Building the PE business chain!

Peter Visser – BOM business development
Overview

- About the BOM: what & how?
- Why PE? Benefits
- PE in Brabant
- PE projects & initiatives
- Conclusions
Goal: Sustainable growth of the Economy of Noord Brabant

- Founded in 1983
- Funded by Ministry of Economic Affairs and Provincie Noord-Brabant
- Ca 70 fte
- Office in Tilburg, Netherlands
Goal: Sustainable growth of the Economy of Noord Brabant

4 department
- Foreign Investment
- Venture Capital
  - Venture Capital > € 230 miljoen
  - 300-400 requests/year
  - Appx 65 participations
Goal: Sustainable growth of the Economy of Noord Brabant

4 department
- Foreign Investment
- Venture Capital
- Business parks
- Business Development
BOM Business Development

Core:
Support start-ups and collaborations between parties within societal relevant sectors, in order to facilitate the development of novel relevant innovative products and/or services.

How:
- Search relevant opportunities
- Support the realisation of innovative collaborations
- Development of new business cases
- Facilitate the financing of these innovations

Focus:
- Focus on clusters across sectors
- Focus on growth
Phases of Development

Growth & Ambition

Brabant Development Agency

BOM

Ideation

Start-up

Scale-Up
5 basic growth drivers

- Know-how
- Capital
- Talent
- Market
- Facilities
Onderzoek is uitgevoerd door Erasmus Centre for Entrepreneurship in opdracht van de BOM

Snel groeiende bedrijven in Noord-Brabant

**Aantal Groeiens**
Nederland telt ruim 2800 snelle groeiers waarvan 466 in Noord-Brabant.

2800

466

75% van de snelle groeiers bestaat langer dan 10 jaar.

**Aantal Snelgroeien in Noord-Brabant**
Snelgroeien bedrijven zitten geclusterd rondom de stedelijke gebieden en zijn over de hele provincie Noord-Brabant verspreid.

1-10
10-20
20-30
30-40
> 40

**Hoewel het nu met de groei?**

<table>
<thead>
<tr>
<th>Jaar</th>
<th>Snelgroeien</th>
<th>Groeiend</th>
<th>Stabiliteit/Krimpending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>2400</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>2008</td>
<td>2400</td>
<td>80%</td>
<td>20%</td>
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<tr>
<td>2010</td>
<td>2400</td>
<td>60%</td>
<td>40%</td>
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<tr>
<td>2012</td>
<td>2400</td>
<td>40%</td>
<td>60%</td>
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<tr>
<td>2014</td>
<td>2400</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
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Het aandeel in snelgroeien bedrijven in Noord-Brabant is de afgelopen 7 jaar gehalveerd.

**Start Crisis (September 2008)**

24,5% van de snelgroeien bedrijven bevindt zich in de groot- en detailhandel.

Internationaal onderzoek door de OESO wijst uit dat bedrijven in elke fase behoeften hebben aan kapitaal, kennis, talent, markt en faciliteiten.

MEER WETEN? www.bom.nl
WHY?
PE DEFINITION:

PE / Organic, Large Area Electronics (OLAE)

= printing of electronic circuits and components* in 2D on media such as paper, plastic, glass, metal and textile, using standard printing processes and press equipment.

(including hybrid electronics)

* thin-film transistors, resistors, inductors, and capacitors into printed batteries, displays, sensors, RFID tags, interactive packaging, solar panels, and even speakers
IoT initiates the change from semiconductor to printed electronics

> higher volume, lower costs
Benefits of printed electronics?

- Very large volumes possible
- (promise of ) Lower cost-to-function
- Ease of integration, wearable, flexible
- Disposable / more eco friendly vs IC production
HOW TO BUILD

ECOSYSTEMS?
Creating the breeding ground

- Make PE known (SME!)
- Know-how & IP sharing
- Demonstrations
- Early pilots / Fieldlabs
- Talent development
- Investments
Region of innovation

Located at High Tech Campus, in the heart of Brainport

Centered in the heart of a high-tech region, it offers numerous opportunities for activities that can add value to your involvement in Holst Centre.
Open innovation system
High Tech Campus Eindhoven (HTCE)

Formerly Philips Research
Now 140+ companies
Including NXP, Intel, Holst Centre, ...

Joint R&D facilities
PE business chain: *Power of Proximity*

*all within 50 km’s range*
Early know-how & IP sharing

- PE Newsletter (in Dutch) > *Bits&Chips*
- Yearly open PE.NL event > next in October 2017

- **HOLST-IP-License program**
  - Access to joint Holst Centre IP for SME’s (BOM)
  - SME’s in NL and Belgium
Project: *Printed Electronics NL*

- OPzuid programma (EFRO/Noord-Brabant)
  - Goal: Development of the NL PE Ecosystem
    - Started on Sept 1st, 2016
    - Duration 3 years
    - Demonstration projects with 10 companies
    - including training, promotion, investigations
Partners: *Printed Electronics NL*
Project: *Printed Electronics NL*

- Promotion program (4V)
- Demonstration projects
  - Healthcare: wearable electronics
  - Logistics: track & trace
  - Materials
  - *Product development*
  - *Process development*
  - *Tooling/design rules*
- *Fieldlabs for other parties*
Manufacturing sequence

Need: Process control & standardisation
Standard building blocks
  > quicker new applications
Example: Wearable electronics

Sensor integration, Temperature, Pressure, Impedance

Print conditions
Sensors
Different substrates
Manufacturing technology

Sensor read-out
Medical applications definition

by-wire.net
design & research in fashion technology

LIFESENSE GROUP

Maastricht University

ATOGEAR

Holst Centre
Open Innovation by imec and TNO

spgprints®
Example:
printed NFC temperature logger for logistic purposes
printed NFC temperature logger for maintenance
Metafas: screen printing with electronics
DOMICRO: Micro Device Fab
on demand production 10-10,000 pcs / month
EU pilot-line project on flexible OLED LIGHTING:

PI-Scale
Shaping the Future in OLED Lighting
Building the PE ecosystem in NL

- Inspiring PE events & demo cases
- Information sharing, PE newsletter (in NL)
- PE events and conferences
- Funded collaboration projects
- IP for SME’s program
- PE capital investments
Conclusion

• PE is making its start, ecosystem development in needed NOW!
• PE Pilot production is possible within Brabant region,
• >> larger scale production facility is anticipated for near future
• Governmental guidance is supporting the businsess development and collaborations
• Collaboration is key to success in PE market approach

But Brabant needs:
• More PE applications
• Co-investors in PE
• Better materials / sensors / integration / skilled people
let’s collaborate in PE!

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