

# **«Nanoinnovation 2016»**

Roma, 22/09/2016



# Strategic plan for the development of a digital factory in Northern Italy

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# POLITRONICA's HISTORY



Giovani idee  
cambiano l'Italia.



Italia x10



Politronica Inkjet Printing S.r.l. is a start-up born in 2008 as idea coming from a group of researchers working at Politecnico di Torino, after winning a loan within the framework of the project “Young Ideas Changing Italy”.

**The idea was further developed, leading to the settlement of a process for the production of inks based on metallic nanoparticles, that will be later used to realize electron devices.**

**In 2009** the enterprise was acquired by **FSP Tech S.r.L.** investing in the R&D and supporting Politronica’s go-to-market, entering then the I3P incubator.

**In June 2010** a first patent was deposited, related to the realization of a silver-based ink. A further patent followed, relative to a magnetic nanoparticle-based ink. Politronica became **Spin-off** of Politecnico di Torino, since July 2010.

**In 2011** Politronica received the flagship “**Italia degli Innovatori**” supporting the Italian Government team at Shanghai Expo and at Chinese-Italian Festival in Suzhou.

**In 2012** Politronica was chosen between the 10 most innovative business ideas at Science Festival in Genova.

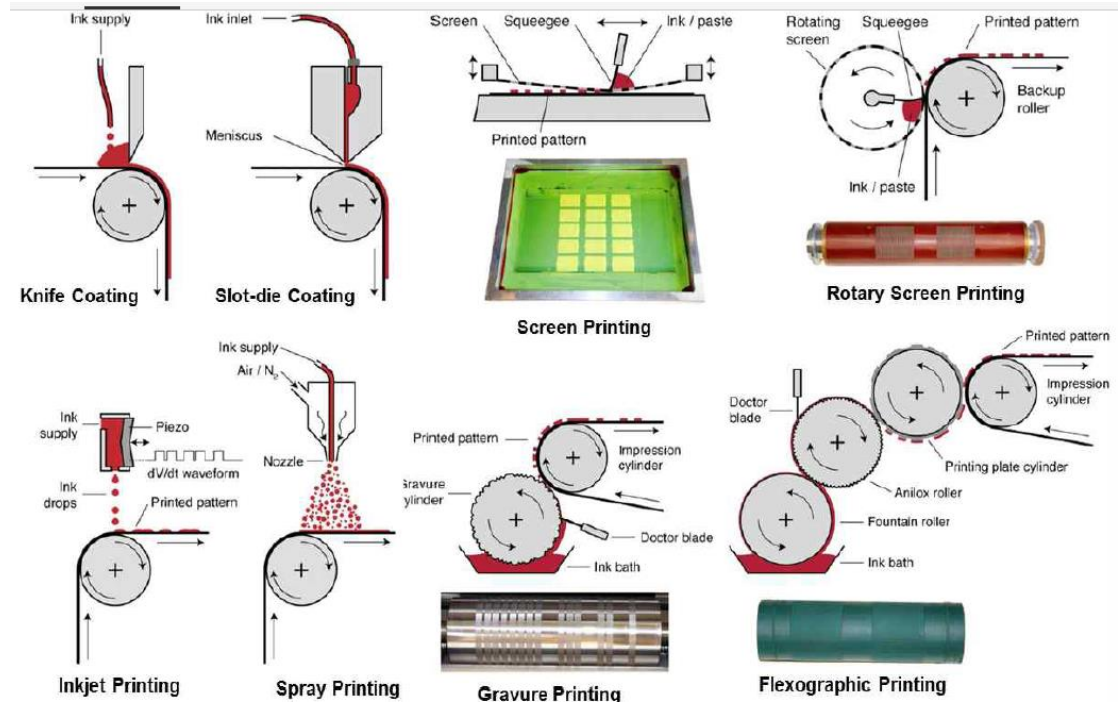
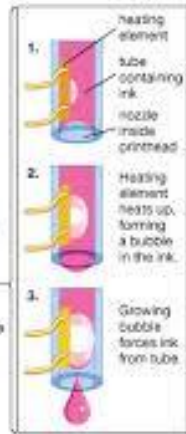
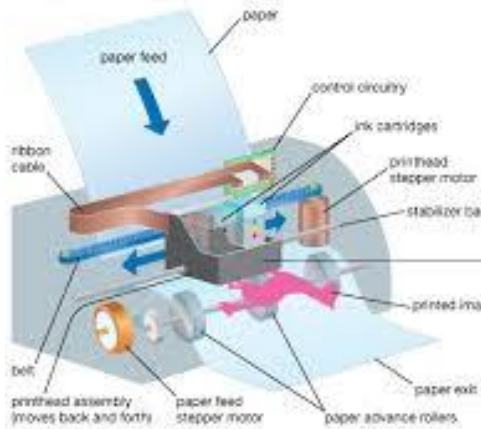
**In 2013** the Italian Institute of Technology started its collaboration towards the commercialization of new inks.

**In 2016** we are starting a new adventure, joining the Unico&Replicabile project for the development of a digital distributed factory.

