

“Towards a European approach on Industrial Infrastructures for Research and Innovation”

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*Leaders in Performance and
Speciality Chemicals*

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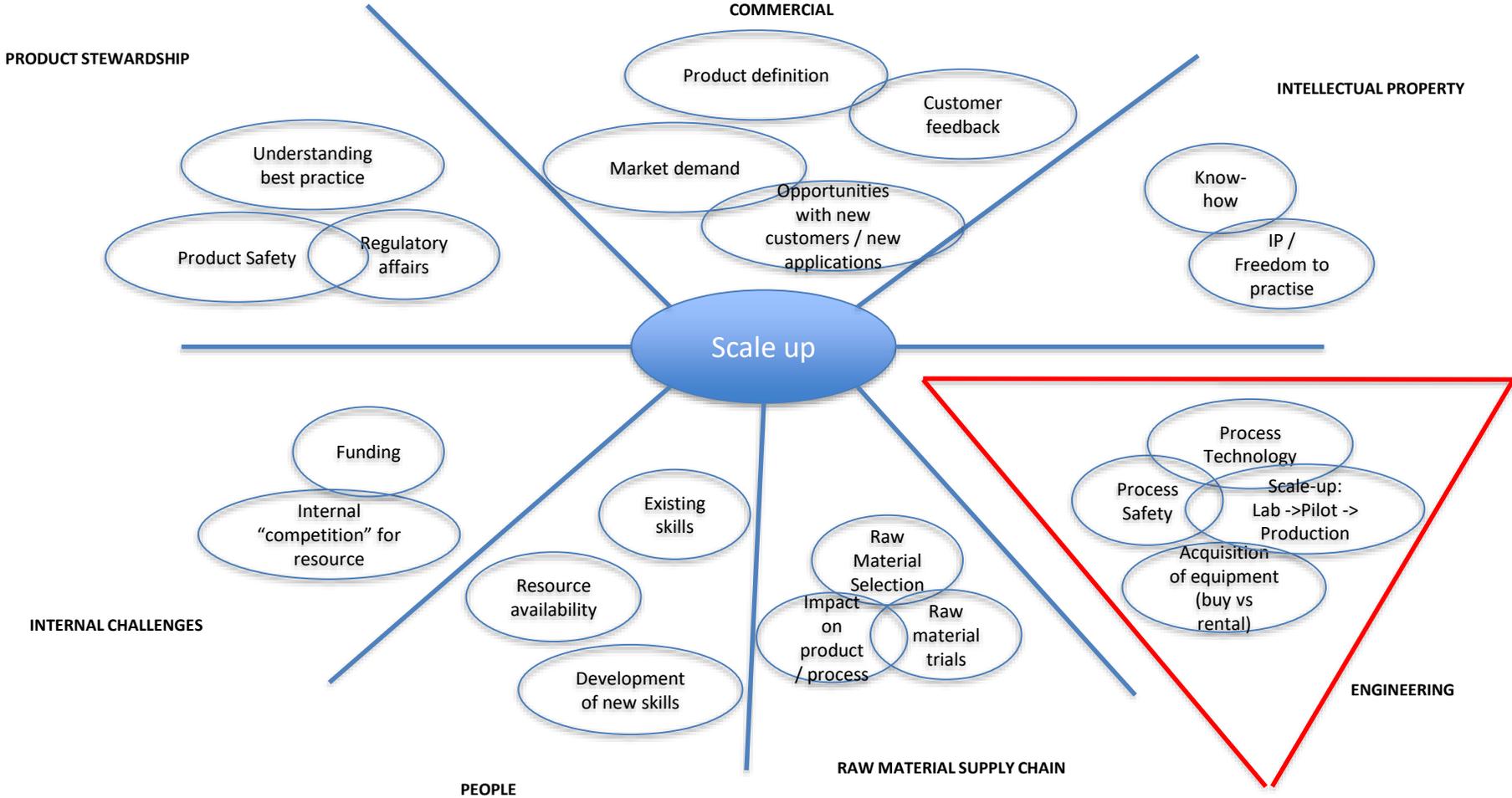
Committed to responsible Care

