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PackAI

PACKING MADE EASY

Packing optimization software
for the furniture industry

THE PACKING PROCESS OPTIMIZED WITH PackAI - EASY, AFFORDABLE AND EFFICIENT

PackAI is a specialized software solution for packing of furniture components in various FEFCO flatpack cardboard boxes. It is completely integrated in the manufacturers' eco systems. Providing interfaces to external CAD and CAM systems, MES or ERP or any other branch solutions, importing raw part data, generating the perfect packing for you and sending the feedback to the management systems has never been easier. Above and beyond the features already included in as standard, a number of add-on modules allow you to enhance the scope of PackAI still further.

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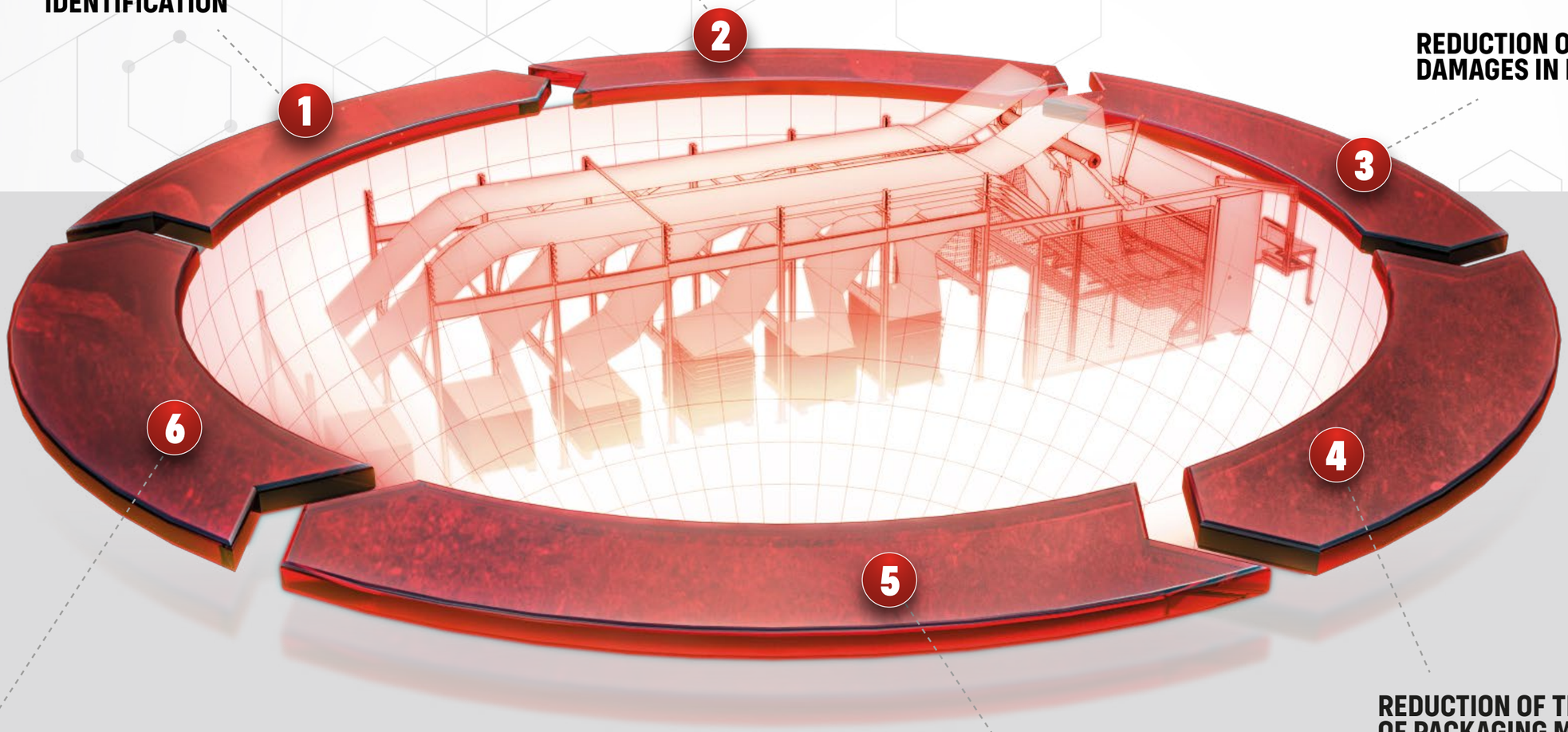
PackAI BENEFITS

80% OF THE SAVINGS COME FROM THE EFFICIENCY OF THE PROCESS.