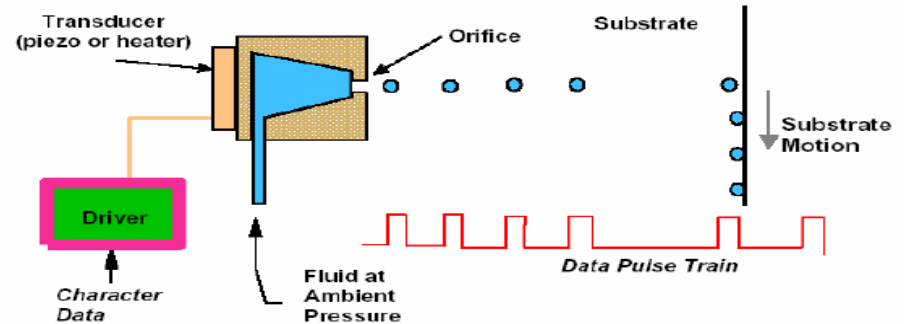
# THE HISTORY OF PRINTING



**Principle of the ink-jet printer**

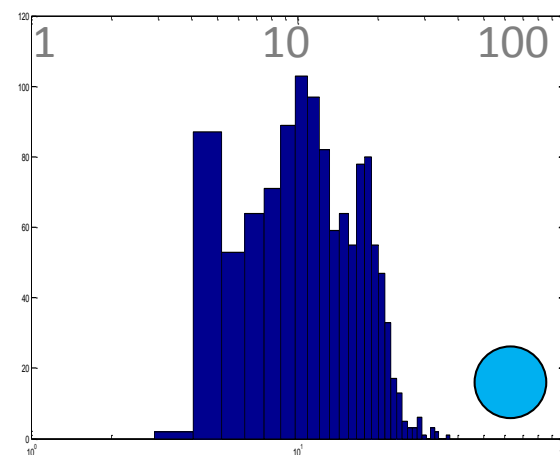
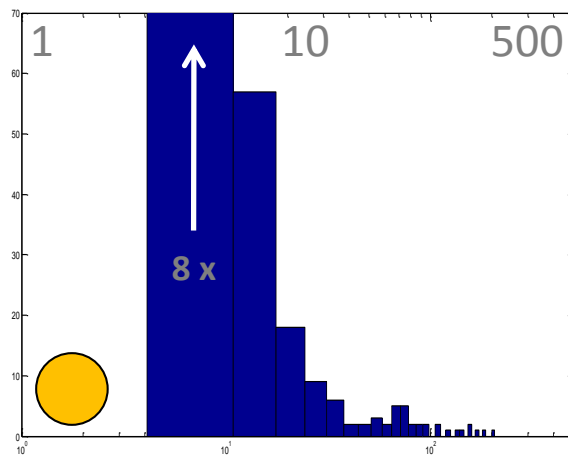
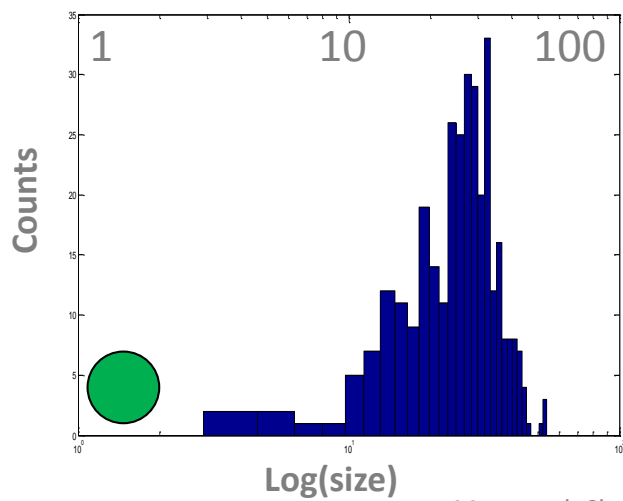
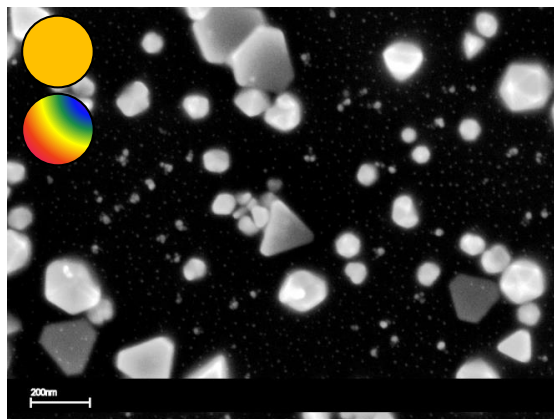
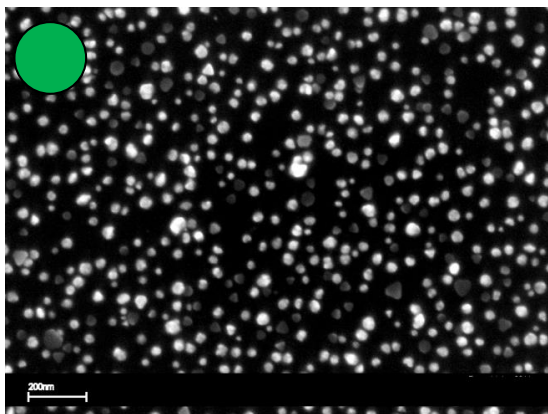


