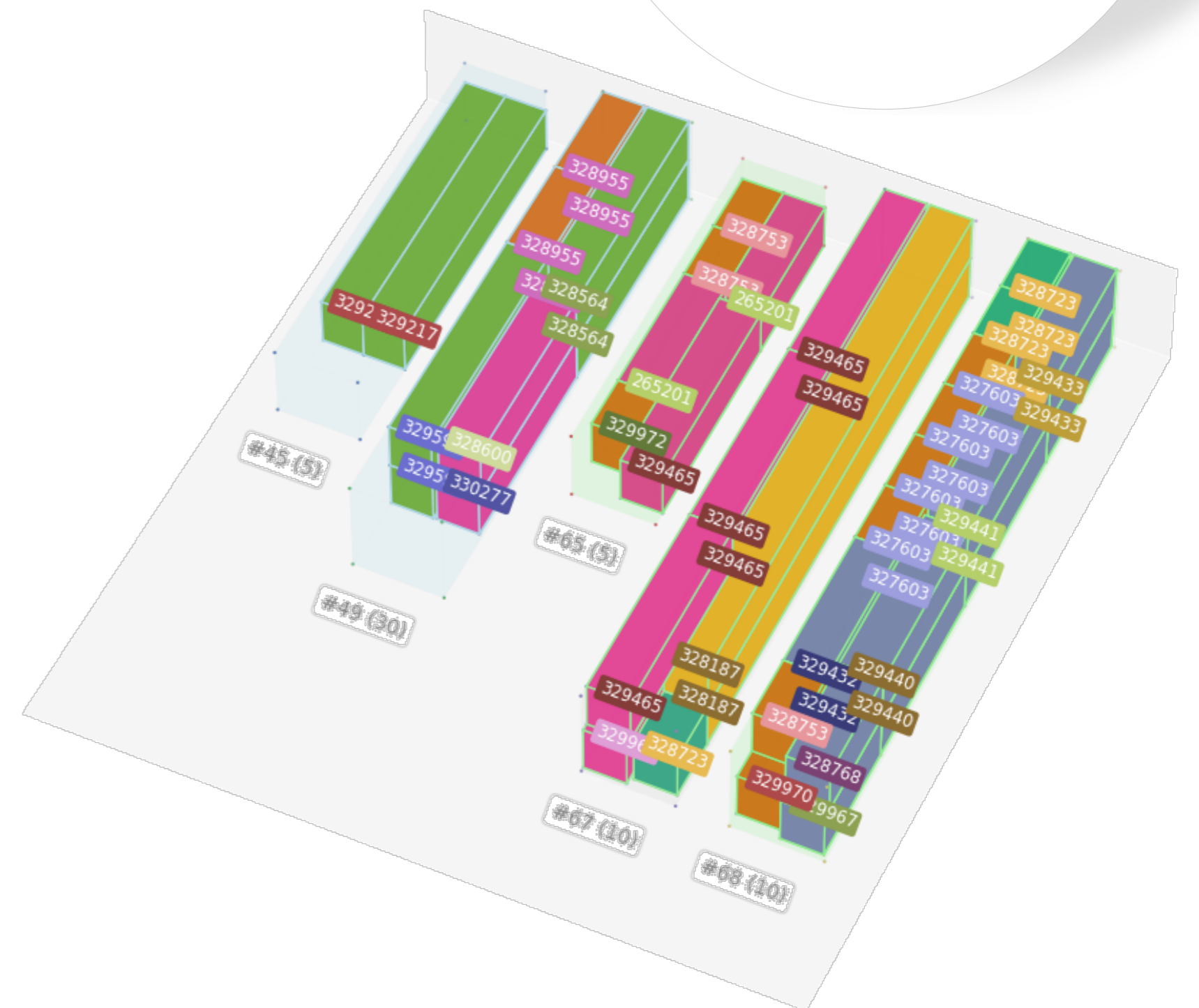
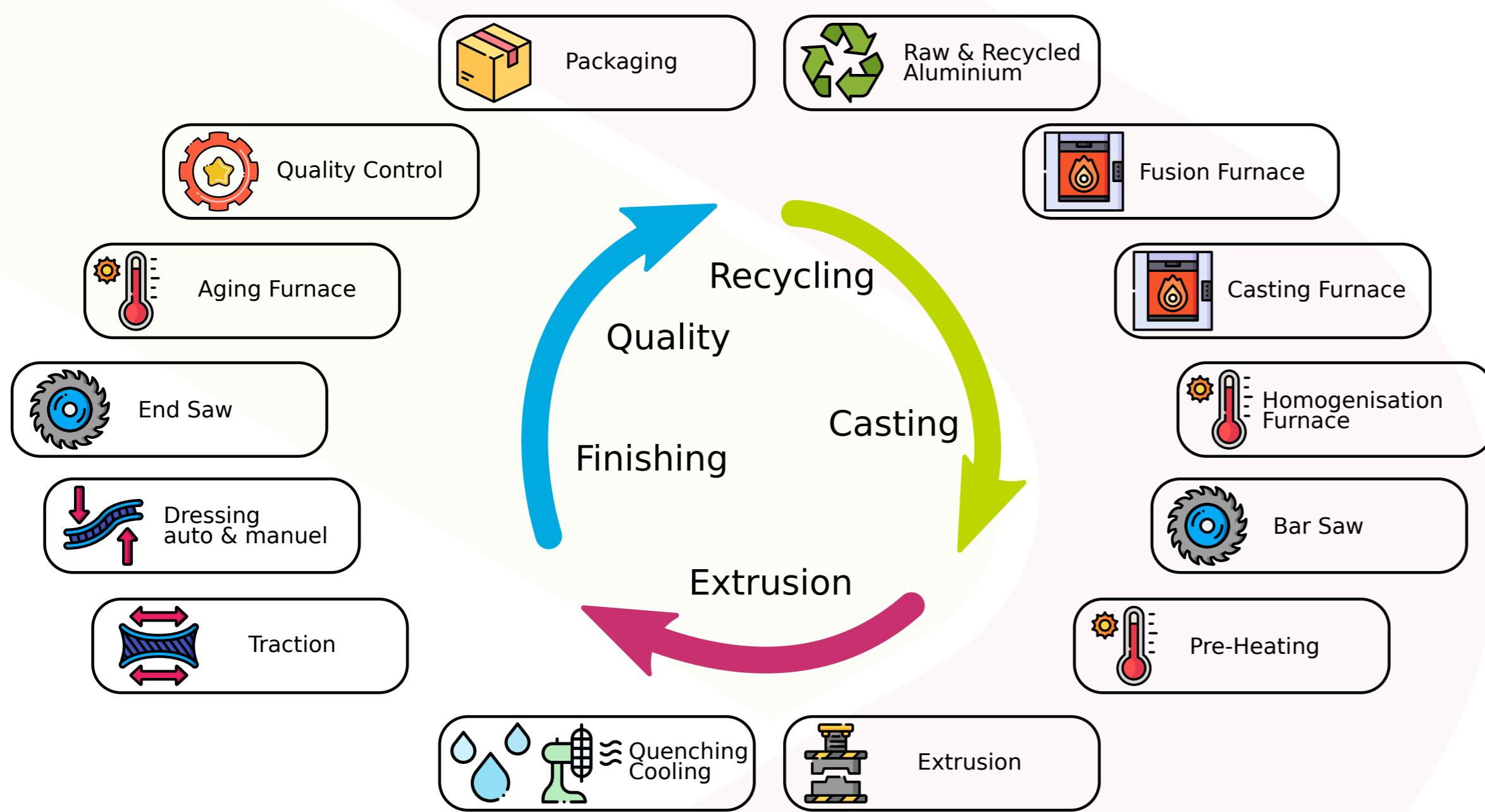
