

COLAE ACHIEVEMENTS

COMMERCIALIZATION OF ORGANIC AND LARGE AREA ELECTRONICS & CASE PRINTOCENT



COLAE
Commercialising Organic and
Large Area Electronics



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Printed and hybrid functionalities

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Partners

- A** Finland, Oulu: VTT/PrintoCent
- B** France, Lyon: Plastipolis
- C** France, Grenoble: CEA
- D** Germany, Dresden: OES
- E** Germany, Heidelberg: InnovationLab
- F** Germany, Munich: Fraunhofer/EMFT
- G** Netherlands, Eindhoven: TNO/Holst
- H** Netherlands, Eindhoven: KMC/Innovation Fab
- I** UK, Cambridge: CIKC
- J** UK, Sedgefield: CPI
- K** Switzerland, Basel: CSEM
- L** Spain, Barcelona: CETEMMSA/PEC4
- M** Greece, Thessaloniki: AUTH
- N** Sweden, Norrkoping: Acreo
- O** Portugal, Famalicao: Centi
- P** Austria, Weiz: StOLAE
- Q** Belgium, Gent: IMSC,

Acronym: COLAE

Starting date: 1 Sep 2011

Duration: 36 months

Call: FP7-ICT-2011-7

EC budget: EUR 3.75M

Web-page: www.colae.eu

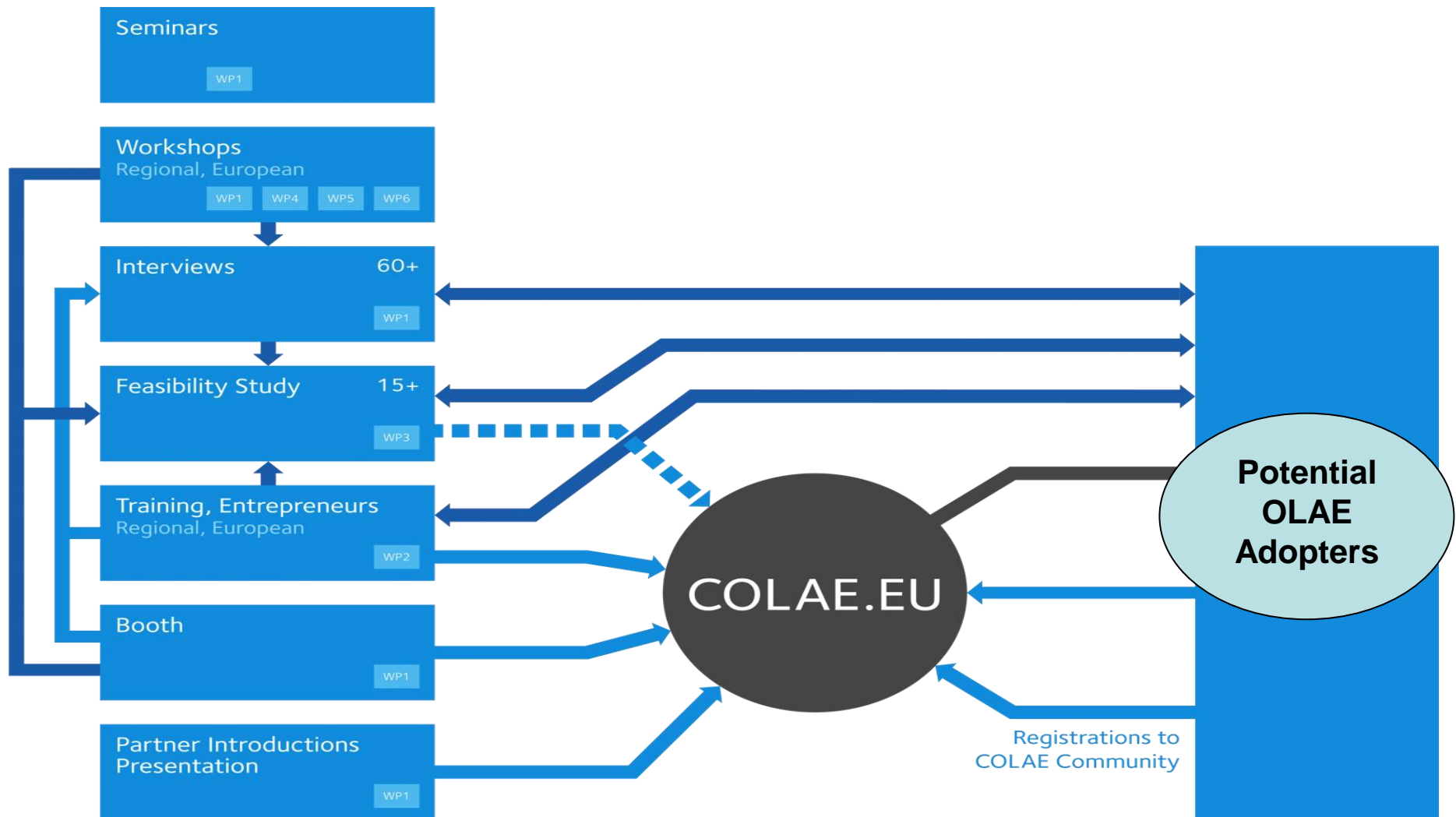
Coordinator: VTT Technical Research Centre of Finland