1454 A.D.



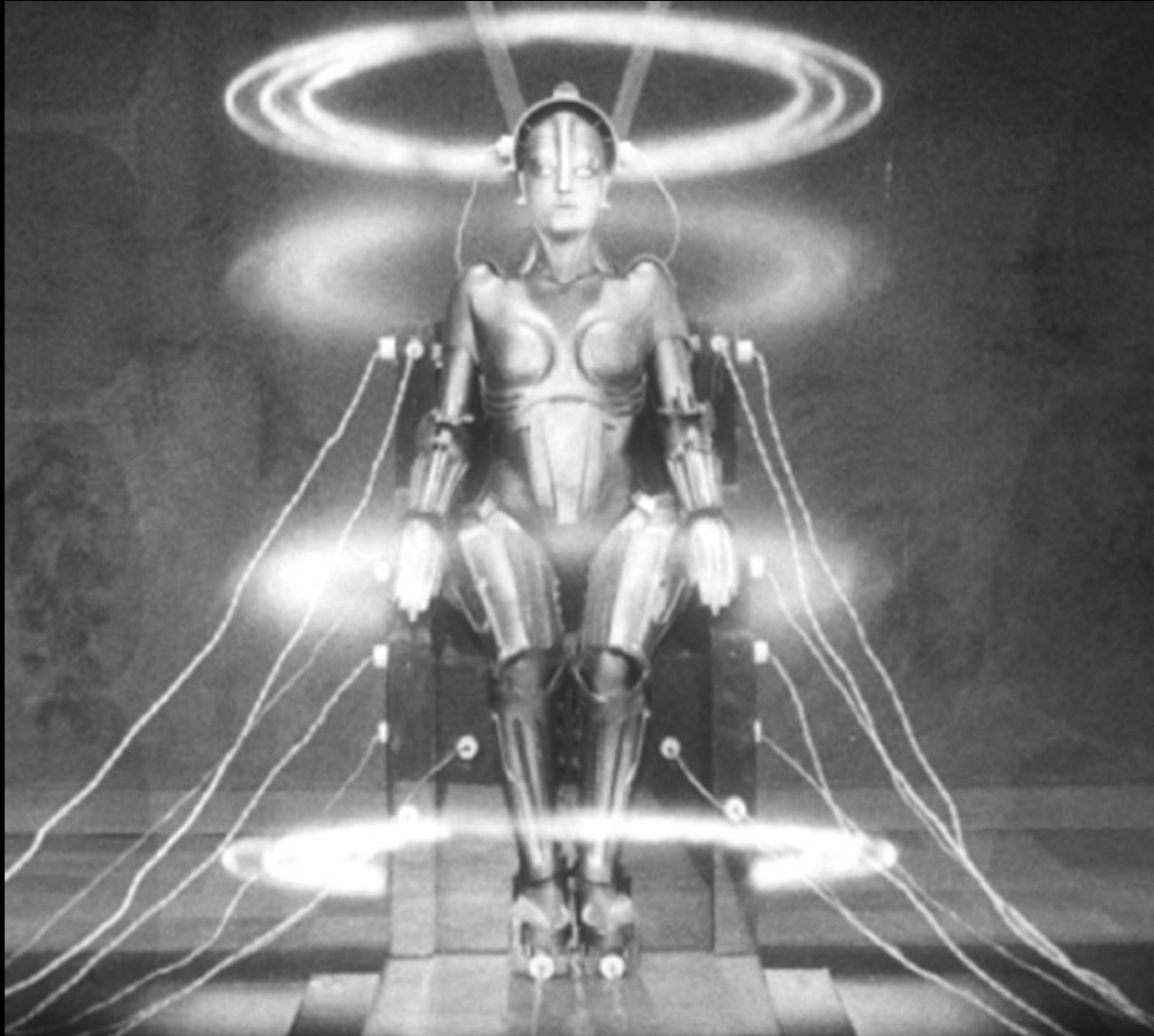
# OUR INKS (2009-2011)



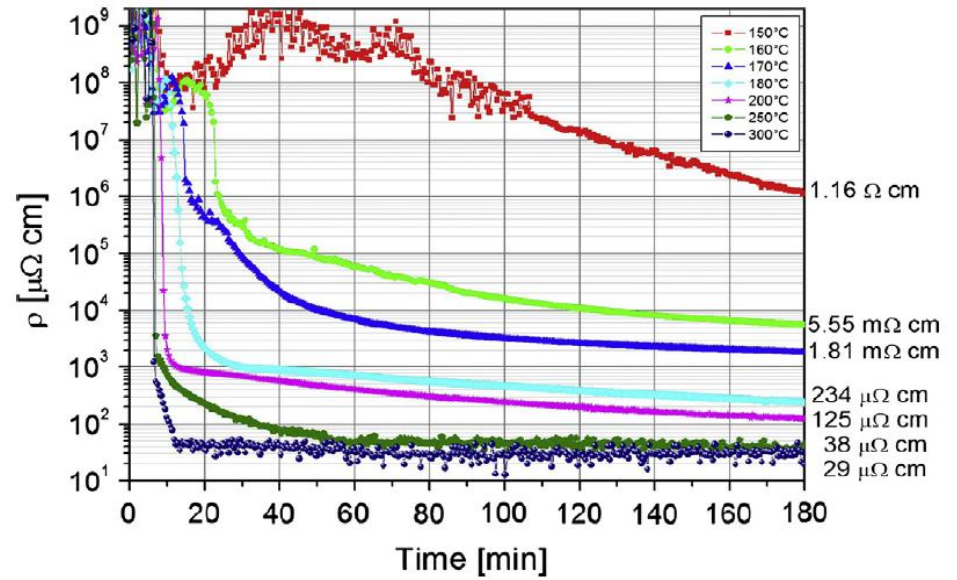
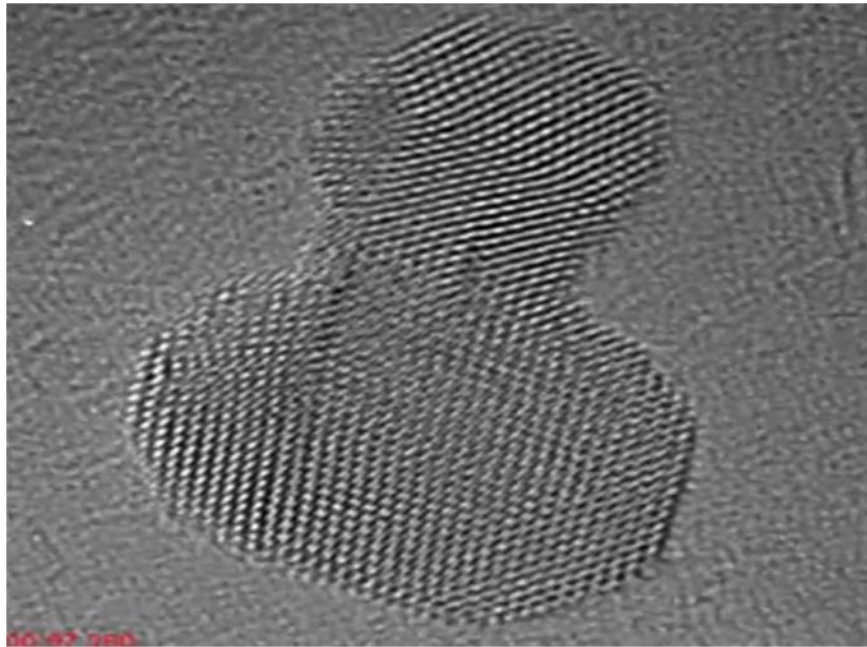




