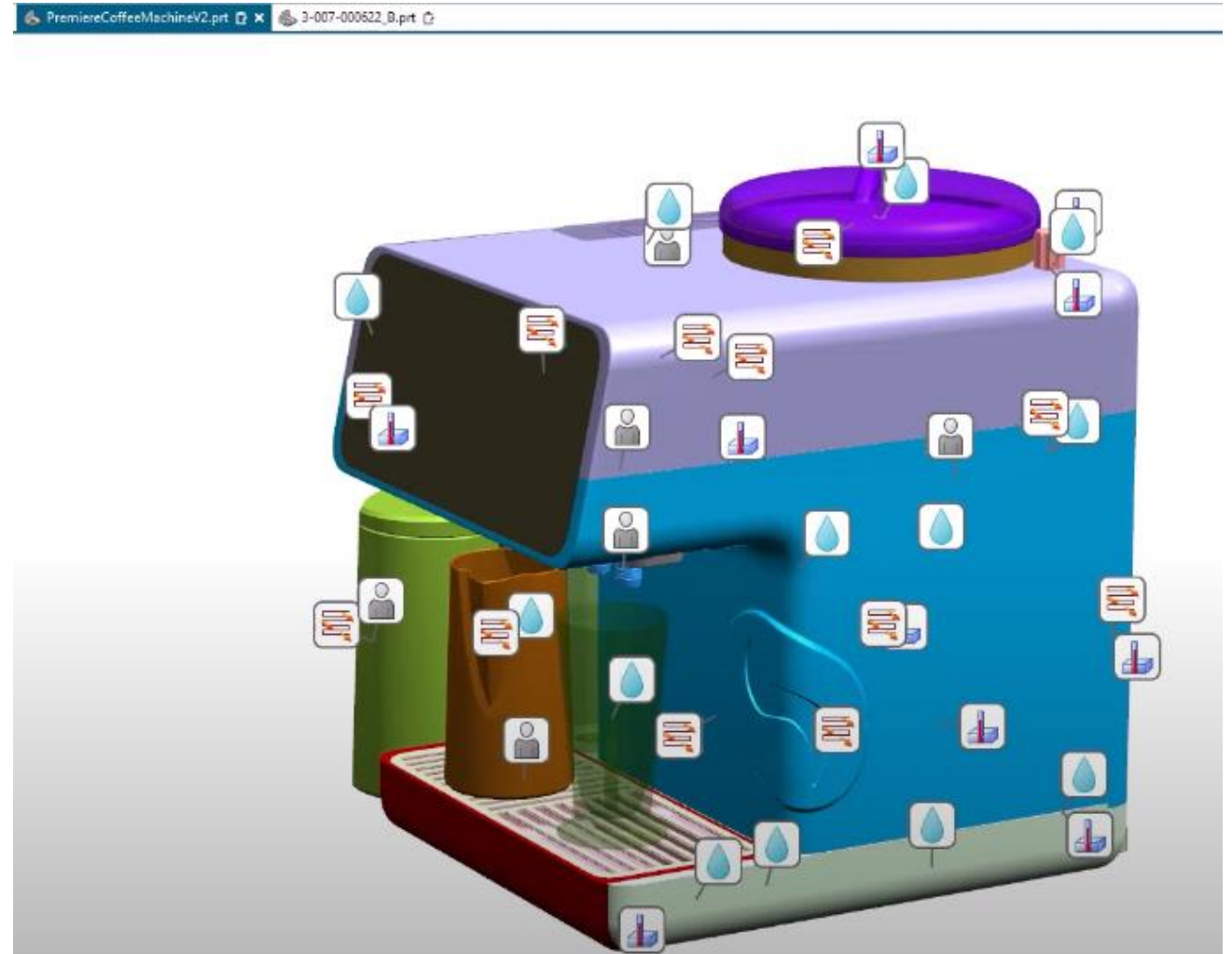
- **Directly One Click LCA – layers**
- Grashopper – many (BIM based)
 - e.g. Cardinal LCA, Brimstone, Caala for Rhino, Epic Grasshopper and Goeko



