



COSMOB

qualità
quality
innovazione tecnologica
technological innovation
formazione training
internationalization
internazionalizzazione
design
design

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Centro Tecnologico
Settore Legno-Arredo



The FabLab is a global network of local laboratories that support the delivery of innovation, through digital production tools accessible to all.

What is a FabLab?



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“How to make (almost) anything.”

Neil Gershenfeld 1998

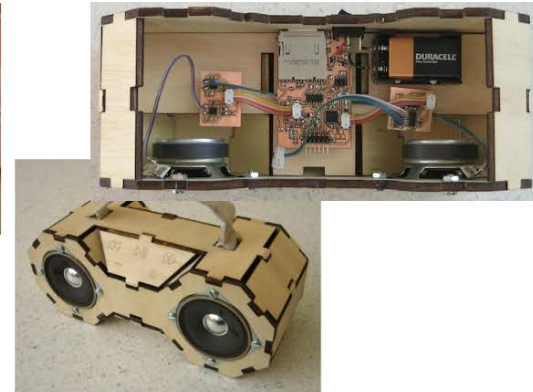
The Fablab's dad



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How To Make (almost) Anything

9/12: principles and practices
section: computer-aided design
 9/19: computer-controlled cutting
section: project management
 9/26: electronics production
section: fab module internals
 10/03: computer-controlled machining
section: welding
 10/10: Columbus Day
