Technical specification · v1.0 · 20 October 2026

AI raw-material yield optimisation

AI yield optimisation takes what you know about the material, from a log scanner, a camera over the boards or plain measurements, together with the orders and your price list, and works out the cutting plan that gives the most value: which sawing pattern, where to cut out a knot, how to nest parts on a panel or a sheet. Computer vision grades the defects, the operator accepts or changes each plan, and yield and value are tracked for every shift.

Pilot	Build from	Licence a month
€7,200	**€32,000**	**€1,500**

Purpose	Optimises how raw material (logs, boards, lamellas, wood-based panels, metal sheet) is cut into parts for the orders and the price list, grades defects from images, and tracks yield and value.
AI area	Machine learning and computer vision (detection and grading of defects in images), and mathematical optimisation of cutting patterns and nesting.
Production process	Preparation of materials and raw materials, and technological preparation: cutting plans and cut lists for production.
Inputs	Log scans (3D shape, and inner defects where an X-ray scanner is present); camera images of boards and lamellas; sizes of panels, sheets and offcuts; orders and part lists; the price list by product and grade; cutting rules (kerf, trims, grain direction, minimum lengths).
Outputs	A cutting pattern for each log, board or sheet with its yield and value; cut lists and labels for the saw; an offcut register; yield and value by shift, line and batch; the plan compared with current practice.
Materials	Logs (breakdown patterns and log rotation); boards and lamellas (defect cutting, grading, finger-joint lengths); wood-based panels (chipboard, MDF, plywood); metal sheet (rectangular blanks).
Models and approach	Convolutional neural networks detect and classify defects in board images, adapted on your graded samples; value models come from your price list and grades; the cutting plan is optimised by integer programming and guillotine and strip-packing heuristics, with your cutting rules as constraints. The same input always gives the same plan.
Accuracy validation	Defect grading: recall and precision for each defect class on a held-out set of your graded images. Optimisation: yield (good volume or area out, against material in) and value per m^3 or m^2, compared on the same material between the plan and current practice, in the pilot and the trial run.

Hardware	None where the input comes from an existing scanner or the ERP; for camera grading, a camera station with lighting and an industrial computer with a GPU.
Integrations	Log and board scanners (XML, CSV, API); panel saws, cross-cut saws and CNC through their import formats or OPC UA; Modbus TCP; MES or ERP (Rivilė, B1, Business Central, Odoo) through APIs or import files; CSV, XLSX and the REST API.
Hosting	Two options: our cloud on servers in the EU, or on-premises on an industrial computer at your line, with nothing leaving the plant but service metrics. Daily backups kept for 30 days; TLS in transit, encryption at rest.
Languages	Interface in Lithuanian and English.
Limits	Rectangular parts: free-form contours are not part of the standard product. Up to 5,000 parts and 500 sheets or panels per plan.
Access	Sign-in with Microsoft Entra ID or Google, or local accounts for shared screens on the shop floor. Roles: operator, lead (quality, maintenance or production), administrator. Activity log of every confirmation and change.
Human oversight	The operator accepts or changes each plan; changes are logged and measured against the plan.
Support	Business days 8:00–17:00 Vilnius time, remote; critical faults answered within 4 business hours; availability target 99.5% a month for the cloud part.
Delivered as	A standard product under licence, configured for your line, with its models adapted to your data. It is not software or an AI model developed to your order.