One Click LCA for Grasshopper

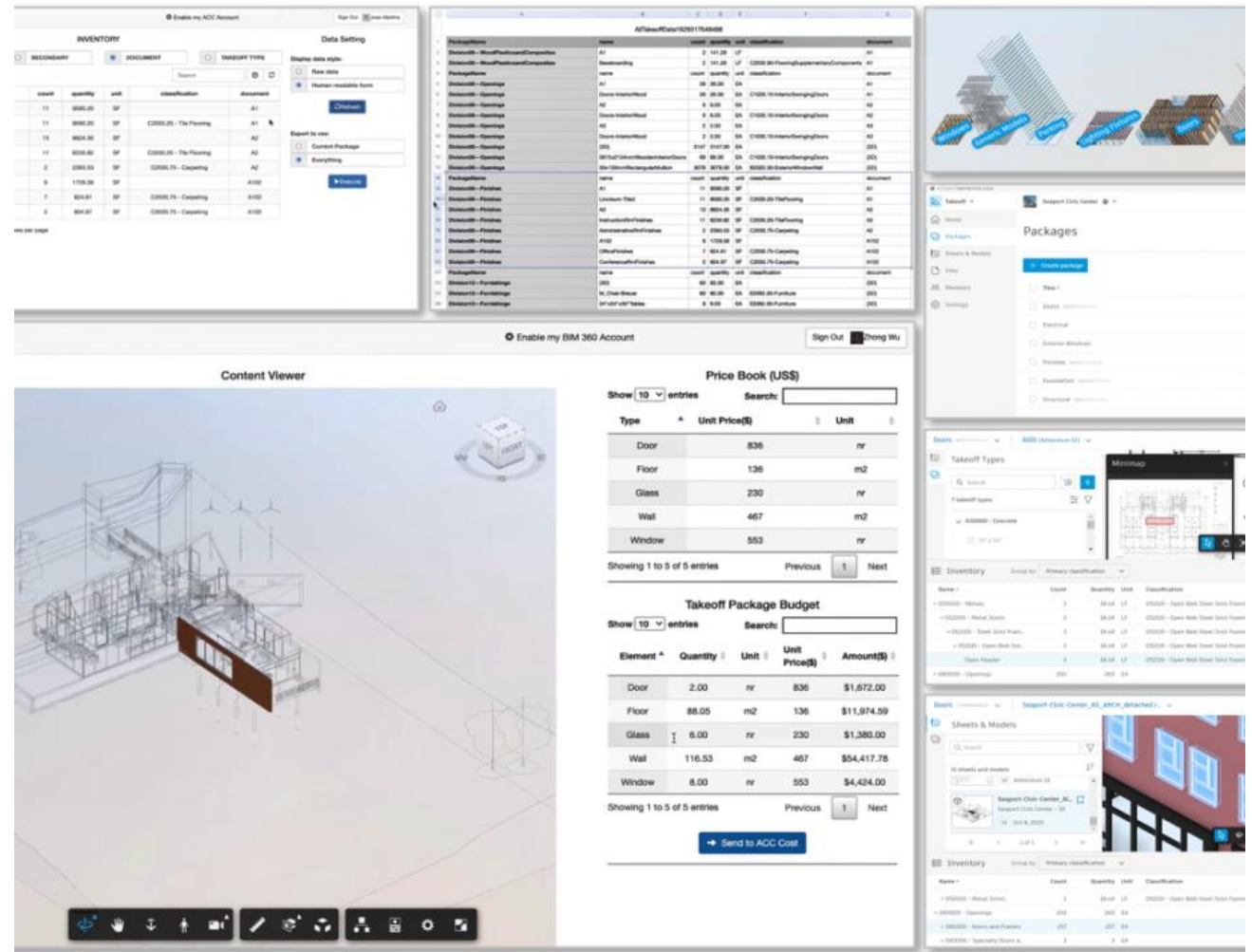
NX – Environmental impact assessment (NX Sustainability module)

- Integrated function
- Large library
- Climate change, fresh water consumption, human toxicity, energy consumption
- Visual representation



Autodesk

- Inventor – Eco Materials Adviser (discontinued)
- Autodesk + PRé Sustainability + ProtoTech Solutions – test phase, 3D models for SimaPRO and Ecoinvent
- Fusion 360 – **Makersite**