section: electronics design
 10/17: molding and casting composites
section: vacuum forming, composite processing
 10/24: embedded programming
section: languages and environments
 10/31: 3D scanning and printing
section: real-time scanning
 11/07: input devices
section: circuits
 11/14: output devices
section: motion
 11/21: interface and application programming
 11/28: mechanical design, machine design
section: MTM
 12/05: networking and communications
section: radios
 12/12: project development
 12/19: final presentations



FabLab a place for being innovator



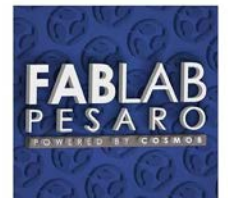
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The Fablab's mum



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Network in the world



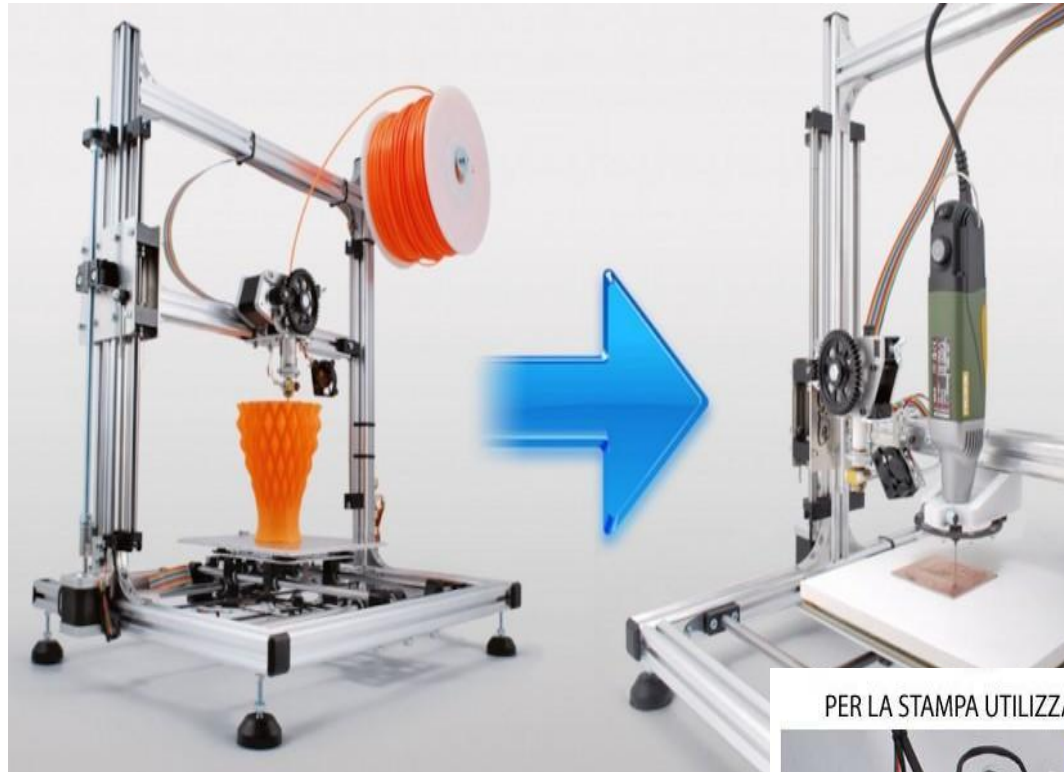
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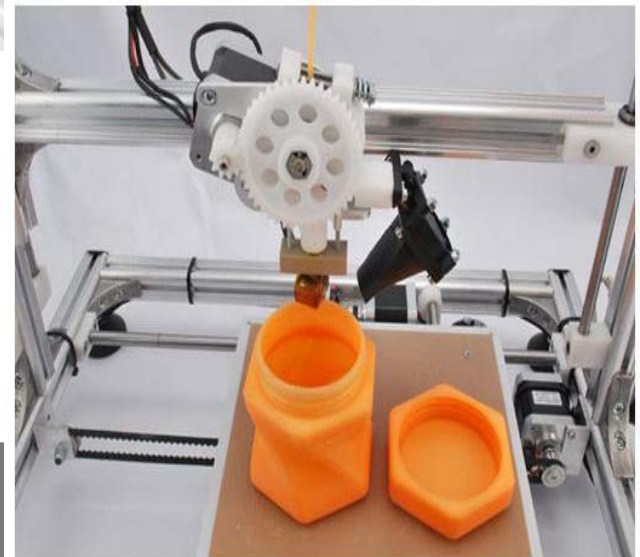
Traditional materials for 3D printing