Target

OLAE to
industrial designers and engineers,
end users and integrators

COLAE 2011-2014

`Go to the fields with OLAE`



European Site Members

742 members all together



At Hannover Industrial Fair
04/2014



30 COLAE demonstrators at Hannover Messe 2014

OES	CEA	CEA	VTT	CPI	OES	OES	OES	OES	CETEMMSA	OES	OES	OES	OES	CAM
OLED-luminaire	magic twist	magic slider	Flexible Luminaire	OLED Lighting	OLED-luminaire	OLED-Lighting	Frauenkirche	time table	EL	flexible OLED	OLED butterfly	OPV + EL + gedruckt. Sensor	potatoe battery	printed laser demo
 									 					

OES	OES	VTT	OES	Joanneum	VTT	CPI	Centi	Acreo	Acreo	OES	OES	OES	OES
microfluidic system	flip flap	Autonomous presence sensor	OPV	Pyzoflex	Totem talker	Printable (retractable)	printed capacitive sensors	sm... + heating systems	Integrated Processors	small flexible display	SIMS	Molecular Evaporator	OLED microdisplay
												 	

Finding: 2011 Demobag with 10 demos,
2014 Set of 30 demonstrators – more systems - not
available from industrial value chain
2015: Volume up in start-up demonstrators

At Hannover Industrial Fair
04/2014



COLAE demonstrator – System OLED, Solar Cell, Printed Touch



Description

COLAE demonstrator was one of the first smart COLAE integrated systems in the world.

It combines organic, printed and classical microelectronics. The integrated devices are:

- organic transparent solar cell
- white OLED panel
- printed touch less finger sensor
- standard metal hydride battery
- small microcontroller and standard microelectronics devices

Impact

During Hannover fair 2014 and LOPE-C 2015 in Munich the 2nd COLAE demonstrator was presented for the first time. Approximately 1.600 experts and visitors have seen the demonstrator

Finding: The designers and engineers are looking for systems – hybrid solutions with printed and silicon

PrintoCent InnoFests

2014 2015 2016 - 2days - 25 teams



Since 2014, initiated in COLAE, to actively boost business around printed intelligence PrintoCent has facilitated annual innovation competitions for 25 selected teams & ideas.