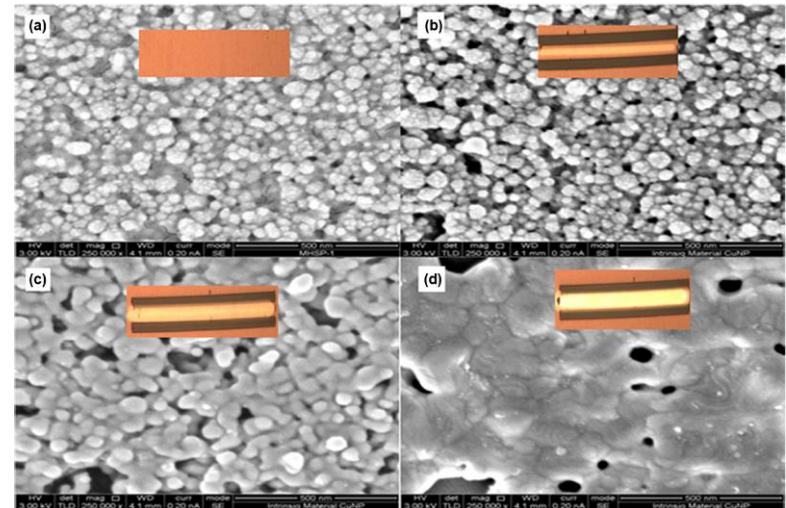
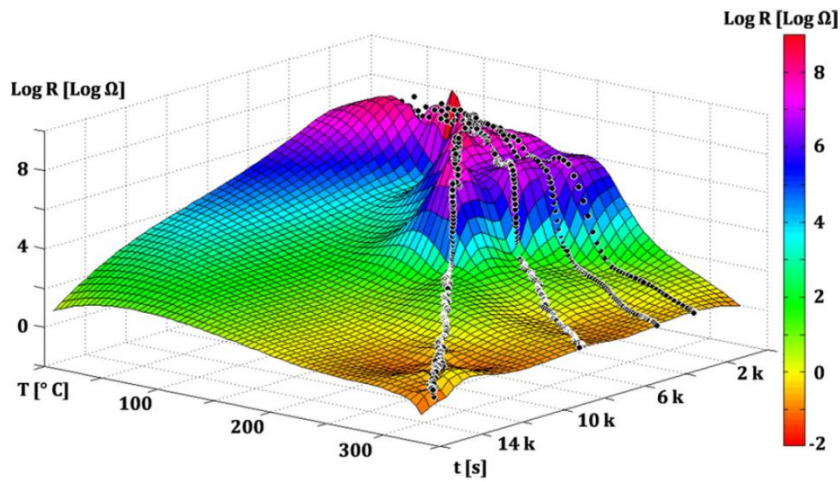
# SINTERIZATION PROCESS