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PER LA STAMPA UTILIZZA FILO DI ABS O PLA DA 3 MM

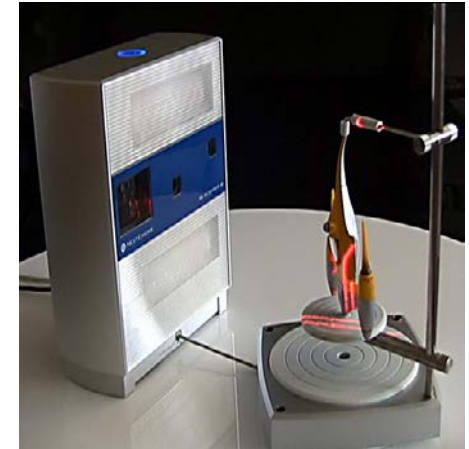


3D Printing Machine

→ 3-axis mill



→ Scanner 3D



→ Laser cutter



→ Augmented reality

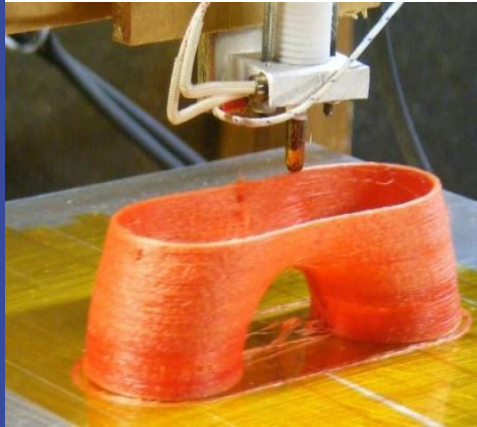


Other equipment



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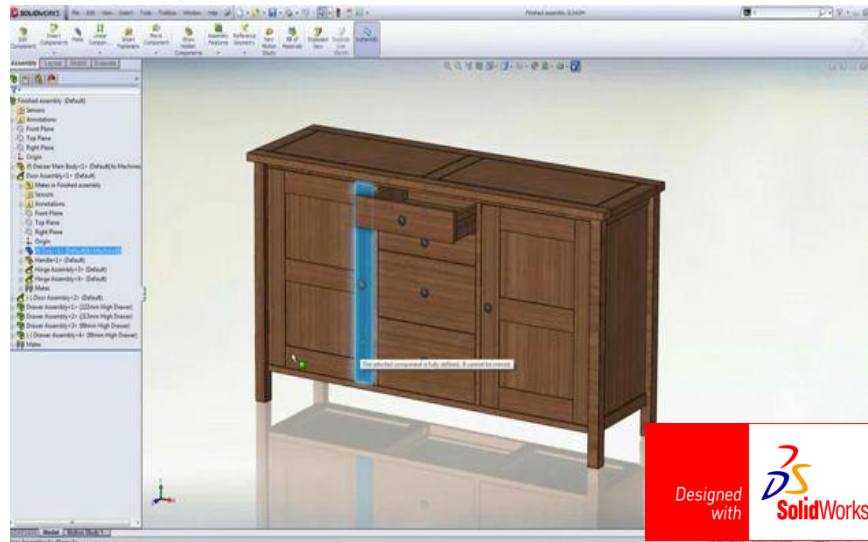
Precision robotic arm used in
Barcelona FabLab.