For a quick recap here's a [video](#) & see also www.facebook.com/printocentinnofest for the latest news



printocent.com

- Positive start-up signs coming such as
 - Isorg, Sensing Tex, Ginolis, Thinfilm, Pragmatic Printing, TactoTek ...
- Boom in wearables – huge growth predicted – who will scale up?
 - Jabil to acquire Clothing+ (300 employees, Finland)
- Semiconductor Industry entering with demos
 - Qualcomm – Enfucell: Disposable sensor patch for sports equipment
- Cloud based services need hardware & sensors
 - Internet of things: Pushing autonomous systems
 - Lighting: Disruption to energy efficient LED / OLED
- How to help start-ups to `real customers`? Role of RTOs

Case PrintoCent

Status of industrialization

- Printed Intelligence (PI) is in **early industrialization phase**
- Customers are asking for **versatile PI products**
Need for fast prototyping and scale-up to industrial production!
- Different markets and products demand **customized manufacturing solutions**
Printed Intelligence is not just one production line!
- **Companies are already selling!**
 - Manufacturing lines for different markets/products are in investing phase
 - Investments in Oulu region 2016 - 2020, 50 - 70 M€

www.printocent.com

Start-Ups founded since 2010, >170 jobs

1. MK Fluidics (1), Machinery, Tools, Diagnostics, Oulu
2. FocalSpec (15), Optical instrumentation, Oulu
3. (Lumedy -OLED lighting solutions, Oulu – on hold)
4. (Nanordic (0) Nanomaterials, Oulu – on hold)
5. Iscent (1), Hot embossed decorative products, Tampere, Helsinki

PRODUCT LAUNCHES – PRINSE`16

- Flexbright
- Focalspec
- Goodwiller
- MoveSole
- Optitune

21. Kala Products (1), diagnostics, Oulu
22. Movesole (7), smart insole, Oulu
23. LEDFoil Finland Oy (1), lighting, Oulu 2015
24. Dispelix (3), smart glasses, Espoo
25. BioMensio (3), diagnostics, Oulu 2016
26. New Cable Company (1), innovative cabling, Oulu

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Printed Intelligence as future industry



