iCOSMOS

Smart COSt MOnitoring Solutions

LeanCOST® suite for Design-to-Cost and Cost Estimation

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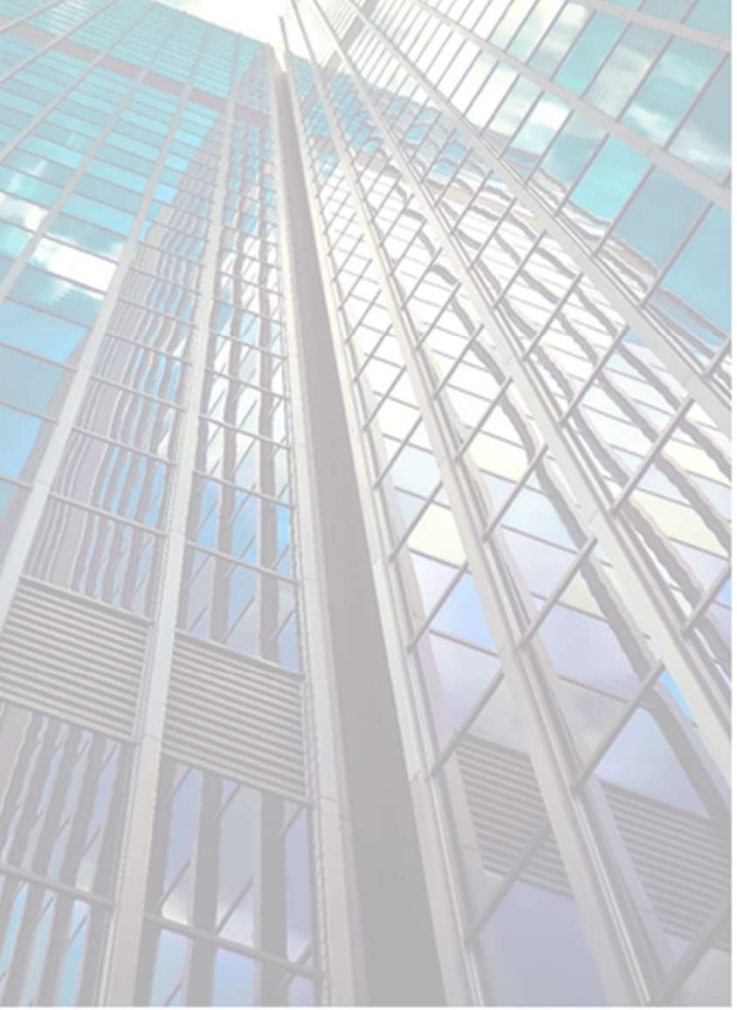
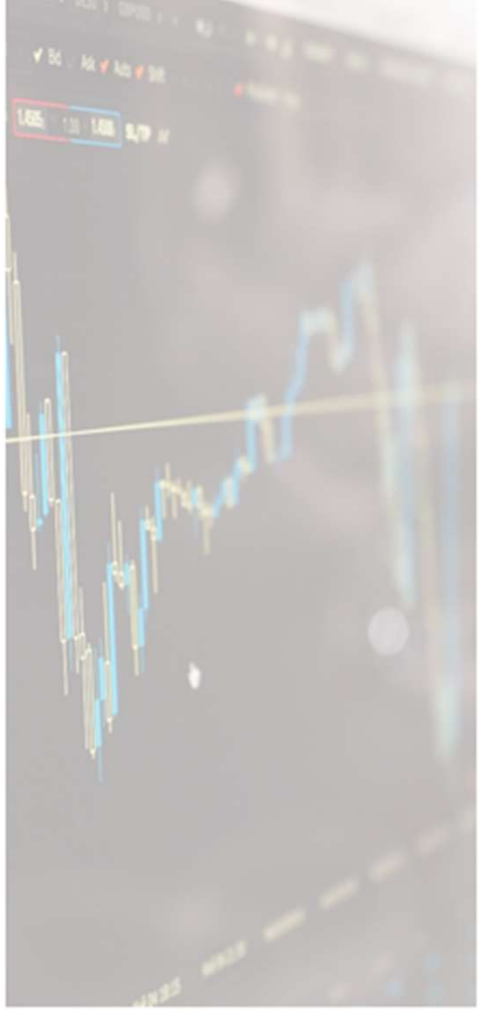
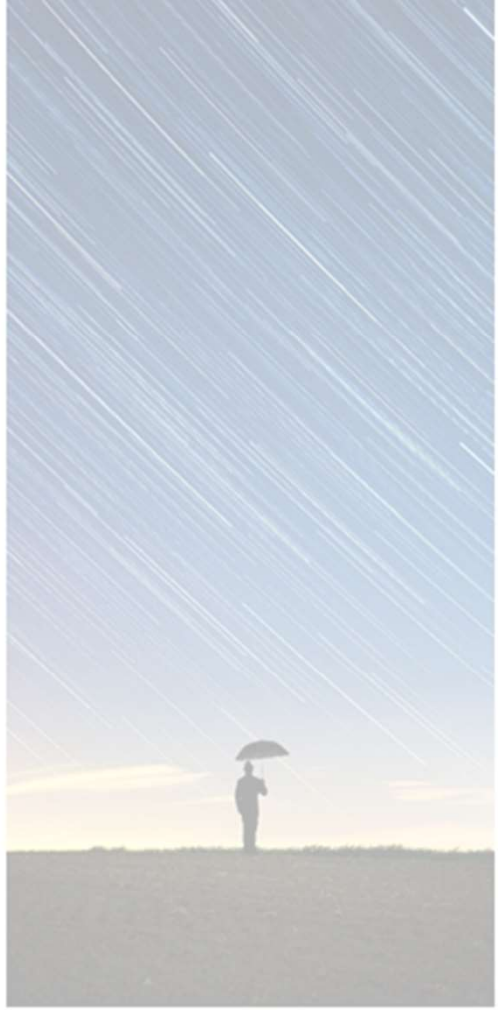