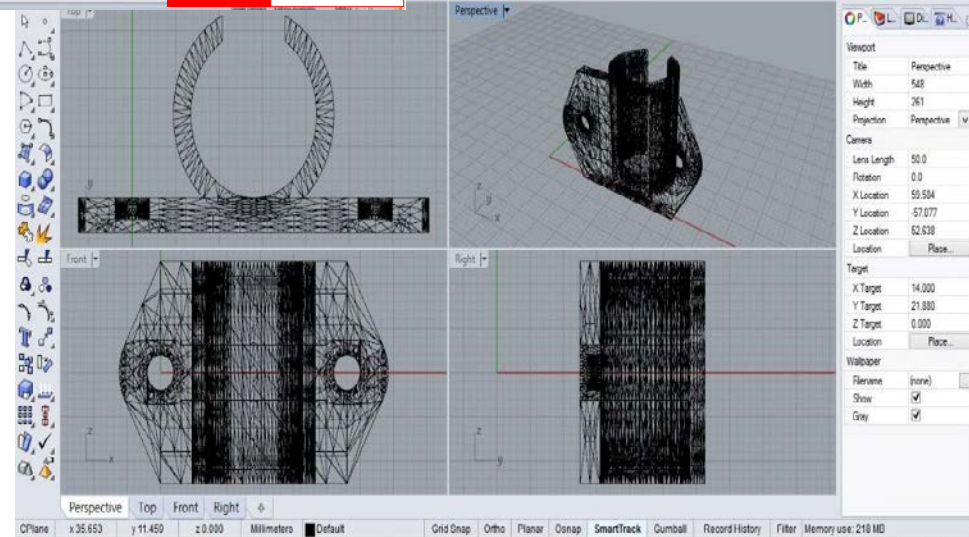
Other equipment



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Solidworks



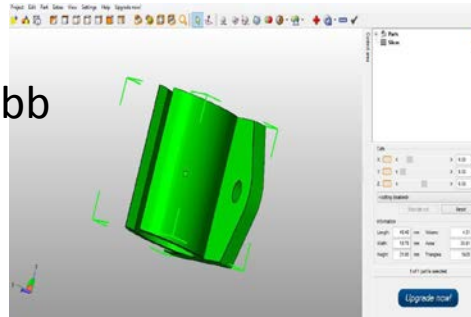
Rhinoceros

Design software

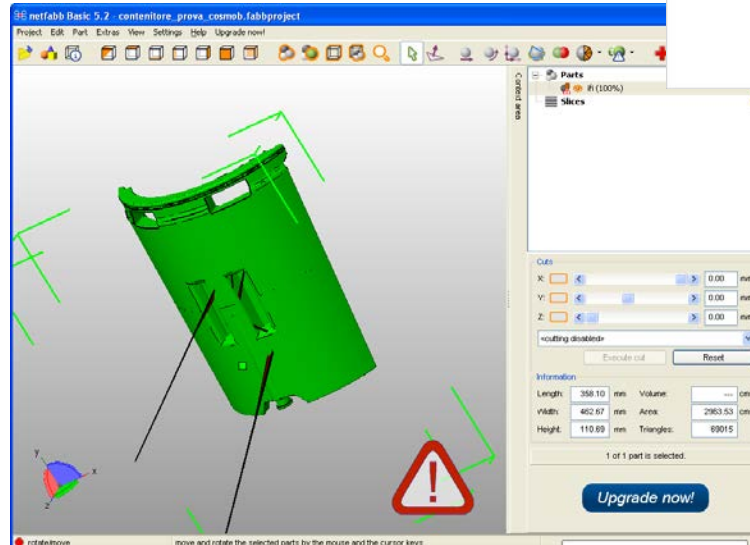
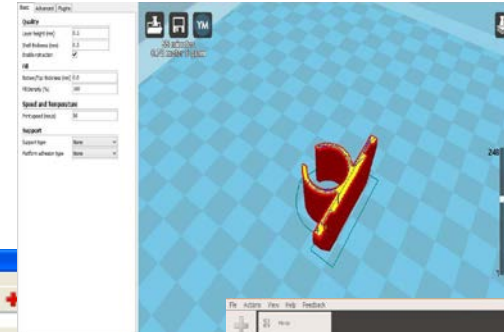


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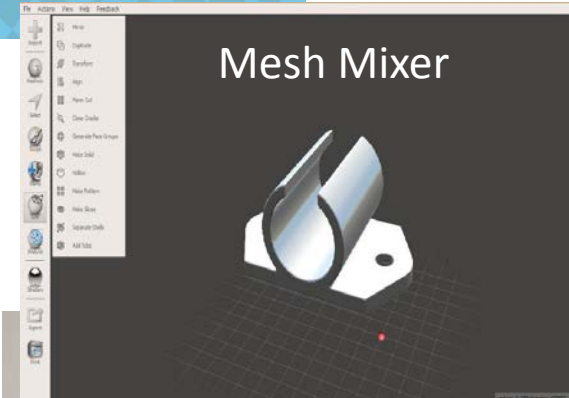
Netfabb