BECAUSE WHEN YOU HAVE THE DATA FOR PACKAGING EVEN BEFORE THE PARTS ARE MANUFACTURED, YOU WILL KNOW:

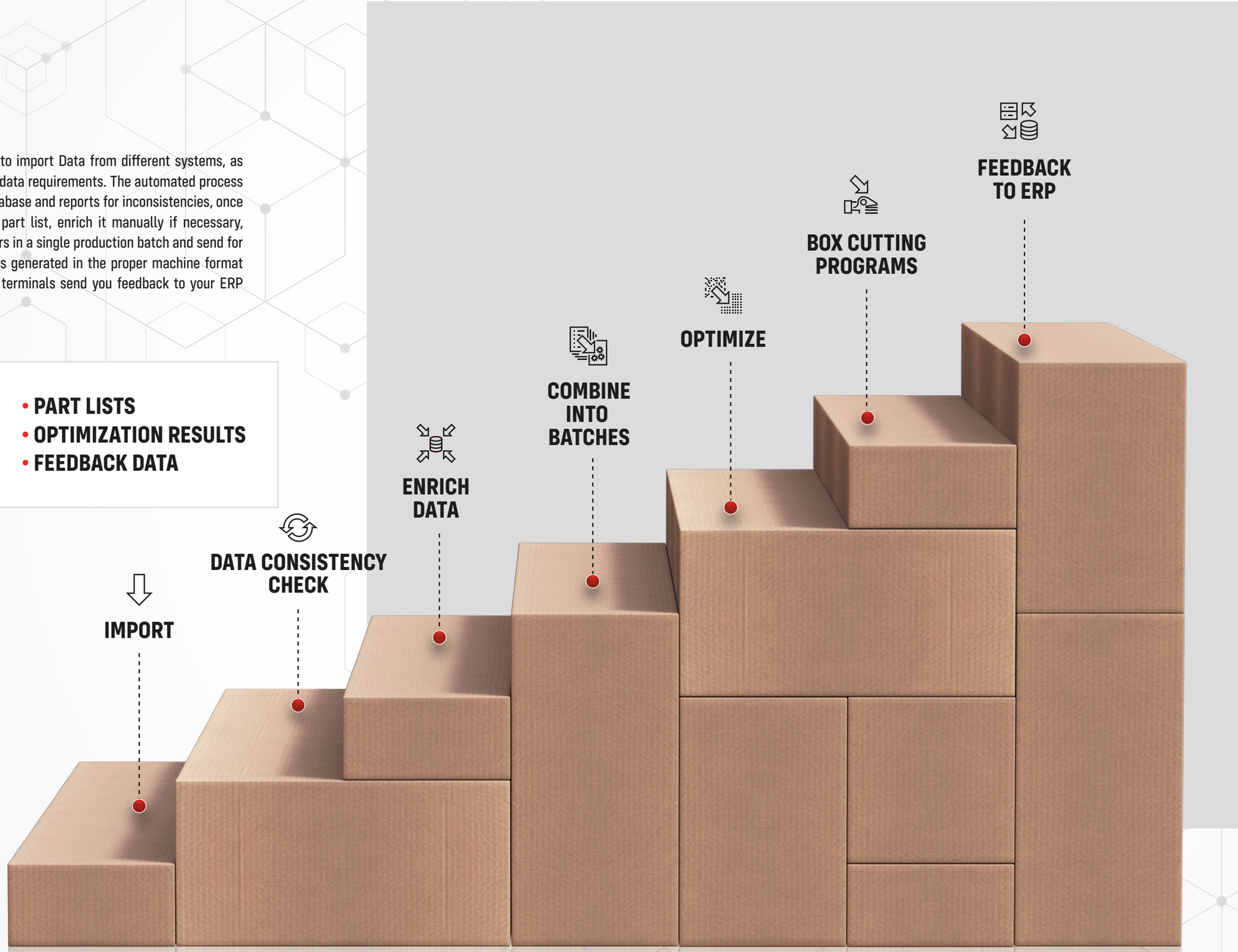
- How many packages you need
- How many parts do you need to pack
- How to achieve consistency in the packing
- What are your cardboard material stock quantities
- What will be total packing volume and weight



WORKFLOWS

PackAI gives you the flexibility to import Data from different systems, as long as they meet the minimum data requirements. The automated process imports the data in a central database and reports for inconsistencies, once imported you can convert to a part list, enrich it manually if necessary, combine multiple customer orders in a single production batch and send for production. The production list is generated in the proper machine format and once produced, the PackAI terminals send you feedback to your ERP system.