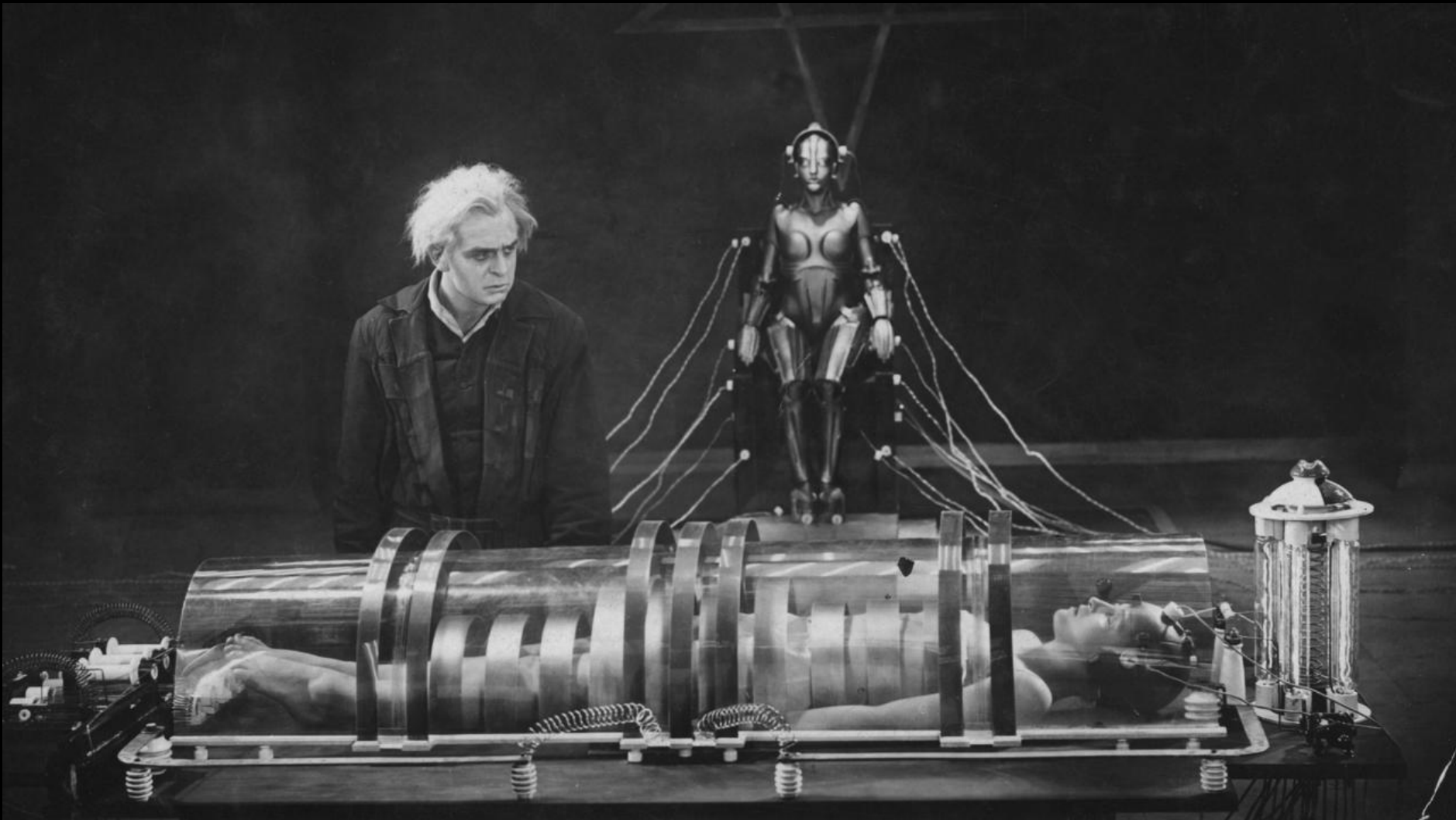
# Au NPs under 300 keV – JEOL



<https://www.youtube.com/watch?v=H5ohOFtJ3Yg>

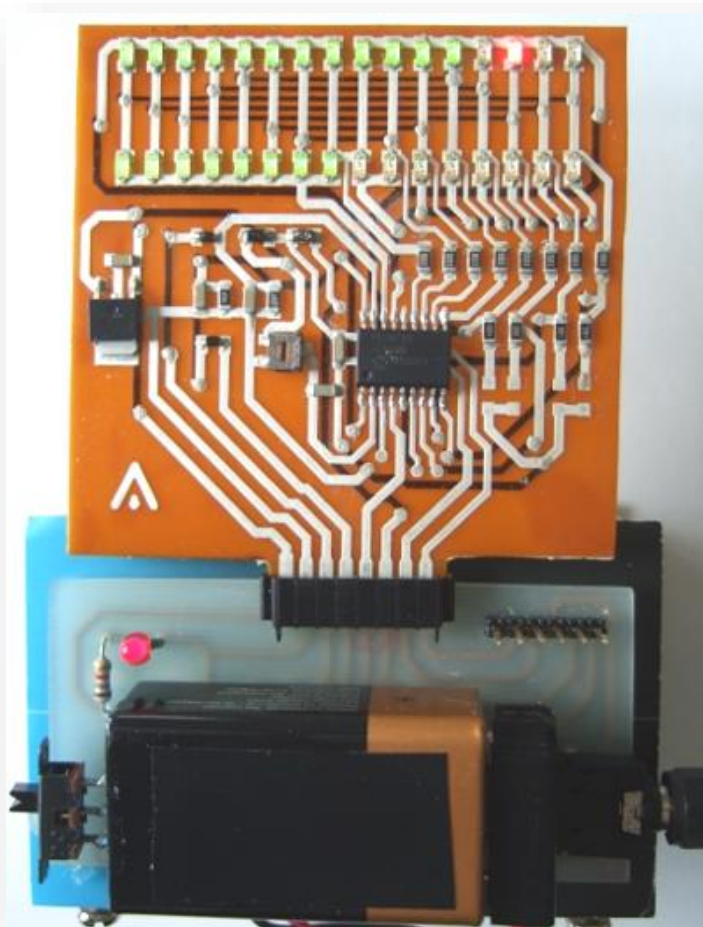
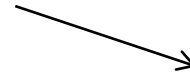