Thomas Swan & Co Ltd – An introduction

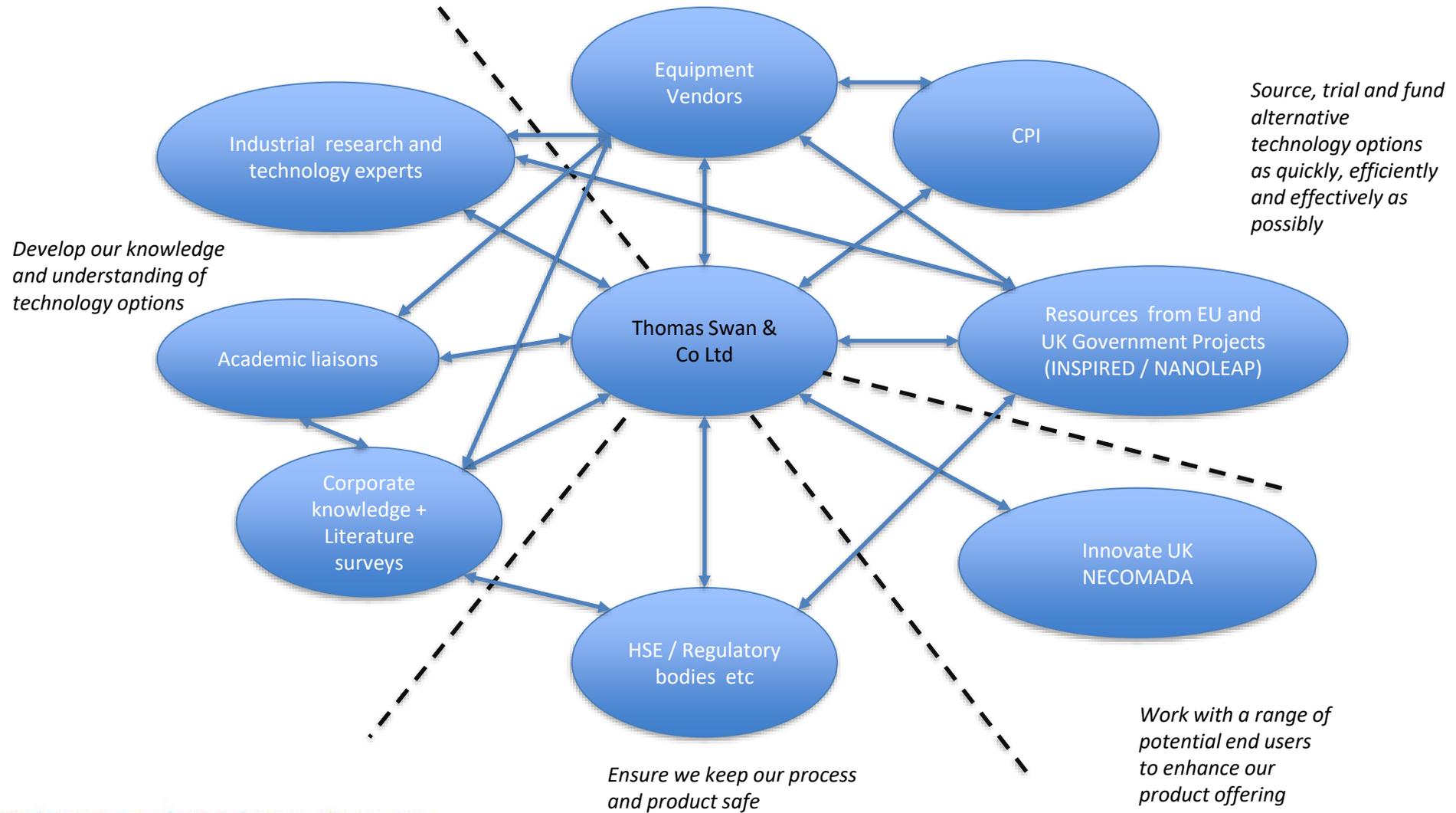
- Independently owned manufacturer of speciality chemicals
- Medium sized enterprise (SME)
 - **ca 170 employees**
 - **£26.5M (31.5 M €) turnover 2016/17**
 - **UK manufacturing base**
 - **Consett, North East England**
- Strong export performance
 - **UK/EU/Outside EU**
- Commitment to highest standards



Challenges and opportunities with new product development



Development of process engineering network



Our (ideal) requirements for an Industrial Infrastructure for R&I

- Accessibility – ability to access resources efficiently with minimal use of resource;
- Fast turnaround – often we need very quick answers as we work in a fast moving industry and have limited resources so we need to make stop / go decisions as quickly as possible;
- Respect for confidentiality and intellectual property;
- Other useful non-technical resources – IP support, business development planning, skills development;
- Ability to upskill our team – by working with credible partners, we will gain valuable knowledge and understanding. Also “hands-on” access to equipment means that we gain useful experience on unfamiliar equipment.