- **IMPORT PARTS**
- **BATCHES**
- **CUTTING PROGRAMS**
- **PART LISTS**
- **OPTIMIZATION RESULTS**
- **FEEDBACK DATA**



TOP FEATURES

3D VISUALIZATION TERMINALS FOR OPERATORS IN THE FACTORY

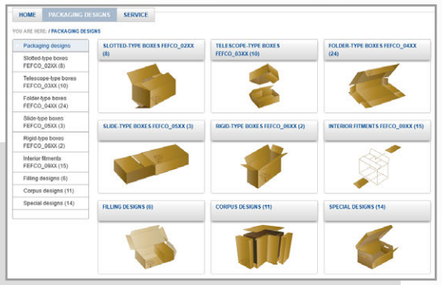
Packing terminals assisting the operators for a paper free production. 3D visualization of the part sequencing in the package, during the part placing process.

PACKAGE LABELS AND REPORT PRINTING

Personalized reports and label printing automated on the packing station once the package is completed.

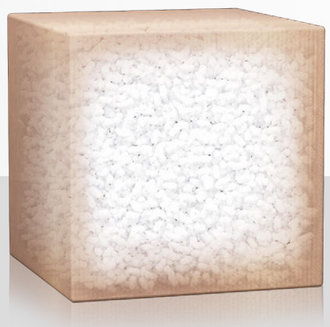
MACHINE POST-PROCESSORS

Multiple machines, different models, specific data requirements and automated files and cutting programs handling for best production capacity utilization.



FEFCO BOX DESIGN LIBRARY

Various FEFCO box designs, including filling designs and specialized pockets, protection and other features, all stored in a database library and fully customizable.

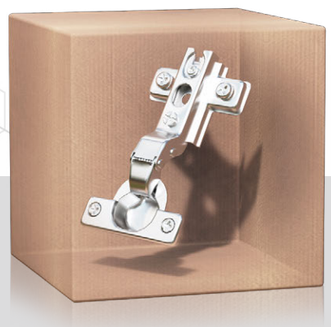


FILLING MATERIALS – PAPER SHEET, FOAM, CARDBOARD BOX

Optimization of the free space in a package, utilization and safety protection during filling sheets, filling boxes, foam or other materials.

DATA IMPORT FROM CAD, MES, ERP SYSTEMS

Data is the driver for any optimization. Mapping functionalities and import interfaces support different types of systems and various file structures for the part data.



ADDITION OF HARDWARE BOX / PACKAGE

Manual input of extra hardware boxes for saving the volume in the package and additional box production, designed for special elements.