# PROTOTYPING ...

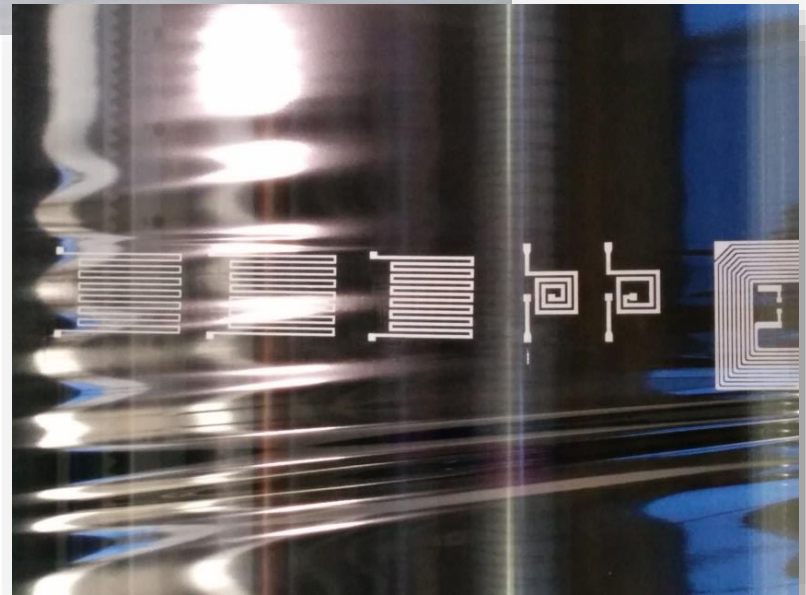
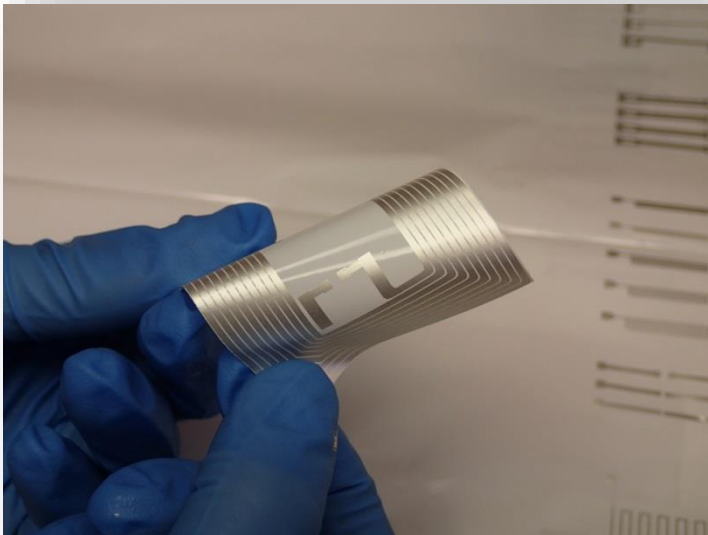
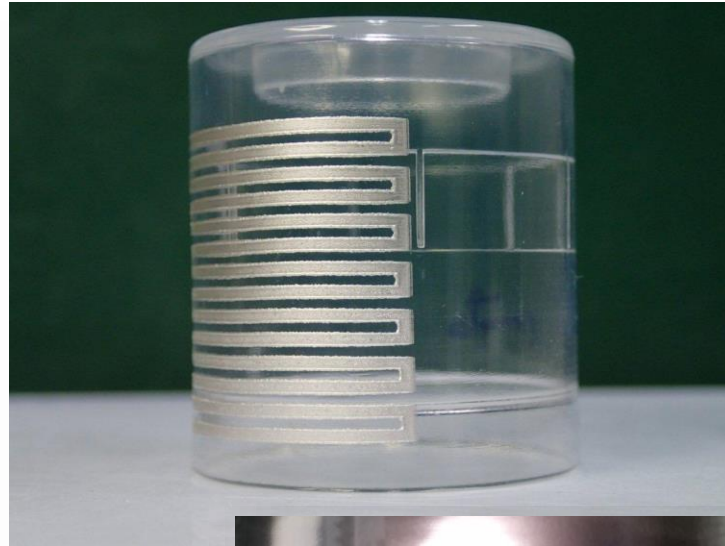
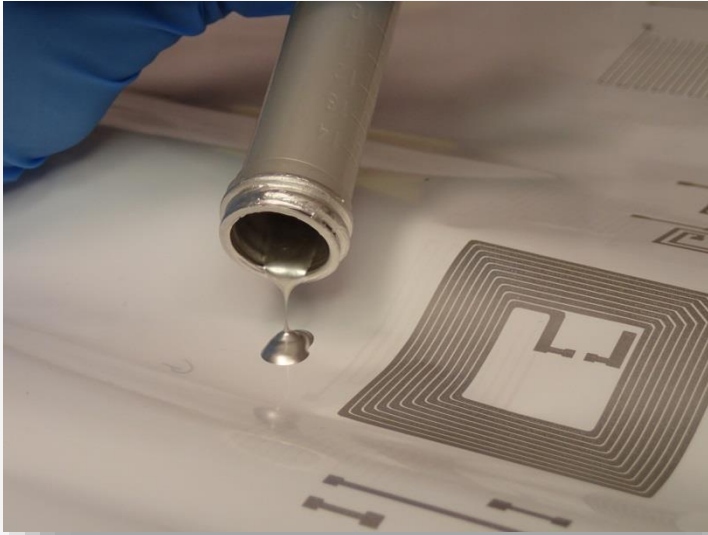