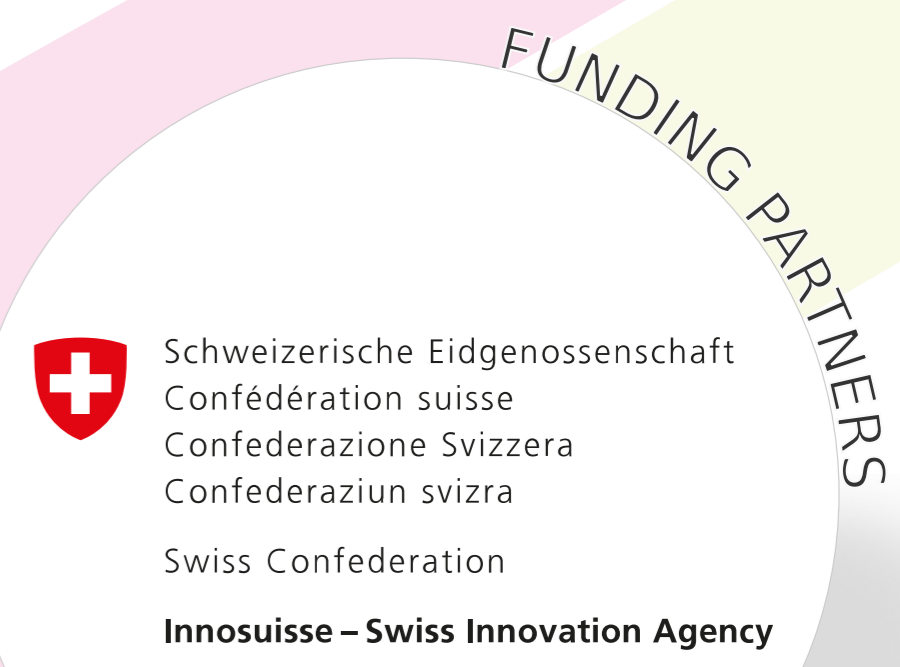


