

WouldWood 2 Newsletter 2019-1

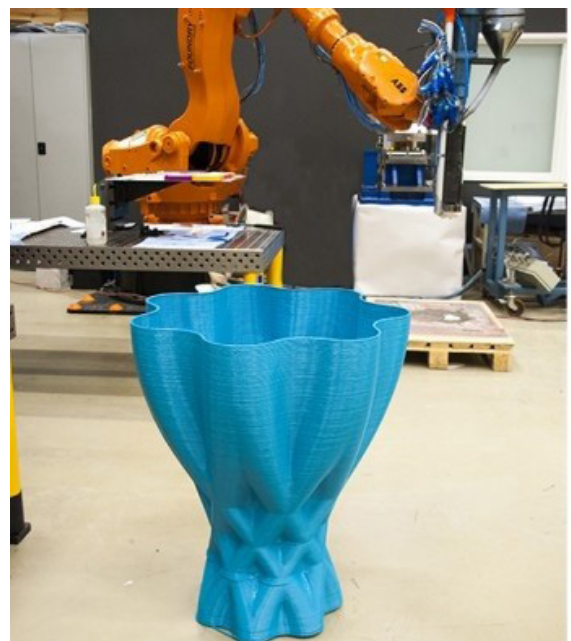
Negotiations are ongoing with Bauhaus to replace Fredells as partner (Fredells has been acquired by Bauhaus in January 2019).

Upcoming events:

- General meeting 8th April, at Rangsellis at Sättra Gård in Bro
- Digi Demo Day, at RISE IVF in Mölndal, 11th June 2019

WP2

- The development in the Architectural and Structural Design Work Package currently looks at the in-depth control of toolpaths, as well as an overview and development of conceptual building elements.
- The toolpath control has been tested visual scripting-based modeling software for parametric control, applied to off the shelf Ultimaker 3d-printers.
- The need for three distinct types of Design Systems have been identified; Building Elements DS (overarching form), Mediating DS (exchange between element and toolpaths) and Production DS (final toolpath generation).



The Wouldwood project is gaining momentum. Thanks to the inclusion of SWEREA IVF in RISE we now have access to several big scale 3D printers. Industrial robot based additive manufacturing (IRBAM). The object was made with 2nd generation IRBAM.

WP3

The latest developments in the Information Systems Work Package embrace a diagrammatic representation of how the information systems, software packages and product design phases could be interlinked, under the prerequisite of close collaboration between architectural and automotive design. This result was enabled by a thorough analysis and critical synthesis of the current state of the art in architectural 3D printing research, done by Work Package 3.

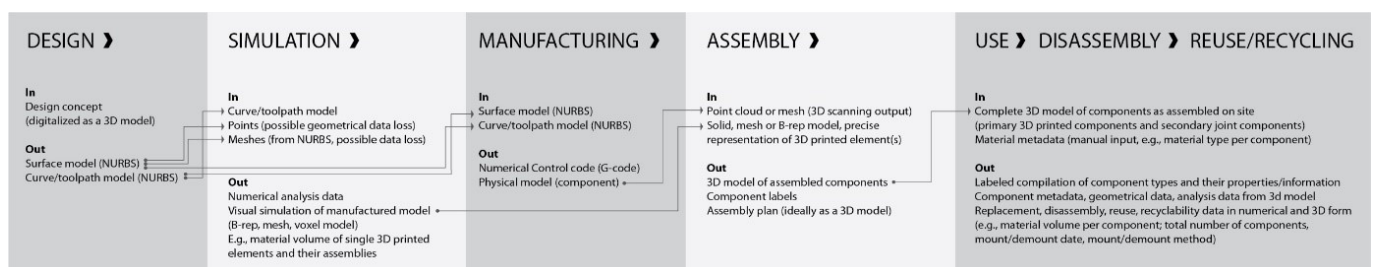


Figure 1. Framework A general framework presenting the possible 3D data inputs and outputs in the different project development phases, indicating the types and routes of data exchanged between the phases.

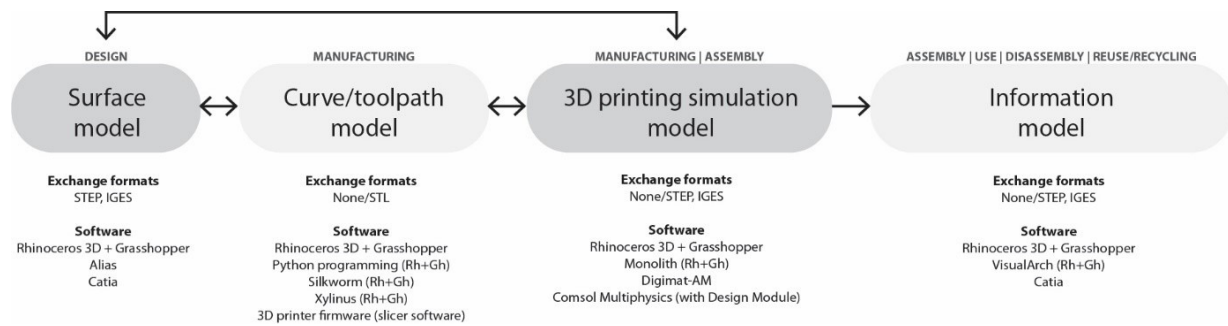


Figure 2. The possible typologies of 3D models to be exchanged in the different development stages, with accompanying file formats and software enabling the exchanges.

WP4

- Focusing on the development of formulations suitable for 3D printing in large scale with the aim to maximize the wood fiber content while still producing high performing products.
- Another task that is addressed now is the identification of critical parameters that we need to follow in order to evaluate the performance of tested formulations. In connection to this we also want to correlate properties of 3D printed test specimens with demands set by demonstrators.
- A first set of formulations has been produced at Stora Hylte, the materials have been compounded and made into pellets. The materials will be 3D printed at RISE in Stockholm and in Gothenburg. As soon as the 3D work starts, we will also start the performance evaluation
- In Stockholm we now have a 3D printer equipped with a printer head able to handle pellets. The screw diameter in the head is 8 mm and the capacity is about 100-200 g/h.
- The testing protocol is under development

WP5

- New printerheads are under development, these will allow printing with coated filament
- 2 master's thesis students are linked to the project

WP6

- Sandra has been appointed as new WPL to replace Susanne.
- A meeting is planned with the demonstrator owners, Scania, Veidekke and White Arkitekter.



Figure 3. The selected part from Scania to be 3D printed

WP7

- Gathering of the data for the LCA and LCC-analysis is ongoing.