# Innovation Across Borders – Forum VBO-FEB

## Innovation Case Preparation Form

## WHO

- Welke onderneming(en) werd(en) hierbij betrokken? (grootte, bedrijfssector,…)?
- Met welke partner(s) (clusters, O&O-centrum, spin-offs, hubs,…)?

CASE BORIT NV

Borit NV:
Borit NV manufactures bipolar plate assemblies, very thin precision formed and welded metal sheets used in fuel cells and electrolysers. Borit thereby helps to speed up the H2/zero emission economy.
Borit has customers in the US, Europe and Japan across the spectrum of fuel cell and electrolyser technologies (including automotive OEMs as well as development companies).
Borit NV started up as a greenfield company in 2010.

Other parties involved:

- Dr Bohmann: German inventor of the hydroforming technology used by Borit NV (operating from coil with short cycle times) and holder of the IP exclusively licensed to Borit NV.

- Borit GmbH: Dr Bohmann's engineering and development company, now mainly involved in feasibility studies.

- OCAS NV: metal research centre and joint venture between ArcelorMittal and the Flemish Region. OCAS was instrumental in the industrial upscaling of the press developed by Dr Bohmann.

- Finindus NV: investment company backed by ArcelorMittal and the Flemish Region and sister company to OCAS. Finindus spotted the technology, introduced it to OCAS and structured the project. Finindus was involved in the project from the start and provided the majority of the funds to develop the company.

- PMV-TINA: investment fund managed by PMV (Participatiemaatschappij Vlaanderen) that strives to enable the "Transformatie Innovatie en Acceleratie" of Flanders' industrial network. PMV-TINA invested in Borit at the end of 2014 and helped to boost Borit's production capacity.

# WHAT

- Wat was de doelstelling van de innovatie?
- Waarin bestaat precies de innovatie (toepassing, soort innovatie – product/procedé/businessmodel/support diensten/management,…)?

The core innovation around which the company is built is a unique hydroforming press able to continuously produce from coil. Traditional hydroforming presses have a long cycle time and are generally not suited to volume production.
The technology offers all the advantages of hydroforming technology (e.g. accurate and uniform forming, low tool costs, low set-up costs) while being competitive with other forming methods and therefore suitable for mass production.
The technology also enables Borit NV to respond to new customer requests and provide real parts in weeks rather than months, thereby also opening up a new way of doing business.

Borit has since added other capabilities, such as high precision laser cutting and laser welding and sealing, to offer its customers a one stop shop. Borit has successfully integrated these technologies and has been innovative in deploying them within its specific product range.

While the business model initially focused more on the press technology, the company is now concentrating on manufacturing bipolar plate assemblies for fuel cells and electrolysers, a young market growing in line with its own development. This also includes partnerships with players possessing complementary technologies to further enhance the growth potential and access to international markets (e.g. Japan). The general objective is to build a cost-effective and integrated production infrastructure (along Industry 4.0 guidelines) that can be replicated and scaled-up at other locations, at which time the technology model can be applied.

# IMPACT

- Voor de business/ de onderneming (verwerving van een nieuwe markt, groei, kostenvermindering,…)
- Op de markt (eindafnemers, tussenpersonen)
- Over het geheel genomen, ten aanzien van de maatschappelijke thematiek

- Borit offers its customers a one stop shop that supplies metal bipolar plate assemblies, the key components of fuel cells and electrolysers. Metal bipolar plate assemblies are cheaper and perform better than alternative solutions in terms of, for example, power density (kW/l or kW/kg). Borit thereby helps to speed up the H2/zero emission society. Borit has successfully captured a significant share in this young and emerging market.
- Borit's forming technology makes it possible to produce real parts in weeks instead of months, speeding up its customers' development process and being more forgiving of iterations in the development cycle.
- Borit started off as a greenfield in 2010 and currently employs 30-35 people, a mix of highly qualified engineers and labourers.

# KATALYSATOREN & OBSTAKELS

- Hoe verloopt / verliep de ontwikkeling van het project (duur, algemene indruk)?
- Wat vergemakkelijkt / vergemakkelijkte het verloop van het project (katalysatoren)?
- Wat zijn / waren de moeilijkheden en uitdagingen waaraan het hoofd moet /moest worden geboden (hinderpalen)?

**Key development phases**

2008-2010: pre-study including Dr Bohmann, OCAS and Finindus. This study investigated the feasibility of an industrial upscaling of the hydroforming technology and mapping of the technology to potential market segments. A reservation on the IP package was in place during this period.
2010: incorporation
2010-2014: development

- First industrial hydroforming press
- Forming (and adjusting) the team
- Creating a customer portfolio (reality check on segmentation strategy)
- Hone the strategy → focus on fuel cells and electrolysers first

2014-…: complete offer and ramp-up capacity

**Catalysts**

- The initial innovation has definitely been an advantage that puts Borit on the map (= setting it apart from the competition).
- A start-up company's credibility is crucial. The relationship with OCAS and its link to ArcelorMittal has been instrumental here.
- Availability of capital to finance the development of the company (Finindus, PMV-TINA). VC funds have generally become reluctant to invest in capital-intensive / manufacturing businesses.
- Attracting the right people: flexibility and commitment are key to success (forming and adjusting the team).

**Barriers/obstacles/challenges**

- Supplier qualification processes (related to the previous point): experience has taught Borit that North American companies are more open to working with young and growing companies (= focus on what a company can offer). European companies tend to be stricter and have tighter selection processes (e.g. quality standards, financial strength).
- Company development (in capabilities/manufacturing capacity) is stepwise rather than linear → difficult to secure financing, including from banks.
- Finding the right people (as a start-up company):
  - Highly qualified engineers
  - Top-quality operators (feeling for precision manufacturing)
- Given the links between Finindus (investment company) and ArcelorMittal and despite the fact that Borit is managed independently outside the business units, Borit does not qualify as an SME according European rules.

# LESSONS LEARNT

Wat kon er / had er kunnen verbeterd worden om deze innovatie te vergemakkelijken? (enkel invullen indien van toepassing)

- Organisatie/management van het project
- Samenwerking/partnerschap
- Beheer van de intellectuele eigendom
- Lancering van de innovatie op de markt
- Financiering van het innovatieproject (fiscaal beleid, beschikbaarheid van kapitaal, investeringssubsidies, enz.)
- Andere beleidsaspecten /regelgevingsaspecten

- It was vital that a deal be negotiated on the full IP package (exclusive licence) from the outset.

- Once the segment of fuel cells and electrolysers had been identified, the company immediately carved out a position at global level (North America, Europe and Japan) for these applications (presence in trade shows, development of commercial network).

- Risk capital providers are not particularly interested in investing in the manufacturing industry (avoid deals that are perceived as CAPEX intensive). This type of business requires patient and persistent shareholders. Offering more (fiscal) incentives and commercial financing could help to facilitate the ramp-up for start-up companies. In the specific case of Borit, which does not qualify under the present EU SME rules, the company could have received more financial support (e.g. higher percentage of grants in funded projects) if it had been an SME. It could be worth reconsidering the qualification of investment funds linked to corporate bodies in the EU SME rules.

- More measures could be taken to reduce HR costs during the start-up and ramp-up period of start-up companies.