# DIGITAL PROTOTYPING

Flexible VU Meter, LED circuit printed on glass



# ANALOG PROTOTYPING



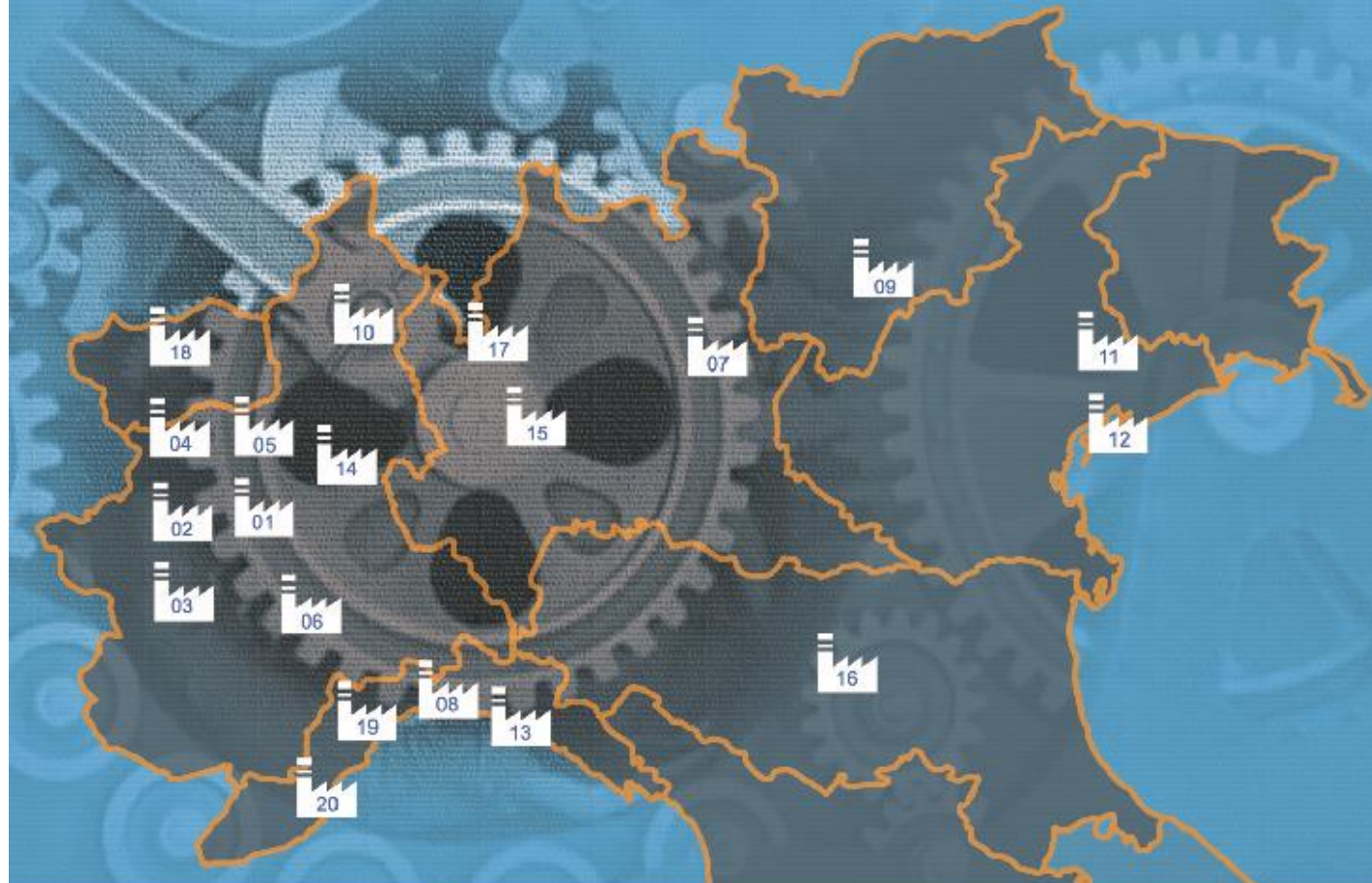


**MISSION & STRATEGY**

# IL PROGETTO

Vogliamo essere, entro il 2018, il **primo operatore di stampa 3D FDM del Nord Italia**:

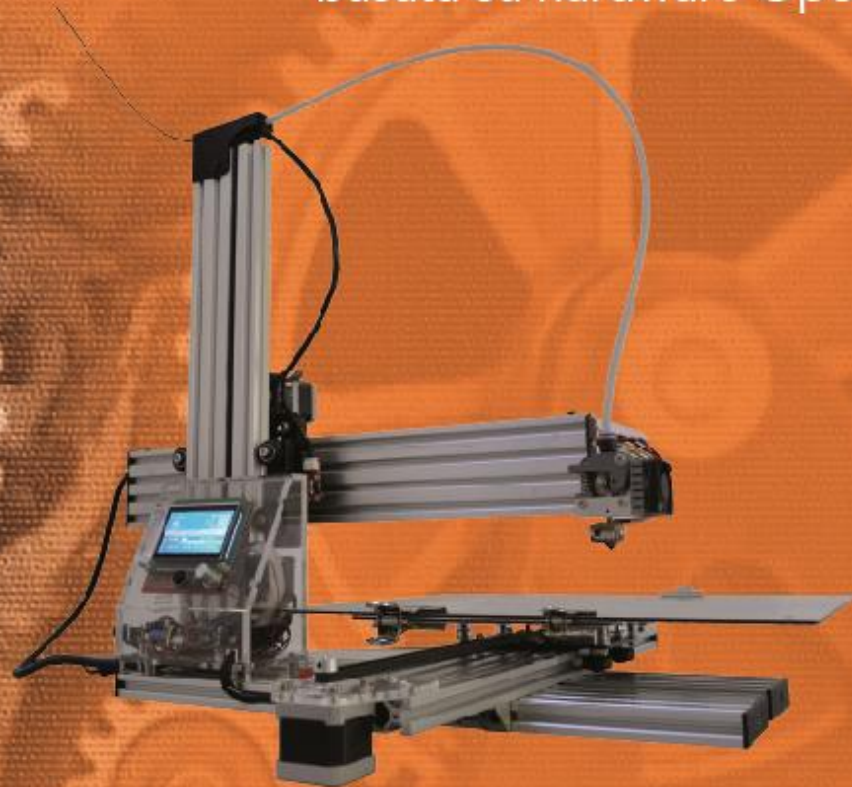
**90** Vetrine. **300** Macchine. **Tutti** professionisti qualificati.



# TECNOLOGIA

## Modulo Kit FDM QUBIT3D

Completamente assemblato a mano in Italia.  
Meccanica prodotta in America in modalità open source  
basata su hardware Openbuilds.