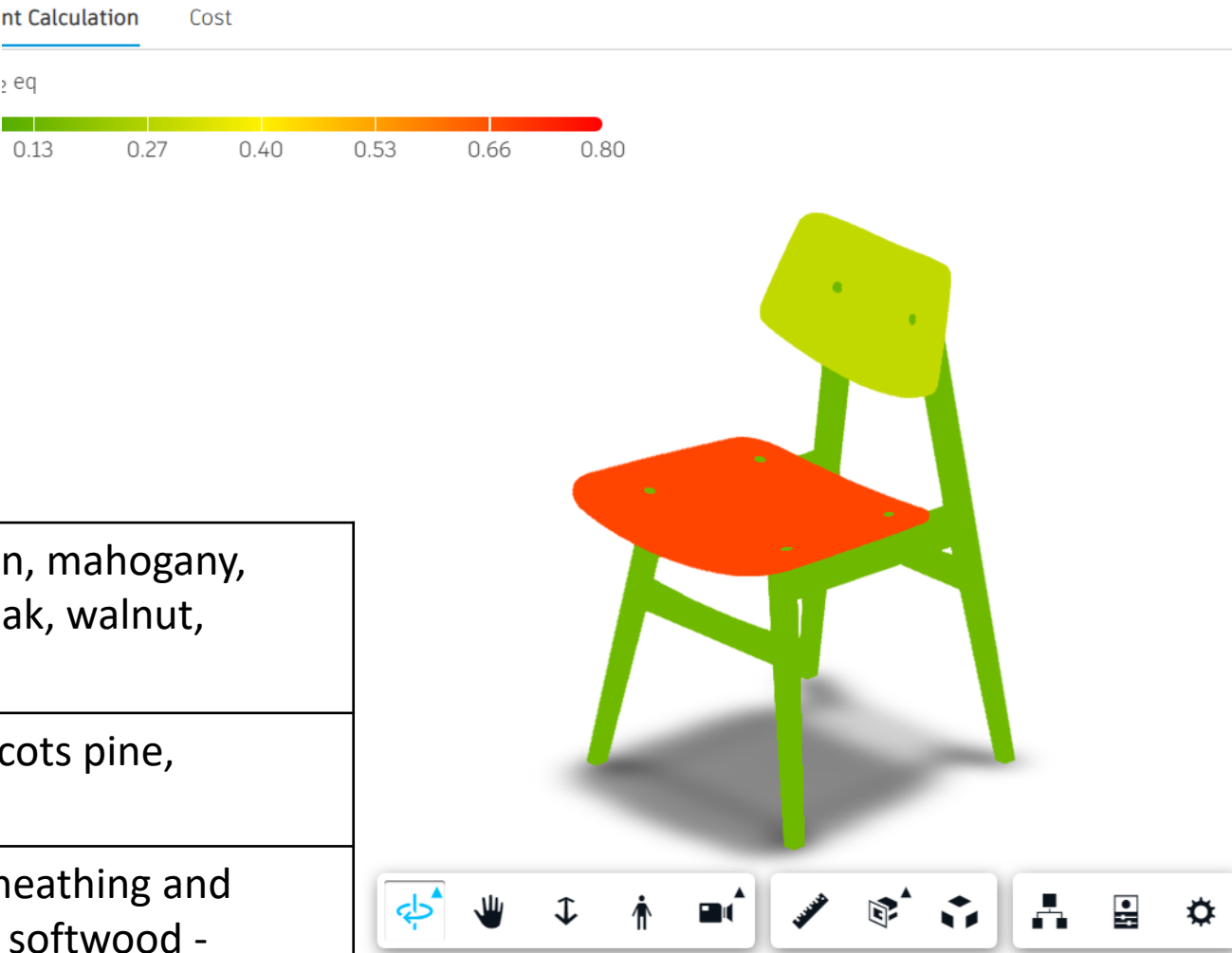


Autodesk API

Fusion 360 - Makersite

- Define the materials in CAD software
- **BOM – Bill of materials -> AI**
- Heatmap
- **Recommended substitute materials**
- AI does not recognise all materials