Software Cura



Mesh Mixer



Example of a transition from
virtual to real



From design printed object



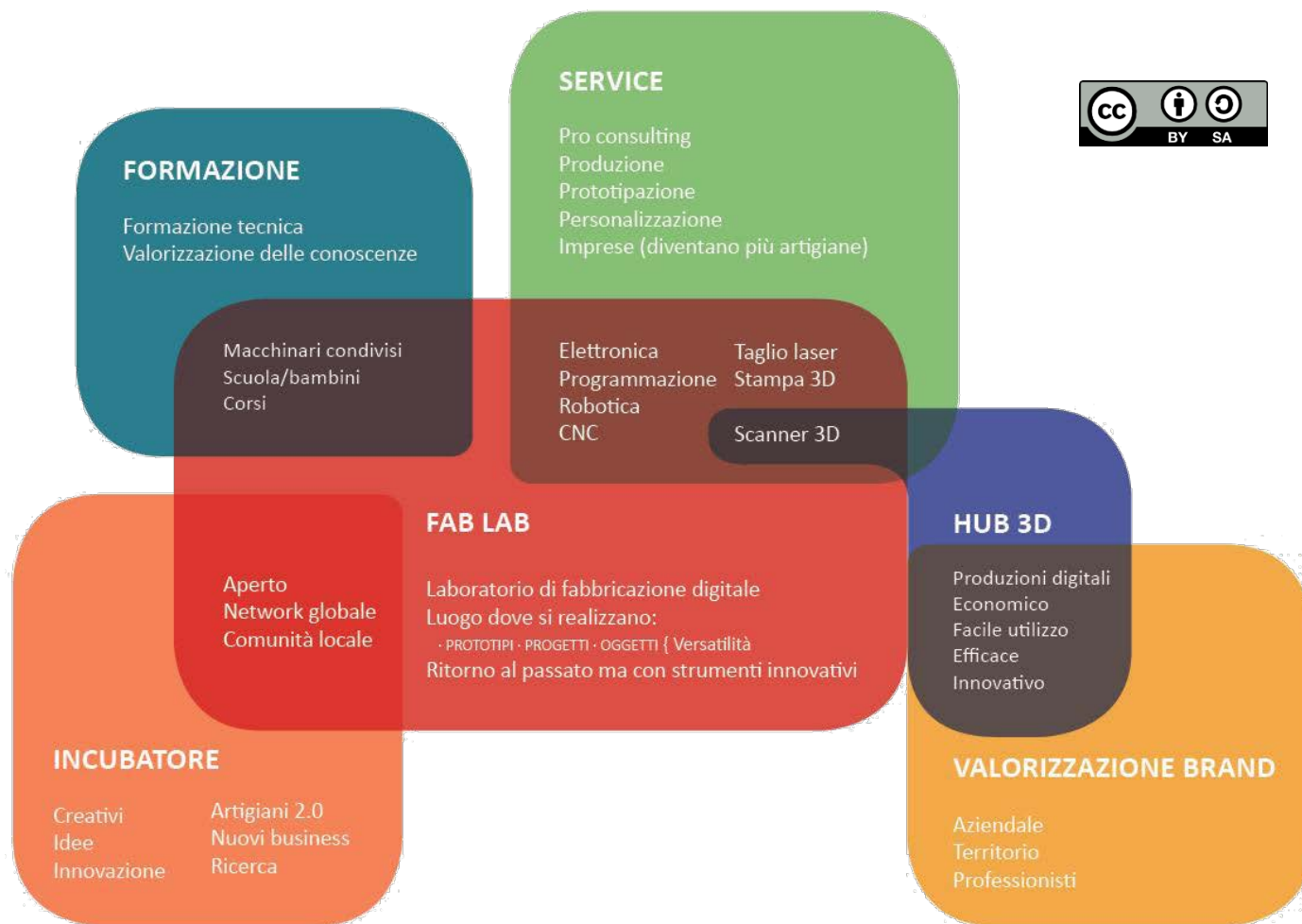
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Prototypes