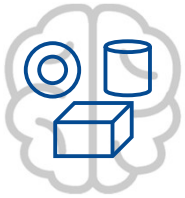
iCOSMOS

- ***Lean Suite***
  - *Design: LeanDesigner®*
  - *Quoting: LeanCost®*

LEANCOST DEMONSTRATION

- **DEFINITIONS**
- **PRINCIPLES & CONCEPTS**
- **WORKFLOW**
- **DEMONSTRATION**

PRINCIPLES & CONCEPTS: DEFINITIONS



GEOMETRIC RECOGNITION

Is a SMART algorithm allowing to identify from 3D models, a clear and classified hierarchy of elementary features such as holes, pockets, planar surfaces, cylindrical surfaces, bends, etc**...**

RULE

Set of formulas which modelize expertise & knowledge.

STRATEGY

Is a set of rules enabling to assign a raw material (stock strategy) and a manufacturing process (feature strategy) for each geometrical feature.

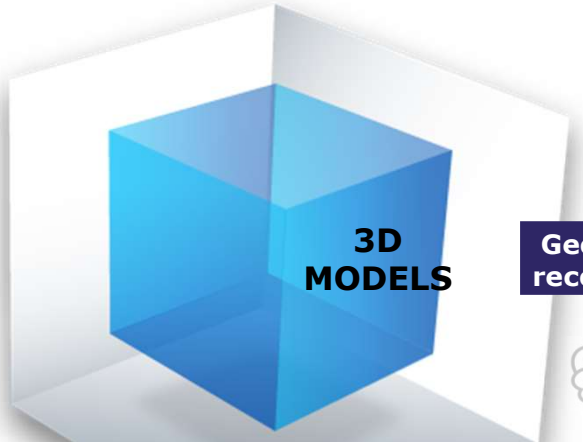
COST MODEL

Is a calculatory model dependant of key drivers such as a manufacturing process, machine and a tool. The calculatory model is composed of geometrical parameters calculated from feature dimensions and attributes and technical parameters calculated from LeanCOST knowledge, material and machine.

PRINCIPLES & CONCEPTS:
GLOBAL LEANCOST CONCEPT

SMART ALGORITHMS

DIGITAL MOCK-UP — **From digital mock-up to digital factory** — **DIGITAL FACTORY**



DESIGNED IN CAD TOOLS

Geometric recognition

Based on Hyperlean manufacturing expertise and knowledge capture:

- Raw material
- Manufacturing process
- Machine

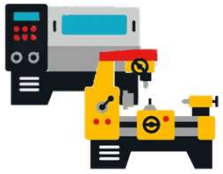
are **identified automatically**

Design for Manufacturability

Raw materials database

Manufacturing process knowledge

Machines database



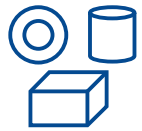
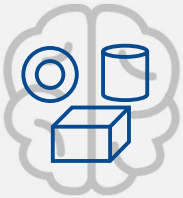
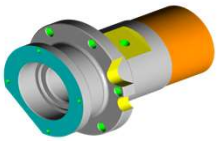
COST MODELS

TIME & COST

Identify and eliminate features in your digital model that are expensive or impossible to manufacture.

DESIGN TO COST

PRINCIPLES & CONCEPTS: LEANCOST CONCEPT OVERVIEW AND ASSOCIATED WORKFLOW

	INPUT	TREATMENT	OUTPUT
STEP 1 GEOMETRICAL RECOGNITION	**3D File**  *From all CAD tools and formats*	*Loading in LeanCOST* → **SMART GEOMETRICAL RECOGNITION**  ***Built in algorithm Hyperlean expertise***	*First set of information defined* → *Import of:* • **3D model** • **Product Breakdown structure** (if assembly) • Other **attributes** from 3D models (ex: roughness, tolerance, purchased part or not, part's size, part's threads,…) *Smart Recognition of:* • Part's **geometric type** (prismatic, beam, axialsymmetric,…) • Part's **suggested element strategies**
STEP 2 STRATEGIES RECOGNITION	 ***Part's suggested element strategies from Step 1***	Part's suggested element strategies → **SMART STRATEGIES ALGORITHMS** Set of rules, function of: • Geometry • Attributes from design ***Customizable algorithms + Hyperlean expertise***	Stock strategy → **Raw material** *assignation* Feature strategy →  **Manufacturing processes** *associations (operations)* • **Machines** associations to manufacturing processes
STEP 3 COST MODEL CALCULATION	*Feature dimensions and attributes (from geometric recognition)* *Process parameters (calculated from LeanCOST knowledge, material and machine)*	For each Manufacturing processes and machine associations → **COST MODELS CALCULATION** **Geometrical parameters** **Technological parameters**	Time & Cost calculation → **TIME & COST**

LEANCOST DEMONSTRATIONS