DYNAMIC PRODUCTION WITH DIGITAL TWIN

This project takes the advantage of both 3D modelling and artificial intelligence to get the best out of a production line. It aims to increase its productivity by creating a Digital Twin. With a set of specific algorithms, the most appropriate solution in term of speed, energy and/or space available is generated.

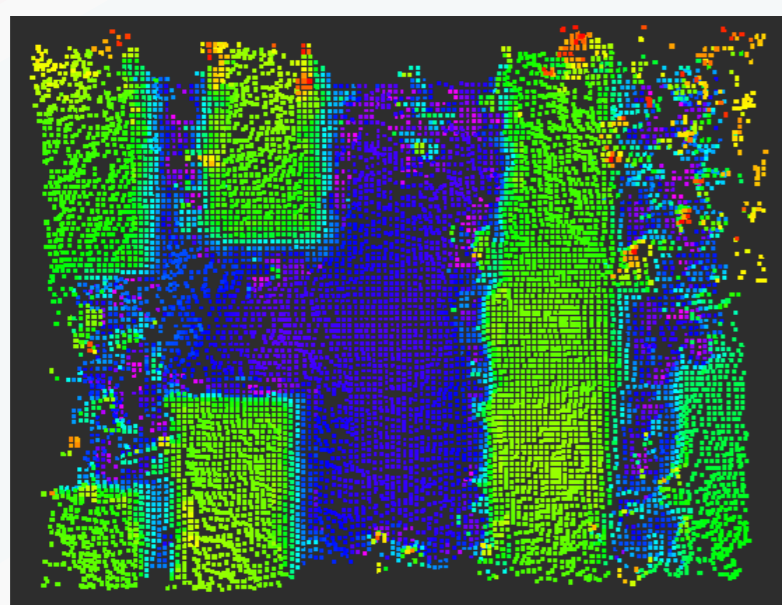
From recycling to finishing, the extrusion of aluminium components is over than 20 steps. The key process is the heat treatment : it helps establish the required mechanical characteristics to the product. The packets are baked in the ageing furnaces, for hours. In the past this step turned out to be the bottleneck of the production.

A bake consists of packets that have been grouped to maximize the occupied space in the furnace. The selection of compatible packets is extremely complex and relies on more than 100 criteria, such as the chemical composition, the required mechanical characteristics, ...