**Volume di stampa 300mmx400mmx250mm**

Velocità di stampa: fino a 120mm/s

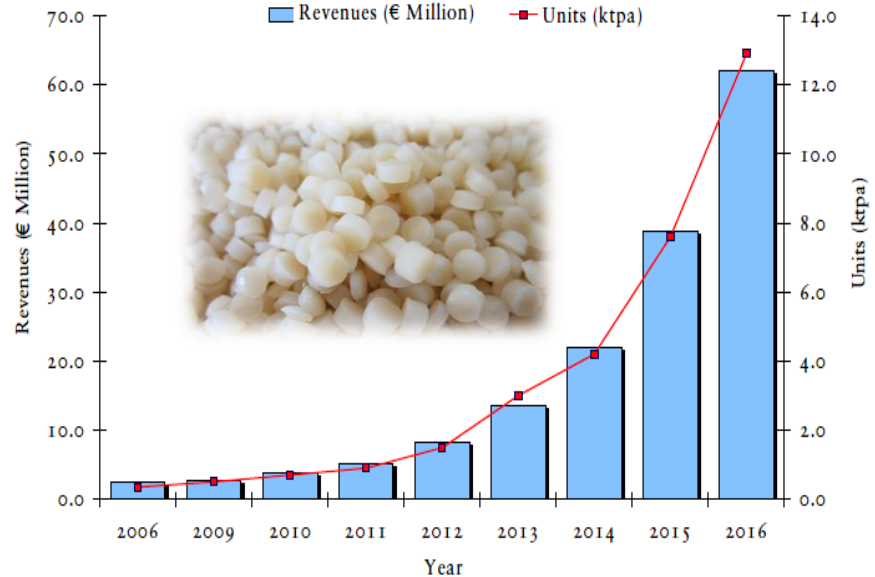
Precisione su asse Z: da 0.05mm a 0.30mm



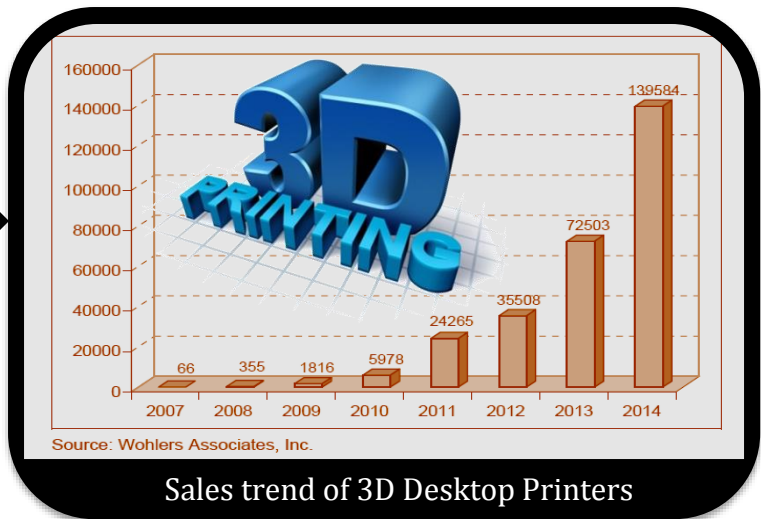
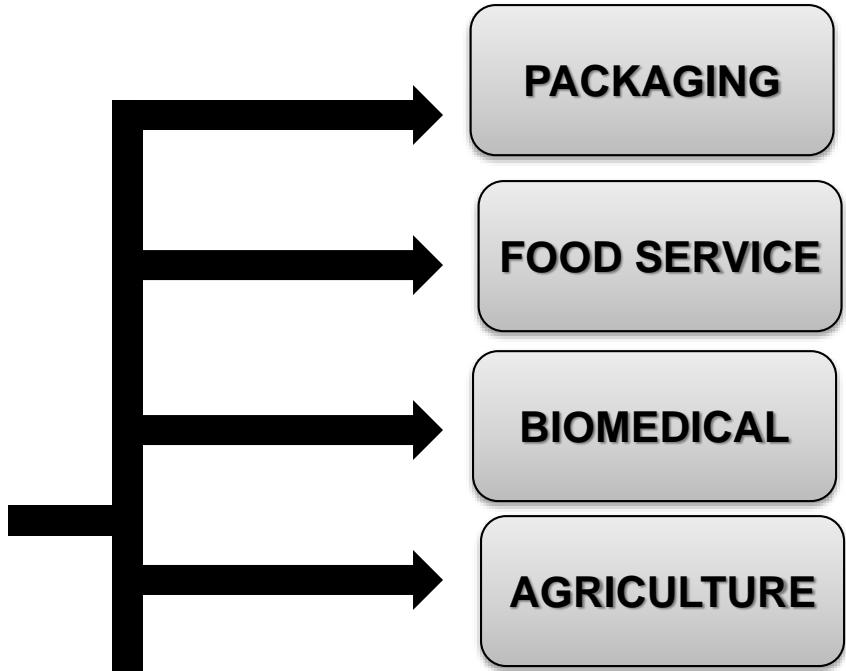
**ANOTHER SYNERGETIC ELEMENT :**



**Polipo**



PHA European market from 2006 to 2016.  
Frost & Sullivan



Source: Wohlers Associates, Inc.

Sales trend of 3D Desktop Printers



**DEAL**



# Biodegradable



# Polimer



**iit** @Polito  
ISTITUTO ITALIANO  
DI TECNOLOGIA  
CENTRE FOR  
SUSTAINABLE FUTURES



**3,5 €/kg**

# 3D-Printing Manufacturing

The faster manufacturing process (4 days vs 3 weeks ) permits customer agreement able to sign long-term contract



PRODUCTION

# FAMILY PORTRAIT



Strategy & Network



Engineering & Technology



R&D



Renewables raw



Thank you for your attention