

# Open 3D™ Platform

D. Henry / A. Berthelot

CEA-Leti-Minatec



## ■ The concept :

- Open 3D™ is a 3D technology offer, targeting industrial & academic customers
- Open 3D™ will give access to 3D innovative technologies with the following key drivers :
  - Moderate access cost to technologies :
    - Based on mature technologies
  - Customization upon request
  - Short cycle time

## ■ Means & Facilities :

- Open 3D™ will operate on CEA-LETI technological platforms : 200 & 300 mm
- Support by LETI skills on layout, process, metrology, characterization, tests & reliability
- Global offer from 3D design to component final packaging

## ■ Customer advantages :

- Open 3D™ commitment : moderate cost & reduce cycle time.
- Access to 3D innovative technologies for any wafer format (200 & soon 300 mm)
- Boost customer innovation thanks to 3D innovative technologies
- Possibility to make proof-of-concept , prototyping & small volume production

## ■ Open 3D customer's typology :

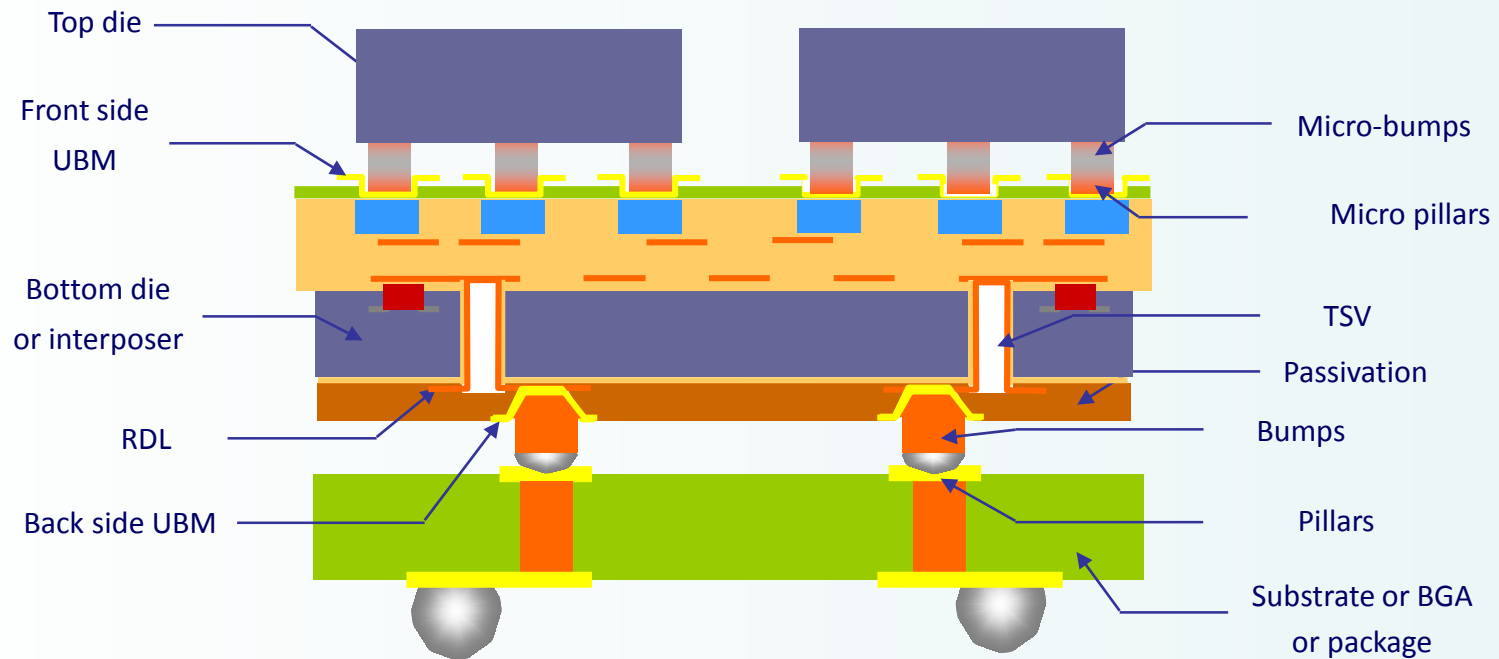
- Laboratories, universities and international Institutions
- Fabless
- “Niche” markets manufacturers & integrators
- IDM

Projects already  
started with :