A success story – H2020 INSPIRED Project

Production cost vs yield

Fig 1

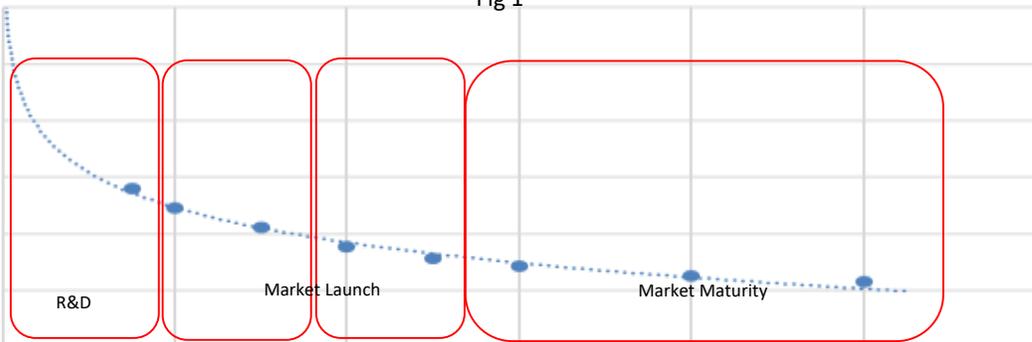
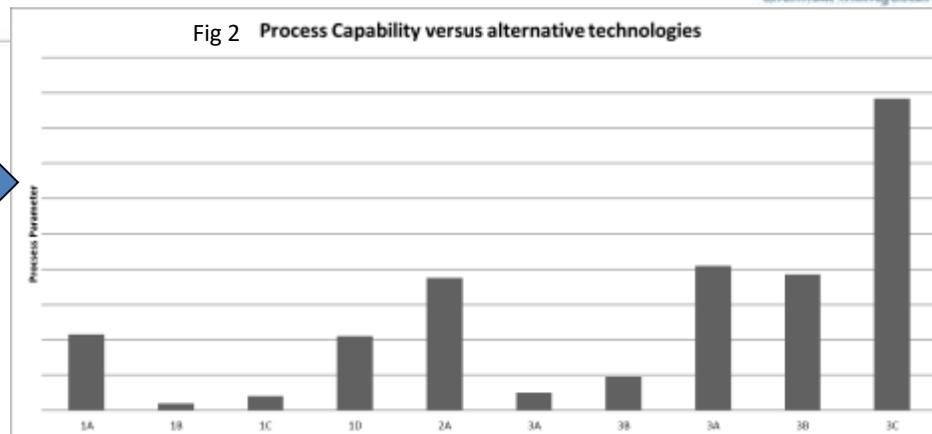


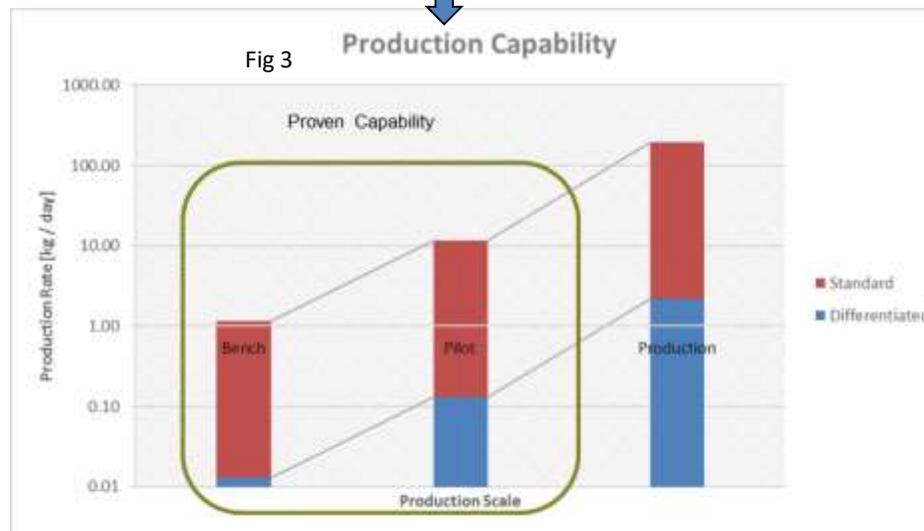
Fig 2 Process Capability versus alternative technologies



- Thomas Swan used H2020 INSPIRED Project funding to scale up our graphene production process;
- We carried out cost modelling of our process which indicated that we needed to improve our process yield (Fig 1);
- We then benchmarked a range of process technologies for graphene productions (Fig 2);
- We selected a process technology and scaled up from bench scale (TRL4) to production scale (TRL 7) in a short timescale;
- A key benefit for Swan was the ability to:
 - Use the funding to support trials of new equipment;
 - Work with our very capable partners to understand trial results;
 - Make very fast decisions to select new process technologies.

Production Capability

Fig 3



TRL 4 TRL 5/6 TRL 7

Key benefits

- We value the support from the NANOLEAP Project and from our other ongoing Horizon 2020 Projects (INSPIRED and NECOMADA)
- The INSPIRED Project allowed us to scale up our graphene production facility
- The NECOMADA enables us to work with credible industrial partners to develop relevant applications for our products
- The NANOLEAP project is an excellent fit for us – we value the open access to drying equipment and the other facilities – including access to the **Fraunhofer and Coventive Composites**.
- There are two key benefits:
 - The obvious (tangible) result is open access to pilot lines. This allows us to prove the technology and gain knowledge, experience and understanding at minimal cost, technical risk and in a short timescale;
 - The intangible but extremely valuable benefit is access to experts – their experience, knowledge and understanding helps us to avoid mistakes and to be efficient and productive.