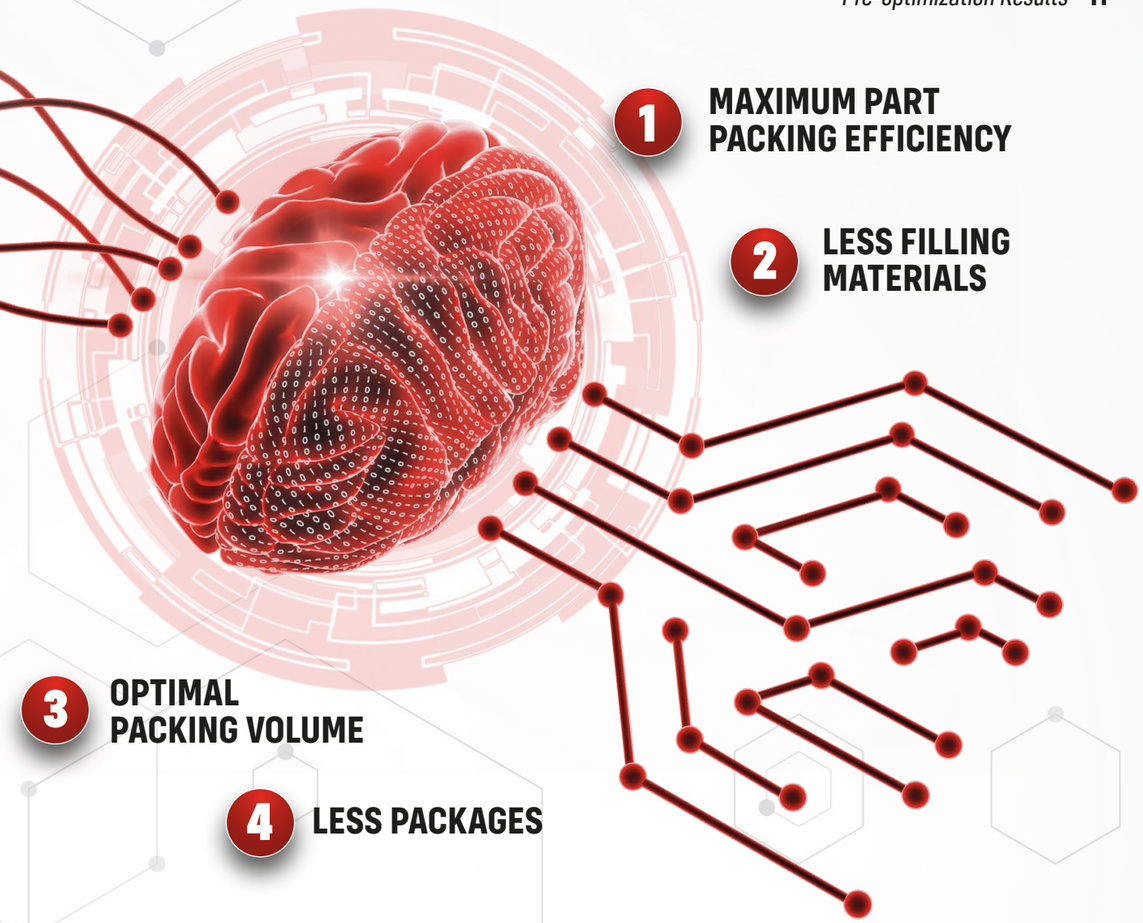
SPECIALIZED PACKING OPTIMIZATION, DESIGNED FOR THE FURNITURE INDUSTRY

PackAI is not just a packing software optimization, but the right tool for the furniture industry with algorithms designed for flatpack design of furniture packing.

TOP FEATURE:
LABELING AND REPORTING

- **CUSTOMER SPECIFIC REPORTS WHICH CAN BE REDESIGNED BY EVERY USER**
- **DEFAULT LABEL DESIGN, AUTOMATICALLY PRINTED ON THE PACKING TERMINALS IN THE FACTORY**
- **LIBRARY WITH ALL REPORT AND LABEL DESIGNS**
- **REPORTING MODES: WORD, EXCEL, PDF AND PREVIEW IN A REPORT VIEWER**
- **AUTOMATIC PRINTING, VISUALIZING OR DATA GENERATION**

With this top feature the users are able to print and export detailed report information based on Microsoft technology, allowing the users to customize their own reports.
A report database is storing all custom reports and labels, where a default label is being selected for the PackAI Terminal label printing function.
A sample library of reports and labels with 1D and QR barcodes is delivered as a standard with the software. Every report can be exported from the software, modified in Microsoft Report Builder and imported back with the necessary modifications.