	SimaPRO	Makersite
CO ₂ emissions	6,49 kg (cradle-to-gate)	1,36 kg



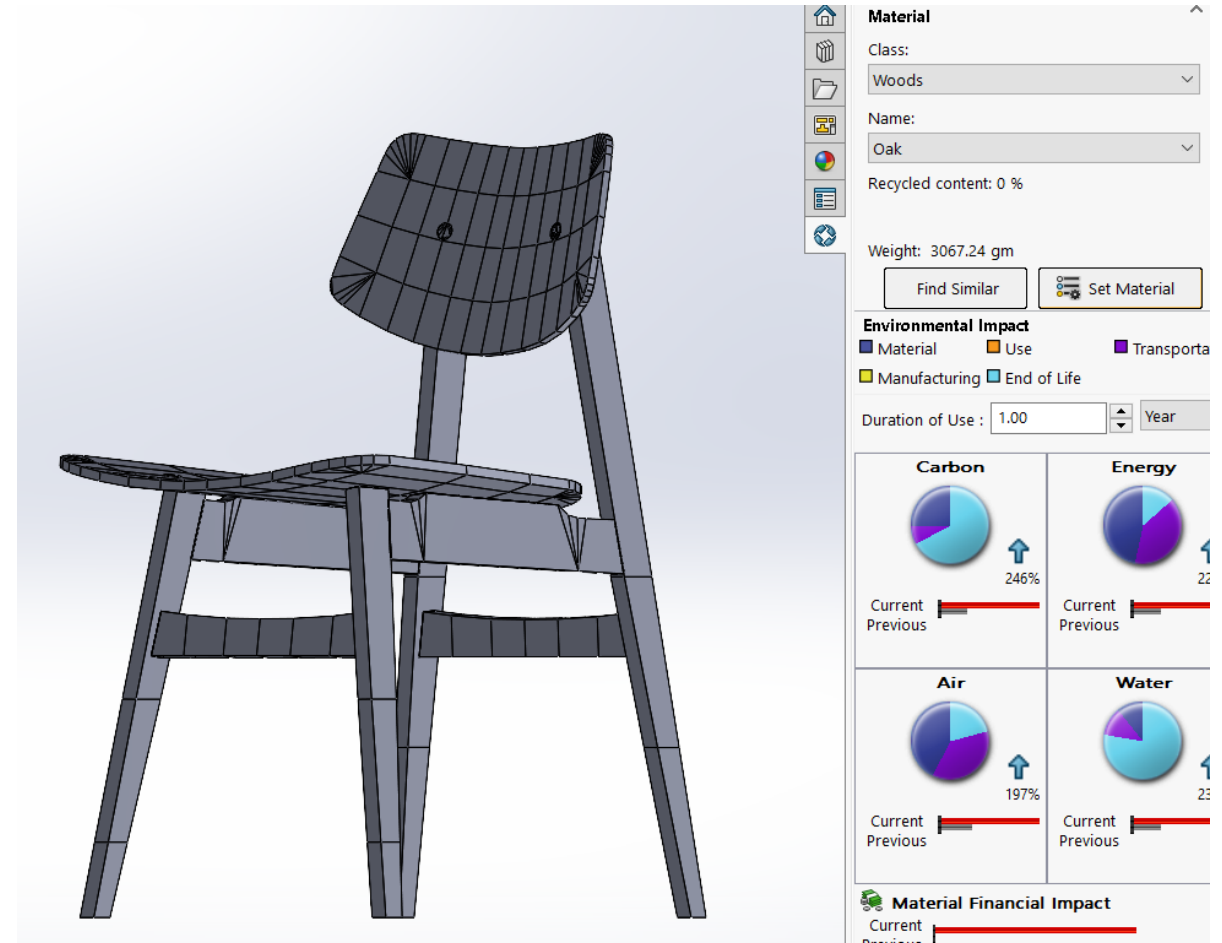
hardwood	ash, birch, cherry, maple, jarrah, lauan, mahogany, white oak, red oak, poplar, spruce, teak, walnut, redwood
softwood	douglas fir, scots pine, radiata pine, scots pine, southern pine
other	LVL, MDF, particleboard, plywood - sheathing and surface treatment), shingles – siding, softwood - lumber and surface treatment, construction timber (oak), construction timber, wood flooring

Solidworks Sustainability

- Integrated
- Sustainability or SustainabilityXpress
- GaBi database
- **Cradle-to-grave**
- Carbon footprint, energy consumption, air acidification, water eutrophication

Hardwood and softwood	balsa, beech, cedar, mahogany, maple, oak, pine and teak
other	particleboard, KLH, OSB, chipboard (uncoated and coated) and wood flooring laminate

	SimaPRO	Solidworks Sustainability
Carbon footprint	64,7 kg	65 kg (duration of use 15 yrs)



Thank you for your attention!