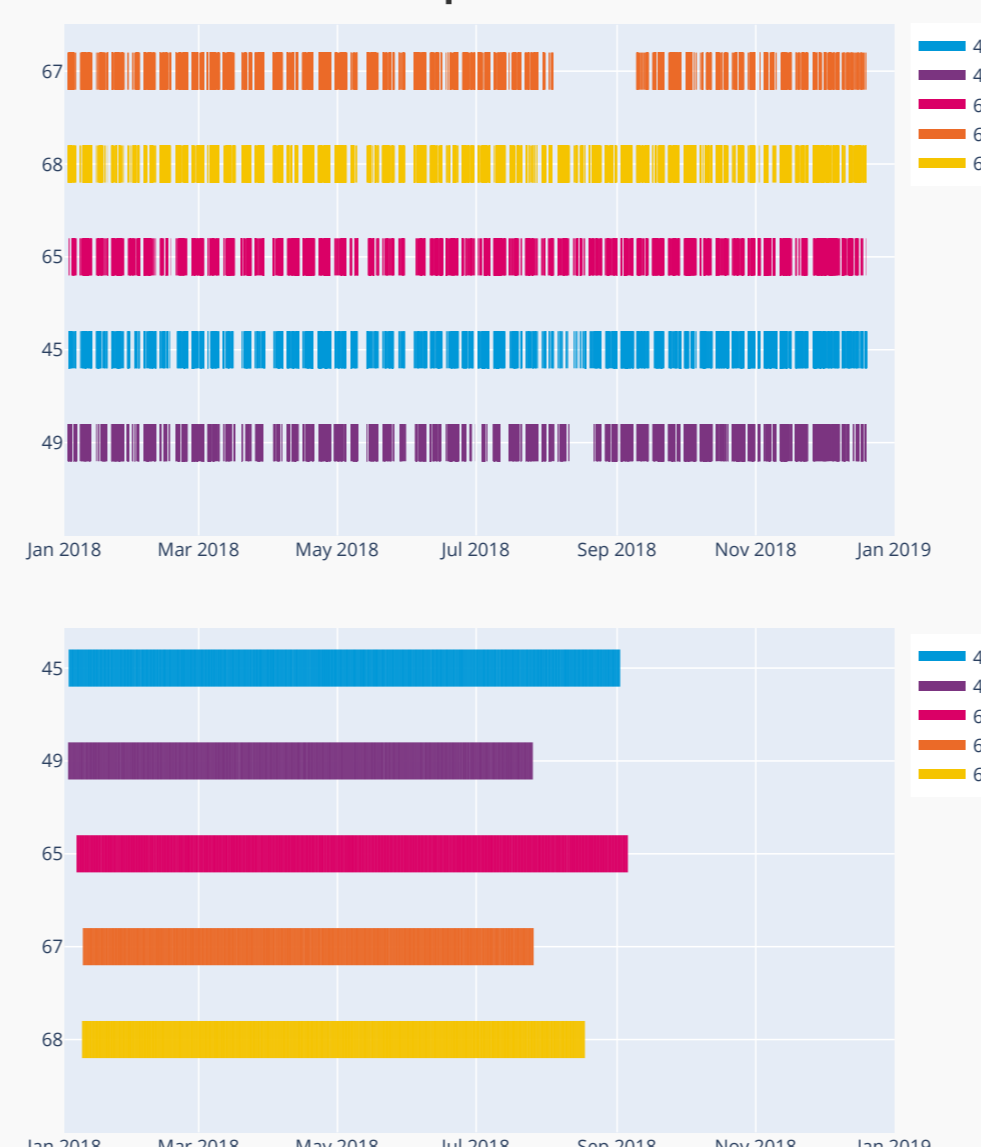
3D MODELLING

LiDaRs sensors are installed under a moving overhead crane to digitize the shopfloor. The framework Robot Operating System ROS is used to connect to the sensors and run the algorithms.



OPTIMIZATION

The 3D model combined with the production's database represent the Digital Twin. Processed with dedicated algorithms, a proposition is made to the operators.



USER INTERFACE

The optimized production planning is presented to the operators through a tablet application. It shows both the timeline of the bakes and the 3D model.