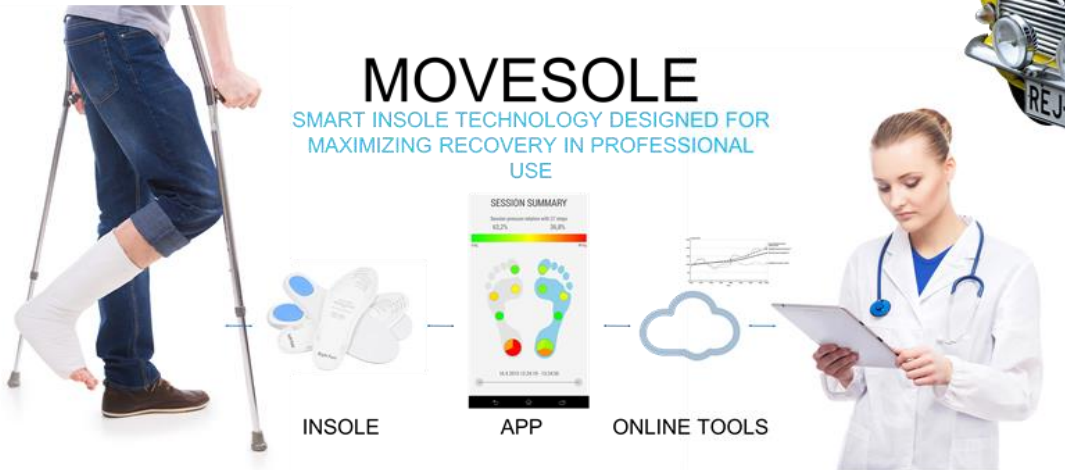
Goodwiller



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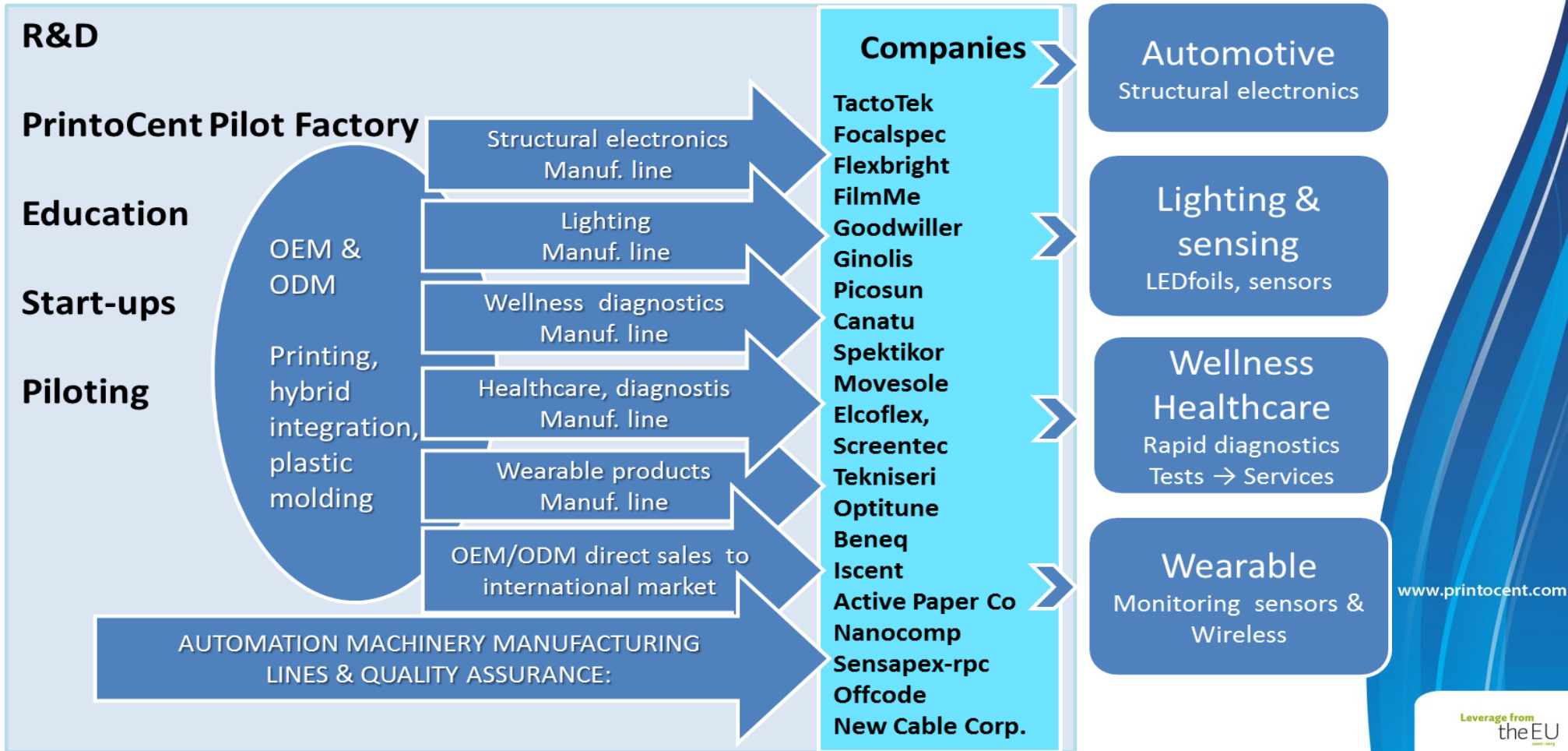
MOVESOLE

SMART INSOLE TECHNOLOGY DESIGNED FOR MAXIMIZING RECOVERY IN PROFESSIONAL USE



Printed and hybrid manufacturing

Scaling up new industry in Finland



PrintoCent – Industrializations leaders – forecast 2013

	2013	2014	2015	2016
Turnover	2	5	10	30
Personnel	40	60	120	300

- **Movesole** - leg rehabilitation Oulu (7)
- **Focalspec** – on-line inspection Oulu (15)
- **Flexbright** – lighting applications Oulu (4)
- **Tactotek** - intelligent surfaces, user interfaces Oulu (35)
- **Goodwiller** - rapid diagnostics, Oulu (4)
- **Ginolis** - automation for manufacturing of rapid diagnostics Oulu (60), Uppsala (20)
- **Spektikor** - visual ECG –indicator, Oulu (3)
- Etc.