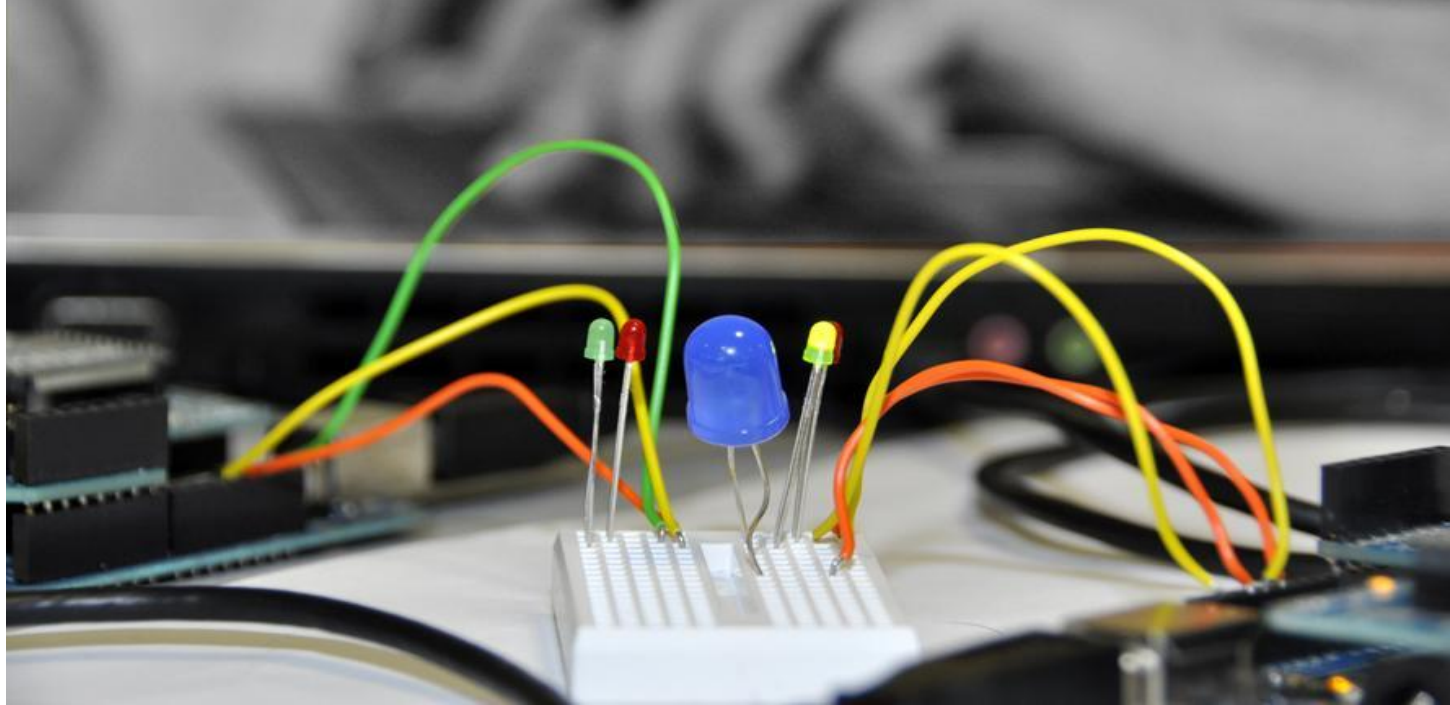
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Conceptual map



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FABLAB
PESARO
POWERED BY COSMOB

FabLab Pesaro powered by Cosmob





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- To collect existing existing experience between the interested IW members
- To select possible topics of interests/collaboration between IW members (open projects, technologies, materials, software,..)
- To share and promote courses for students (VET and University)
- Create an IW team of experts about FabLab topics

First steps



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The materials commonly used in the wood-furniture sector:

- Solid wood;
- Wood based panels (eg PP and MDF.);
- Plastics (eg ABS, melamine cards.);
- Metal (eg steel, iron.);
- Glass;
- rubber;
- fabrics;

MATERIOTECA:
the ability to search,
sort, order information
materials and products
to the world of
architecture, design
and industrial
production (for
students and
professionals)



NEW MATERIALS: Materioteca



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- The term **MATERIOTECA (materials library)** is a neologism, introduced to indicate the structures that expose samples of different materials and collect technical documents and publications on them.
- The peculiarity of the materials libraries consists in that they enable a direct approach to the **dimension and tactile perception** of materials, in addition to the purely technological: the materials, in fact, can be viewed, touched and explored in their characteristics and aesthetic properties and sensory. Usually the **physical space is also associated with a database**, accessible on-line, consisting of technical information.

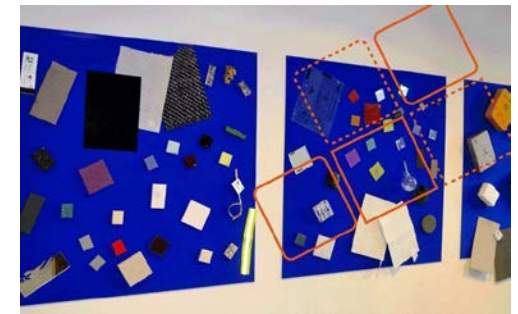
What is Materioteca?