TOP FEATURE:
PRE-OPTIMIZATION RESULTS

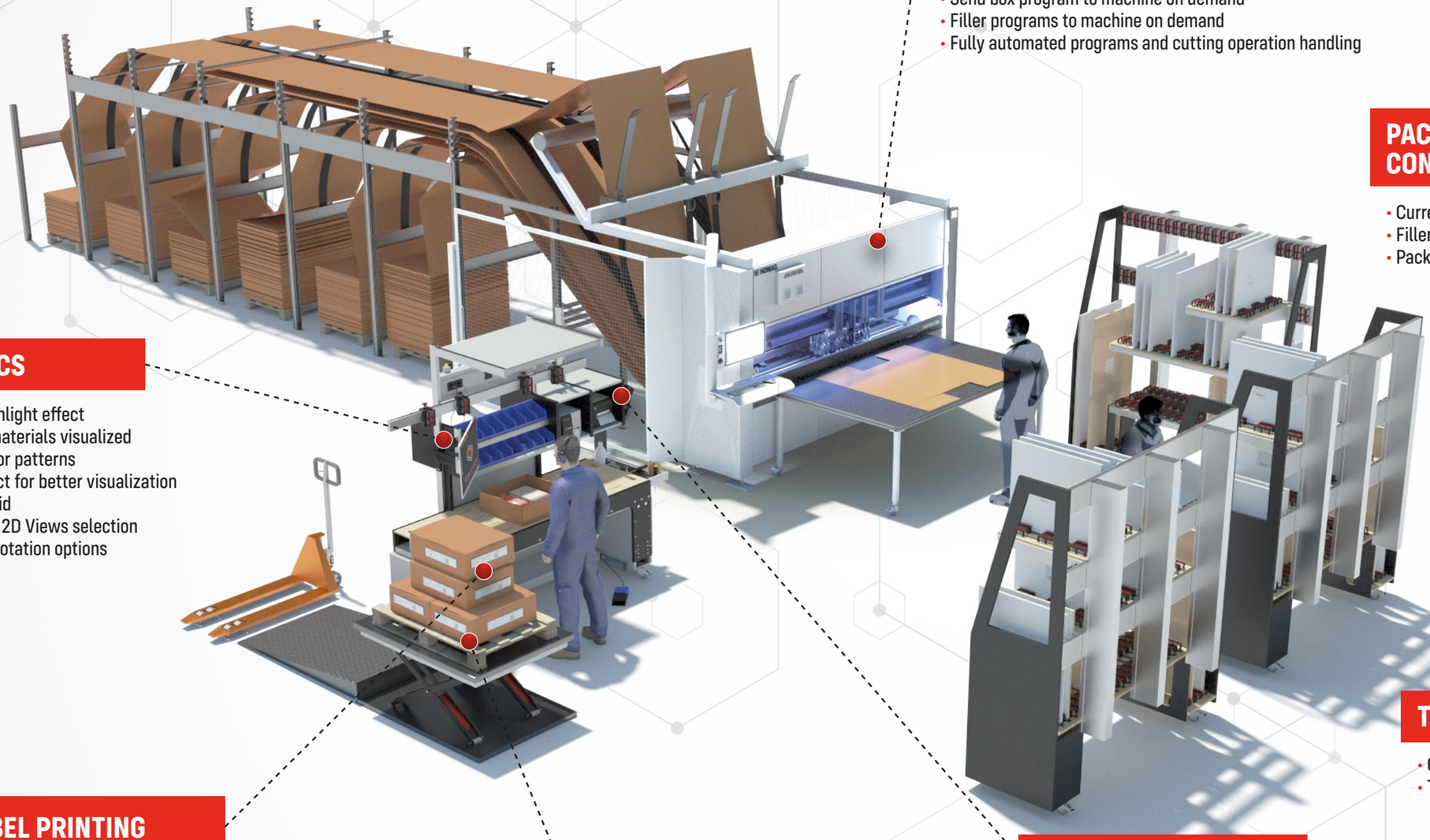
- **PRE-OPTIMIZATION RUN RESULTS IN SECONDS**
- **OVERVIEW OF THE COUNT OF PACKAGES, FILLERS, PARTS, LAYERS AND FREE SPACE**
- **SELECTION BASED ON WEIGHT COEFFICIENTS – COUNT OF PACKAGES OR UTILIZATION OF SPACE**

Packing algorithms calculate millions of combinations for you, but also give you the flexibility to choose your best result.

The packing optimization is calculating the best 3D positioning and optimization of all furniture components in the cardboard boxes and estimates in the background which combinations are more valuable to you based on count of packages or space utilization.

Based on this algorithms the user gets pre-optimization results showing him the overall score of the optimization and allowing him to select another result. Any scenario is different and sometimes the count of packages might be more valuable, in other situations more packages, but quicker and easier part positioning is better.