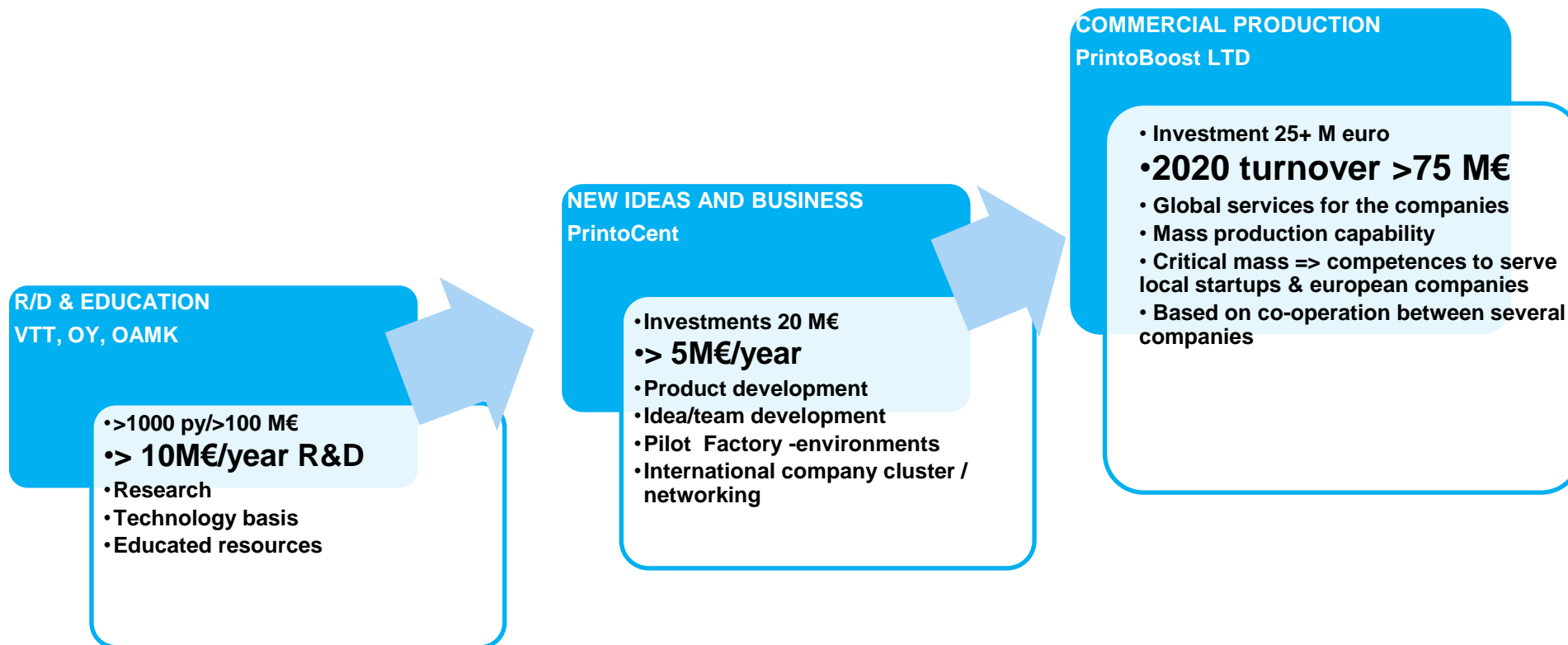
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Services: Besides companies offering design, development and manufacturing services like Elcoflex, Neficon, Optitune, Screentec, Tekniseri, ... **turnover 2015: 18M€**



What`s next in PrintoCent industrialization ?

Customer needs -> Products -> Development & Manufacturing Services -> Scale Up



THANKS FOR YOUR ATTENTION!



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