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Materioteca: some examples





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Data Base ArTec

md
material design

iMatter
Materials Library



MaTech
materiali innovativi



MATREC
Material Recycling

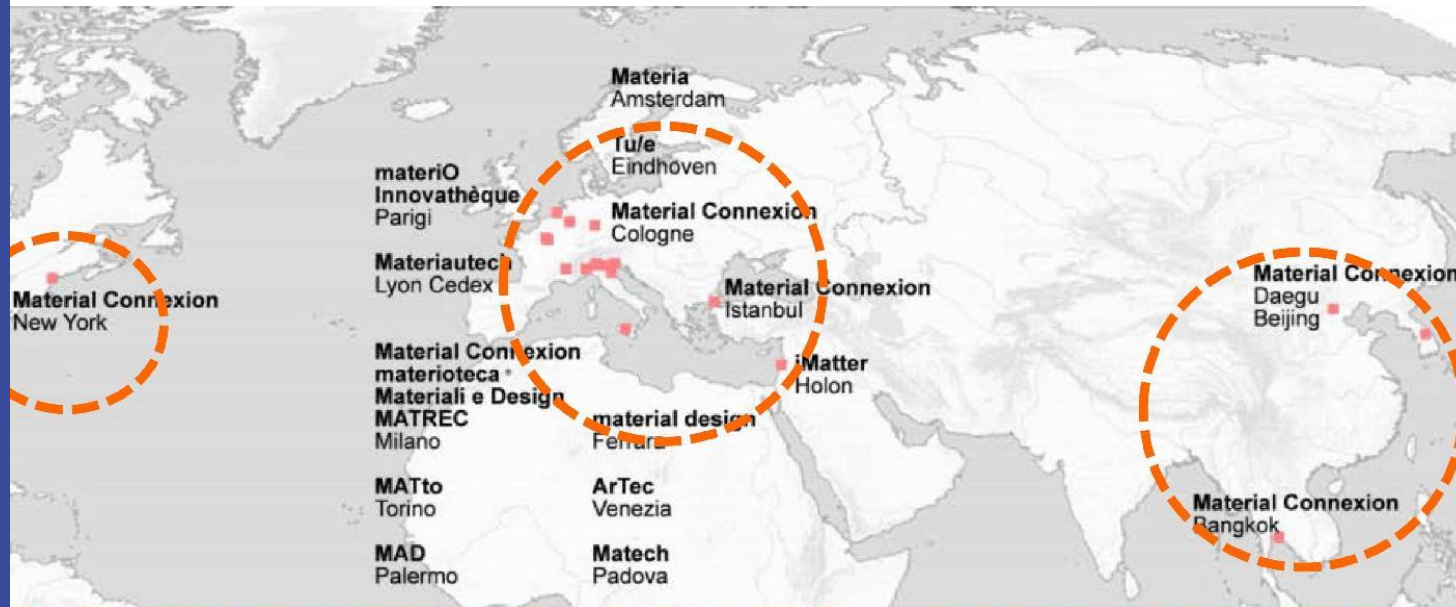
matériO

Materiali
Design

TU/e

materia
MATERIALIZE THE FUTURE!

Material ConneXion
New York • Bangkok • Cologne • Daegu • Milan



Materioteca in the World



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Sensory Analysis

Sensory analysis evaluates the perceived quality of products and materials from the point of view of the senses, ease of use, functionality, etc...

clear
matt
satin
translucent
polished
metallic
reflexive
of colors
perfumed
odorless

soft
hard
often
Thin
weak
smooth
rough
high
low
metallic

cold
hot
braking
Memory form
Fibrous
rigid
flexible

Classification types



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Technical characteristics

The analysis of the material characteristics verifies its structure (for example, color, shape, structure, rigidity, elasticity and spread) and their resistance to external stresses (mechanical properties), or behavior in various stages of production (technological properties).

The characteristics of the materials can be divided into:

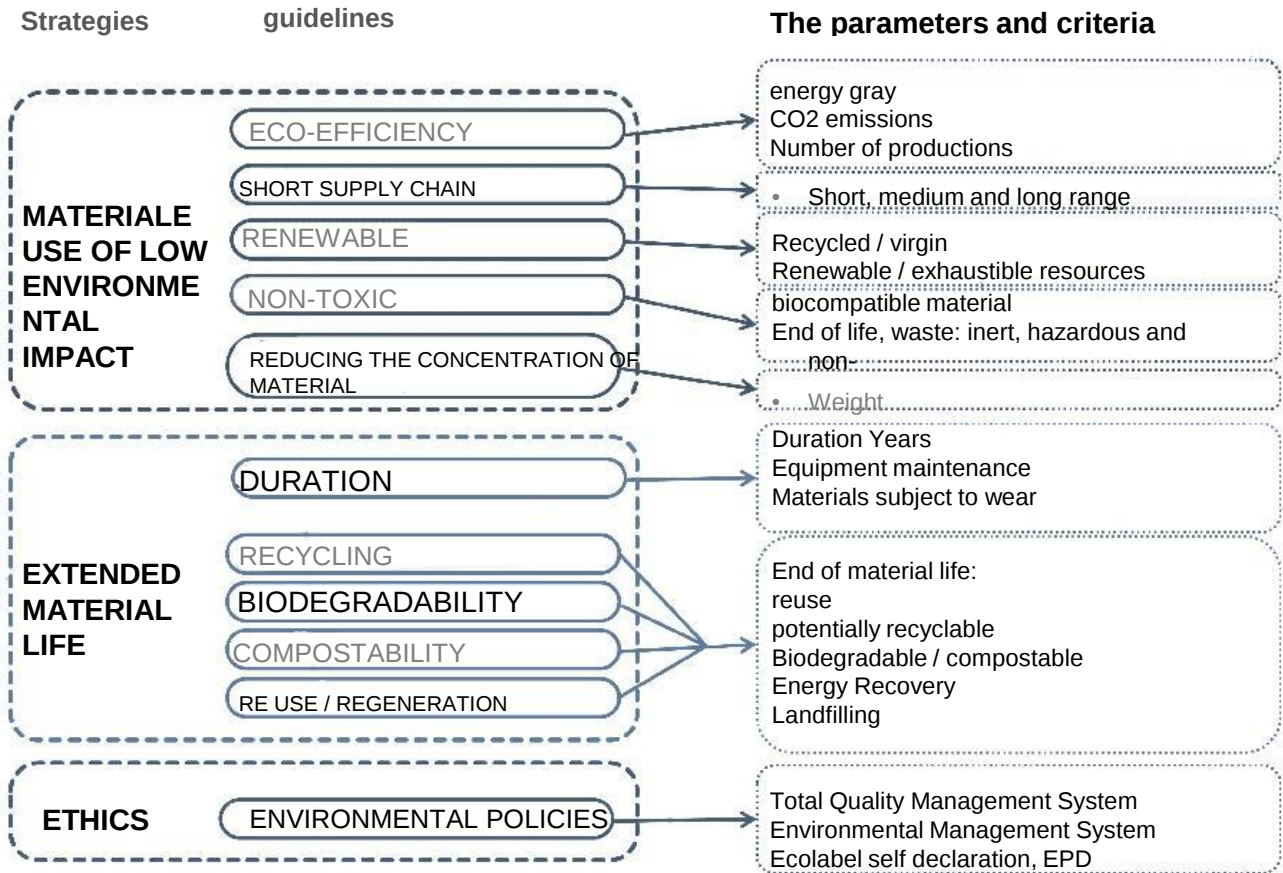
- **physical and chemical properties**
- **mechanical properties**
- **technological properties**

ductility
extrudability
drawability
malleability
weldability
machinability
polished
specific weight
Thermal expansion
Melting point
thermal conductivity
electrical conductivity
Corrosion resistance
Tensile strength
Compressive strength
Flexural strength
Torsional stiffness
Shear Strength
bendability
hardenability

Classification types

Sustainable materials

Sustainability analysis assesses the environmental impact of products and materials taking into account the entire life cycle, with particular attention to the health aspects of consumers.



Classification types



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EC projects:

Infrastructure, energy efficiency, new products, standardisation



www.ecoinflow.com



www.celluwood.com



www.trees4future.eu



www.woodsens.com



www.performwood.eu



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- Collect existing database from the IW members
- Collect info about project results about new materials
- Define a form to collect material data following the classification types
- Create a common IW database

First steps