ADD-IN MODULE:
PACKING TERMINALS



MANUAL OR AUTOMATED BOX CUTTING PROGRAM GENERATION

- Send box program to machine on demand
- Filler programs to machine on demand
- Fully automated programs and cutting operation handling

PACKAGE INFO AND CONTENTS INFORMATION

- Current and next part indication
- Filler sheets, boxes, foam and more
- Package dimensions, weight and others

3D GRAPHICS

- Current part highlight effect
- Filler and Part materials visualized with different color patterns
- Part “gaps” effect for better visualization
- Dimensioning grid
- Perspective and 2D Views selection
- Mouse pan and rotation options

TIMER CONTROLS

- Operator efficiency KPI
- Terminal availability monitoring

LABEL PRINTING

- Automated package label printing when all parts are inside the box

FEEDBACK – ERP, MES AND OTHER SYSTEMS

- Parts in package
- Package completed

BARCODE SCANNING

- Handheld scanner, glove or fixed scanning system
- Part callup from a file - sorting cells and preceding systems

ADD-IN MODULE: ERP INTERFACE

Digitalization and synchronization is the core of Industry 4.0 and we are specialists in digital workflows and optimization of the data processing with vast experience in manufacturing.

Therefore a core feature of PackAI for industry customers is the interface to external systems such as ERP, MES, PPS and many more, allowing you to export the data generated after packing optimization in a CSV file format and import it to your enterprise solution.

Each optimization enriches the part data with the additional packing information and can be exported, when the simulations and optimization batches are finished, manually or automatically each time the user optimizes the batch.

The part, order and articles data is enriched with the packing information, such as:

- **PACKING FEFCO DESIGN**
- **PACKAGE NUMBER, DIMENSIONS, VOLUME AND WEIGHT**
- **PART PACKING SEQUENCE AND X,Y,Z POSITION IN THE PACKAGE**
- **FILLERS COUNT AND VOLUME**
- **FREE SPACE AND OPTIMIZATION KPI**
- **PACKING TIME ESTIMATION**

ADD-IN MODULE: MACHINE INTERFACES

- **MANUAL OR AUTOMATED BOX CUTTING PROGRAM GENERATION**
- **MULTIPLE MACHINES HANDLING AND SETUP**
- **PROGRAMS OUTPUT PATHS BASED ON MACHINE SELECTION**
- **FEFCO DESIGN PARAMETERS BY MACHINES**
- **OUTPUT FILE FORMAT AND DATA BASED ON MACHINE SPECIFICATIONS**
- **LICENSING PER MACHINE MODEL AND INTERFACE**

We understand machines and we know the trends, you can produce using multiple machines from different manufacturers, different production years, models and data interfaces. We support them all, licensing each machine model and unlocking the cutting programs properties for each of your FEFCO designs based on the machine interfaces.

PackAI can handle the multiple machines due to the Machine Parameters settings, where each optimization run can be passed to a different machine, utilizing your production at full capacity.

PackAI FEATURES AND OPTIONS SUITABLE FOR YOU

	PackAI	Packing Terminal	ERP Feedback	Machine Interface
DATA IMPORT				
Configurable import lists	✓			
Unlimited number of parts per part list	✓	✓	✓	✓
Import data validation and reporting	✓			
Archiving of imported data	✓			
Duplicate data detection	✓			
Automated import of new data	✓			
Import of parts lists from CSV or TXT files	✓			
PART LISTS				
Configurable part list views	✓			
Advanced filtering and grouping tools	✓	✓		
Merging part lists in optimization batches	✓			
Import data rules for automatic enrichment	✓			
Manual data modifications	✓			
Unlimited number of packages per optimization list	✓	✓	✓	✓
Machine parameters defined for each batch	✓			
Optimization parameters defined for each batch	✓			
BOX DESIGN LIBRARY				
FEFCO box designs library	✓			
Multi Cutting programs support	✓			✓
Individual fillers logic per box design	✓			
Hardware box designs controlled individually	✓			
Box cutting sequence	✓	✓	✓	✓
Box cutting program specialized parameters based on PP	✓			✓
Boxes on stock	✓	✓	✓	
OPTIMIZATION				
Parameters for customizable optimization efficiency	✓			
Pre-optimization fine filtering of packing results	✓			
Filling materials optimization	✓	✓	✓	✓
Filler box generation	✓	✓	✓	✓
Filler paper or Styrofoam placement	✓	✓	✓	✓
Optimization with part groups ruleset	✓			
Unlimited number of parts per optimization	✓	✓	✓	✓
Batch optimization of multiple part lists	✓			
Package sequencing and contents	✓	✓	✓	✓
Package overview and characteristics	✓	✓		
Optimization overview KPIs	✓		✓	
3D graphics presentation of the boxes and parts	✓	✓		
Sequencing presentation controls in the graphics	✓	✓		
Hardware box addition after optimization	✓	✓	✓	✓
Direct link to machines – complete production list export	✓			✓
Data feedback generation	✓		✓	
Report and labels preview	✓	✓		