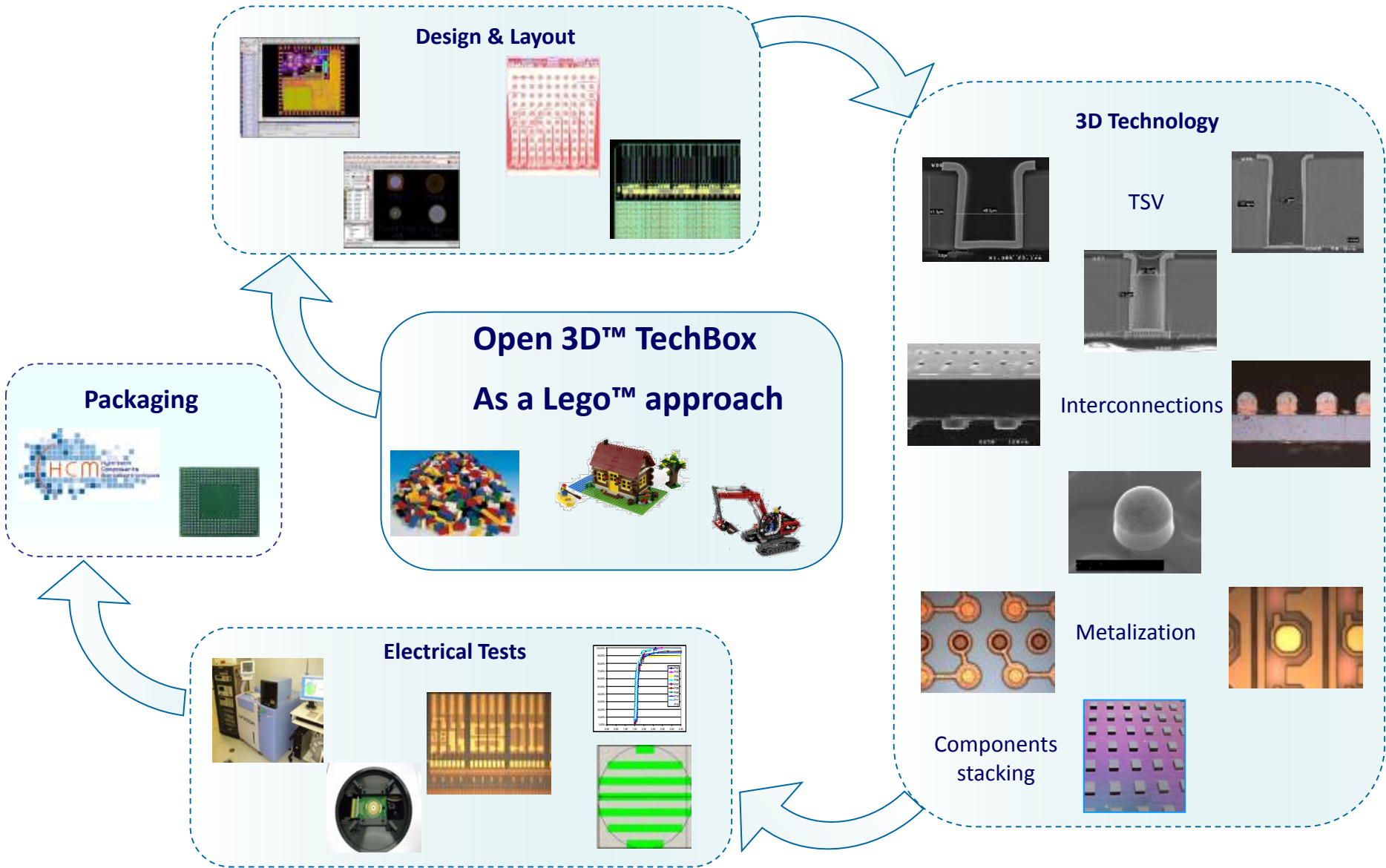


## ■ Technological modules definitions :

- Through Silicon via (TSV)
- Redistribution layer (RDL)
- UBM
- Interconnections
- Components stacking
- Packaging with partner collaboration

