

1. Optical Ltd

This proposal outlines the establishment of Optical Ltd, our recently founded spin-off from the Biomedical Engineering Institute (a European research institute) aimed at commercializing a miniaturized lens developed through rigorous scientific research.

The demand for advanced imaging solutions in the biomedical field has intensified due to the growing need for minimally invasive diagnostic tools. Capsule endoscopy¹, a technique that allows for non-invasive visualization of the gastrointestinal tract, is constrained by the limitations in performance inherent in contemporary optical systems. Preliminary optical characterization indicates that our solution based on gradient-index optics²⁻⁵ and microfabrication techniques^{6,7} offers significant advantages over the product from the leading lens provider in our country (Lenses Inc.): namely, reduced lens size (5%) and improved light transmission efficiency (7%), making it optimal for our target application.

By addressing the limitations of existing imaging technologies, Optical Ltd is poised to enhance diagnostic capabilities, improve clinical outcomes, and facilitate the advancement of minimally invasive procedures. While our company is new to the market, the founding team of Optical Ltd comprises experts with extensive backgrounds in optical engineering and biomedical device development, and collectively, the team possesses 20 years of experience in research and development, covering multiple fields. Additionally, our connections within the biomedical value chain, including partnerships with relevant laboratories and suppliers, position us to navigate the market and identify a potential first client.

Our company is seeking a total funding of 300,000 EUR to bring our lens from a TRL 6 to a TRL 8. The allocation of these funds will be directed towards the transition of the founding team to the spin-off and for advanced product development and optical optimization as well as comprehensive prototyping. These costs associated with the equipment, supplies and labour have been based on our experience at the research institute.

While precise pricing strategies are yet to be established, preliminary analyses suggest that our lens solution could be available in the market in less than 5 years. The projected growth of the endoscopic devices market worldwide is anticipated to achieve a market volume of US\$42.77bn by 2029⁸, considering our lens will outperform the current providers, we expect to be able to take 30 to 60% of the market.

2. Lenses Inc.

Lenses Inc. is a prominent leader in the European lens development market, with over a decade of experience across multiple sectors. Our headquarters in two countries and our client base spanning five nations underscore our commitment to delivering high-quality optical solutions. We have established ourselves as a trusted supplier to a diverse range of clients, including significant players in the biomedical sector.

We are already an important player in the niche market for endoscope objective lenses. Although our current market share of 16% in Europe is modest compared to some Japanese competitors (such as Fujifilm and Olympus), our steady growth and strong client loyalty reflect our effectiveness and reliability in meeting industry needs. Our focus is on growing this European market as the other large markets in China and Japan are largely closed to foreign companies. We are excited to present an opportunity to further enhance our competitive advantage through an R&D project aimed at miniaturizing our existing lens solution, driven by a direct request from our key client, EndScope Ltd. and their need for a new product in 3 years' time.

This development not only is important to maintain this client but would also further grow our business and market share. Currently, a basic lens such as our current product has an off-the-shelf price range of 300 to 500 EUR, however, this new development would be classed as a high-performance lens whose current market prices range from 800 to 2,000 EUR. This would also enable a higher profit margin per piece as the manufacturing costs are expected to be similar. We would target the lower end of this high-performance range to be highly competitive in the open market.

We're applying for 350,000 EUR of funding to finalise the design, build the first unit for EndScope (TRL 6) and perform all qualification and certification testing. We will be following our proven and certified manufacturing protocols that are compliant with all industry standards (e.g., ISO 13485). Our first customer, EndScope, is included in the development team. By partnering with them, we aim to align our development efforts with their specific requirements and expedite the validation process. A plan for entry into series production will be developed with EndScope during the project execution.

Considering the costs of the development and future industrialisation for series production, together with our estimates of sales to EndScope for their first product and considering an initial manufacturing cost estimate and the target price point of 700Euro per piece, we expect to get an ROI of between 10 and 12% in the first 3 years of sales. Additional customers would increase this return.

3. Mirrors & Sons

At Mirrors & Sons, we're more than just a supplier of mirrors and lenses for miniaturized cameras: we're innovators ready to seize a transformative opportunity. With strong experience in the smartphone and AR/VR markets, we're excited to announce our ambitious plan to expand into the biomedical sector by developing a cutting-edge endoscope lens.

We believe this growth into a new market is particularly interesting for our company since the global endoscope objective lens market is projected to reach a remarkable US\$135.52 million by 2031. While the smartphone camera lens market is larger — estimated at US\$9,675.2 million by 2032 — we see a tremendous opportunity to carve out our niche. Major players like Fujifilm and Olympus currently dominate the Japanese market, but we are confident to establish ourselves as the leading European provider of endoscope lenses.

To turn this vision into reality, we're seeking 350,000 EUR in funding to launch this new product line. This investment will enable us to acquire advanced equipment and bring in top talent to drive our development forward. While we may not have a client lined up just yet, we're already collaborating with a respected research institute to define the technical requirements that will guide our innovative journey.

Our endoscope lens will tackle key challenges faced by customers:

- **Disruptive Technology:** We're committed to delivering a game-changing solution that significantly enhances the cost-over-performance ratio.
- **High Reliability:** Our lens will meet the rigorous reliability and performance standards essential for medical applications.
- **Compact Solutions:** We're focused on creating a more compact design that meets the demands of today's biomedical devices.
- **Cost Efficiency and Sustainability:** Our approach will not only drive cost savings but also prioritize environmental benefits, aligning with global sustainability goals.

At Mirrors & Sons, we're on the brink of an exciting new chapter, and we can't wait to dive into the biomedical market. With this proposal we will lead the way in endoscope technology, making a lasting impact in this dynamic industry.