	PackAI	Packing Terminal	ERP Feedback	Machine Interface
EXPORT				
Export reports and labels to Excel XLS(X)	✓			
Export reports and labels to PDF	✓			
Export reports and labels to Word DOC(X)	✓			
Data feedback exported in CSV file format	✓		✓	
REPORTS AND LABELS				
Optimization results summaries	✓			
Filling materials summary	✓			
Weight calculation	✓			
Packing time calculation	✓			
Configurable reports and labels	✓			
Package labels	✓	✓		
Automated label printing settings	✓	✓		
Direct report print, preview, or export settings	✓	✓		
PACKING SEQUENCING				
Graphical representation of the packing sequence	✓	✓		
Customizable packing color scheme	✓	✓		
Separated parts, filling, and hardware box customizations	✓	✓		
3D object spacing properties	✓	✓		
Annotation and description texts	✓	✓		
TRANSFER TO MACHINE				
Cardboard cutting machine interfaces	✓			✓
Multiple machines support	✓			✓
Machine parameters	✓			✓
FEFCO cutting parameters based on machine PP	✓			✓
Output paths control per machine	✓			✓
PACKING TERMINAL				
Estimation of packing time	✓	✓	✓	
Operator timing controls and statistical data	✓	✓	✓	
Part, fillers and package process status feedback	✓	✓	✓	
RFID or user accounts login	✓	✓	✓	
Packing terminal availability – control for sorting cells		✓		
Operator KPIs statistics		✓	✓	
Barcode scanner controls		✓		
Sorting cell automated part sequencing and loading functions		✓		
Specialized industry keyboards support		✓		
On demand box cutting controls		✓		
Visualization tools, incl. dimensioning grid	✓	✓		
OTHER FUNCTIONS				
File management – copying and deleting data	✓			
Link to knowledge base	✓	✓		
On demand customer support system	✓	✓		
Roaming user profiles	✓	✓		
Online licensing and add-on control	✓	✓		
Automated logging and issue tracking capabilities	✓	✓		

PROFESSIONAL SERVICES

Our teams of specialists support you from the purchase, through the implementation of the software products. Thanks to our vast experience in the furniture industry, we will assist you with all machine interfaces, ERP and MES connections as well as production workflows. With short response times and fast customer solutions we guarantee consistently high availability and efficiency.

REMOTE SERVICE

Our hotline teams cover a wide product range starting from furniture and interior design production machines, robotic applications, CAD CAM and other branch specific software products. More than 90% of the service cases are resolved remotely without the need of on-site technicians.

CONSULTANCY

You cannot imagine what you need or you don't have enough experience structuring your workflows in the new digital systems, let us help you. Standing on a knowledge base we are building for more than 20 years in the industry, we can speed up your implementation process.

SELF SERVICE PORTAL

support.mos-consult.com

Build up on our knowledge base, we are sharing our know-how with you and constantly expanding the documentation, tutorials and articles on troubleshooting, user experience and administration of the systems. Supported by user forums, idea forums, ticket system and a knowledge base, our support.mos-consult.com portal is your door to success.

SOFTWARE

Telephone support and consultancy through software support. We are constantly analyzing the user experience and expanding our knowledge base, not only supporting and troubleshooting the customer systems, but also guiding you for better and more efficient results.

DIGITAL SERVICES

Remote software tools are helping us connect to you, display and explain the possible solutions. We are not only supporting you when you need us, but constantly gathering users feedback and monitoring logging data to improve our products before you even contact us.

TRAINING

Specialized documentation, user and administrator tutorials, as well as online and on-site sessions. We are there for you, no matter which media of a training you prefer.

PackAI is developed and supported by MOS Robotics - the automation and robotics business unit of MOS Consult, a global automation and software systems player in the furniture industry with more than 15 years of software experience. The company is one-stop shop for CAD, CAM, MES solutions; Integration, implementation and hotline; packing solutions; robotic applications.
The packing optimization software is used by companies around the world with completely different types of products and production workflows. Due to its smart optimization algorithms and flexible configurations, PackAI is the best solution for you.

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