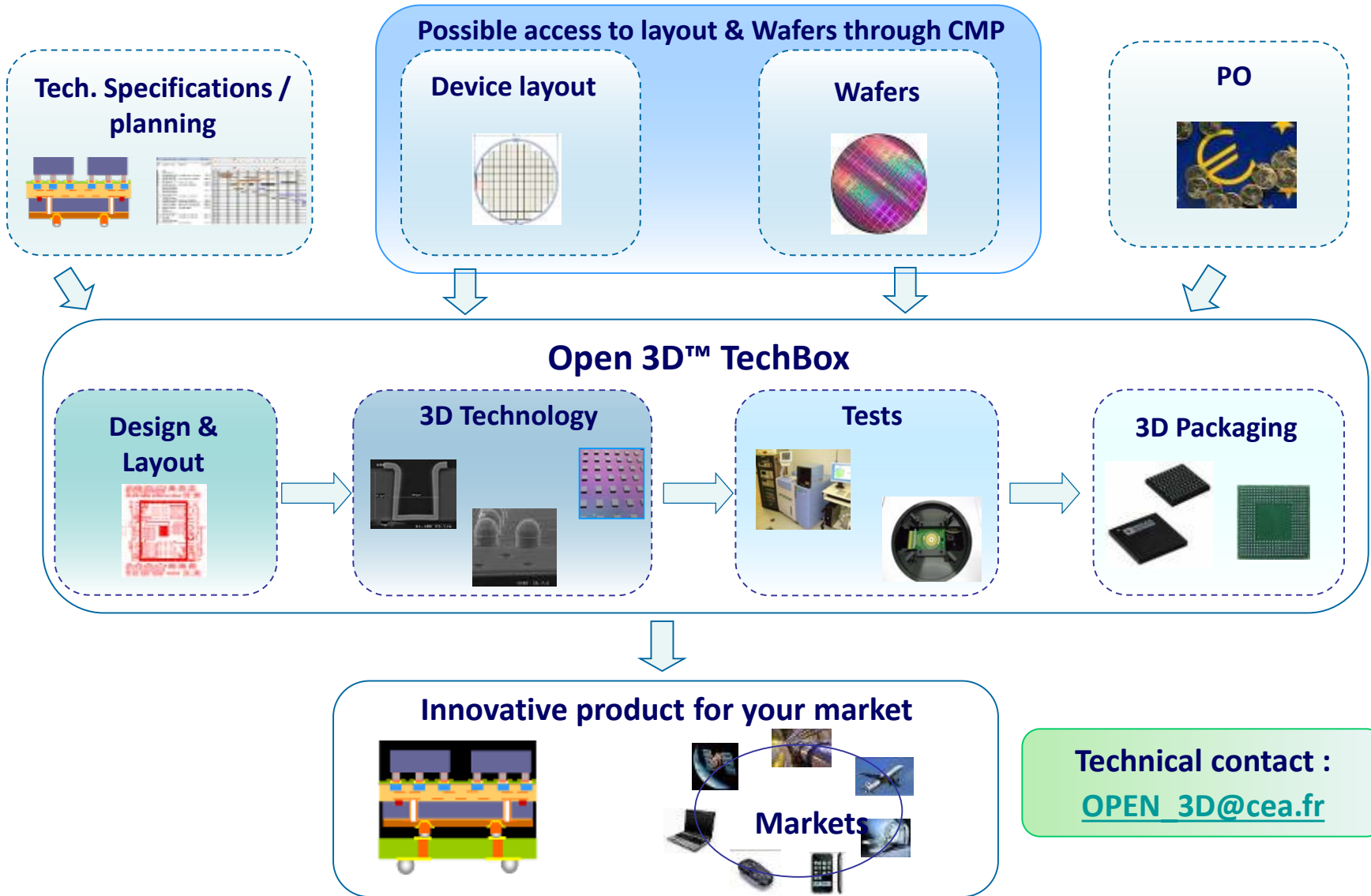


# Technological offer overview



# How to work with Open 3D™

- Simple process for customer



# Open 3D™ : Technological roadmap

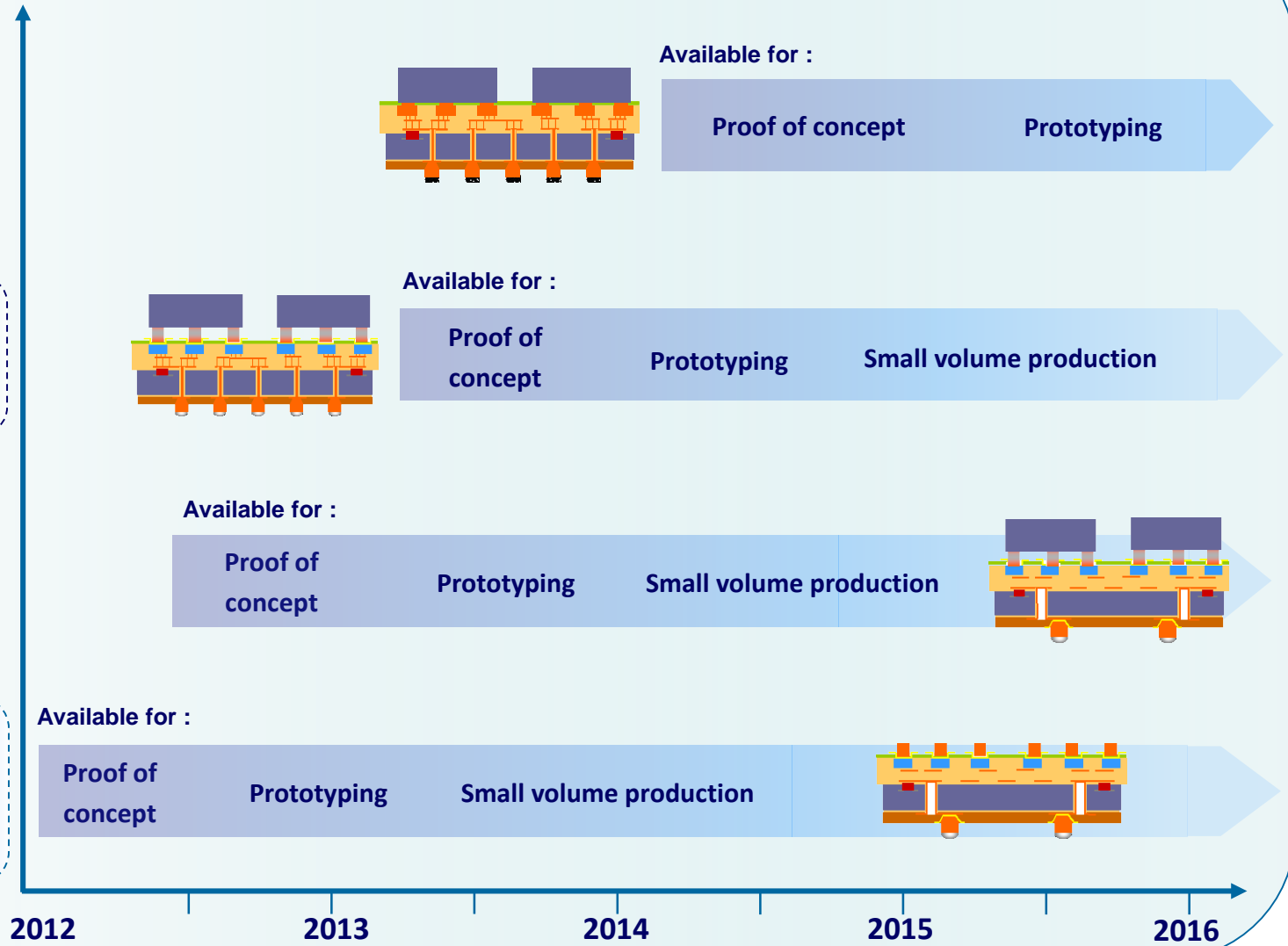
## Technologies

- Fine pitch interco

- TSV last shrinking
- TSV Middle
- Damascene RDL

- TSV Last AR 3:1
- Stacking D2W

- TSV Last AR 1:1 & 2:1
- μbumps / μpillars
- Bumps / pillars
- UBM



# Conclusions / Prospects

## ■ Conclusions :

- Open 3D™ is a LETI 3D technologies offer, targeting industrial & academics customers
- Open 3D™ will give access to 3D mature technologies with the following key drivers :
  - Moderate cost technologies
  - Short cycle time
- Open 3D™ will operate on LETI facilities @ Minatec campus / Grenoble – France
- Already two projects have started on the platform

## ■ Open 3D prospects :

- Continue to fill the Open 3D catalog with new mature technologies in very close collaboration with LETI R&D projects



## David HENRY

Open 3D project manager

CEA-Leti

MINATEC Campus,

17 rue des Martyrs

38054 GRENOBLE Cedex 9

david.henry@cea.fr

Tél. : + 33 (0)4 38 78 96 88 – Fax et/ou mobile : + 33 (0)4 38 78 50 12



[OPEN\\_3D@cea.fr](mailto:OPEN_3D@cea.fr)

# leti

LABORATOIRE D'ÉLECTRONIQUE  
ET DE TECHNOLOGIES  
DE L'INFORMATION

CEA-Leti  
MINATEC Campus, 17 rue des Martyrs  
38054 GRENOBLE Cedex 9  
Tel. +33 4 38 78 36 25

[www.leti.fr](http://www.leti.fr)



## Thank you for your attention

