

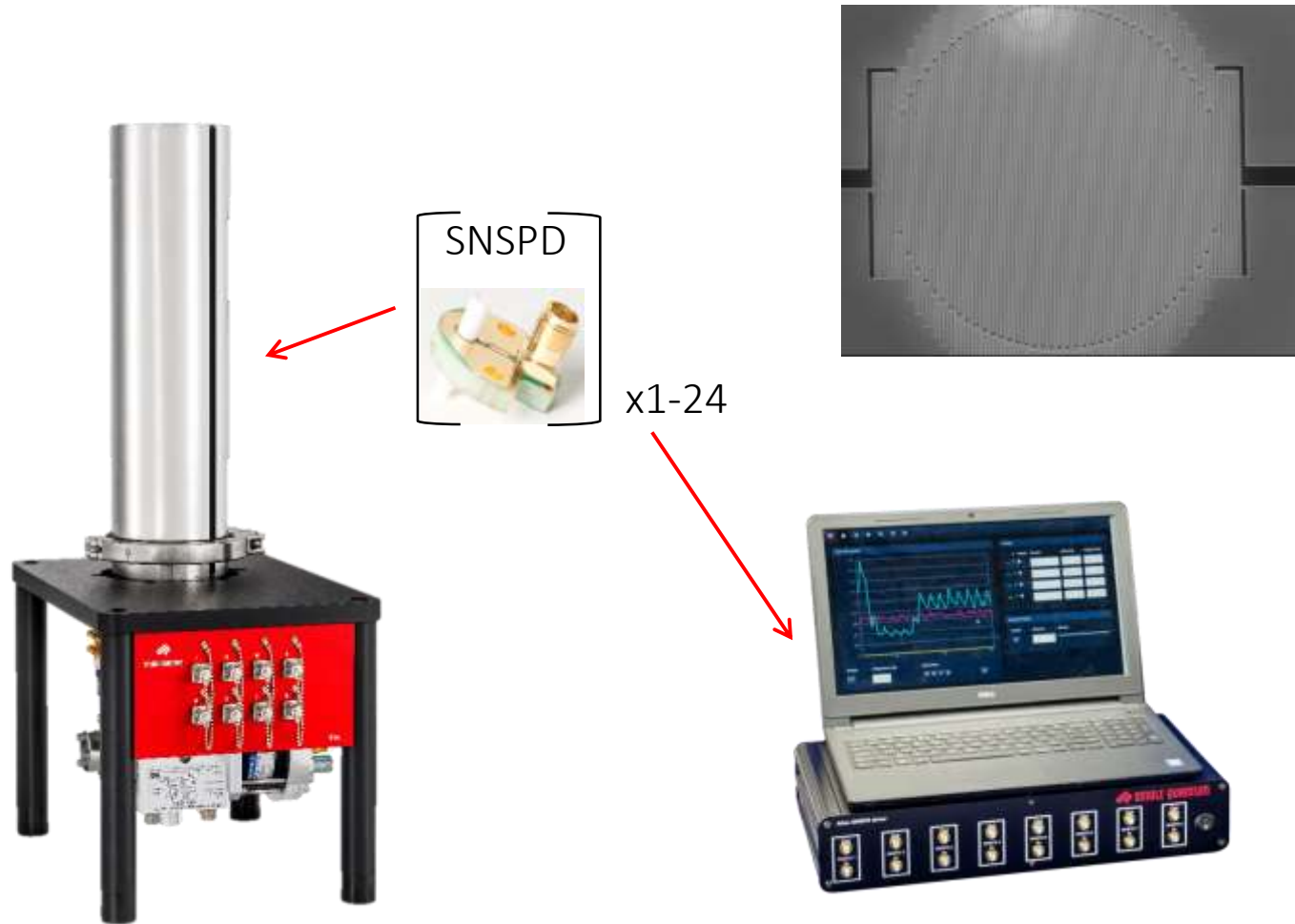


SINGLE QUANTUM

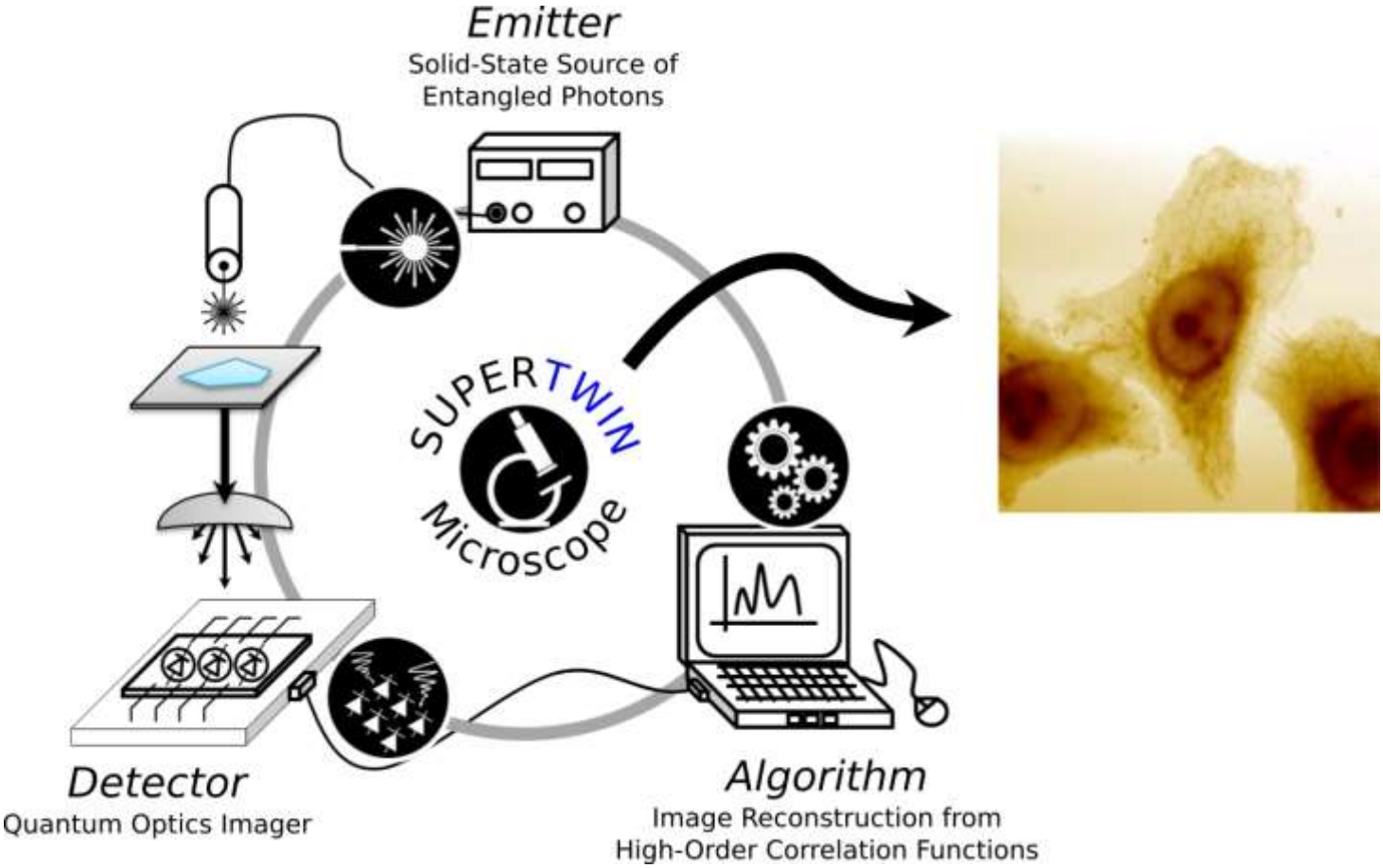
Arrays of Superconducting
Quantum sensors



Single Quantum single-photon detectors



Idea – using quantum light for increasing the resolution of optical imaging beyond the Rayleigh limit
Funded by FET-Open



Innovation launchpad: using the 'innovation' to provide sustainable competitive advantage

MEDISS

Optical technique in medical imaging, in contrast to high-energy, ionizing radiation can provide imaging without harming the patient.

However, medical diagnostics with optical tools are limited with current light detectors due to low time resolution, low sensitivity, and high noise level. Our innovation will solve this technical gap.

Progress made towards identifying markets

- 1- Build a dedicated demonstration setup
- 2- Visited specialized conferences
- 3- Visited large industrial exhibitions
- 4- Planned demos with scientific customers



Major findings & preliminary results achieved

Total market size estimated

Primary market:

€500 million scientific medical imaging market

Secondary market:

€4.1 billion Industrial optical diagnostics market



“Single Quantum's technology has key advantages over current detection technology that are of high interest for my research”

Stefan Hell, Max Planck Institute for Biophysical Chemistry



“Single Quantum's Eos will lead to new medical imaging techniques, resulting in faster, more efficient and more accurate diagnostics and treatments.”

Prof. Sterenborg, AMC Cancer Center Amsterdam, Netherlands

Brainiaqs: EIC pro active transition to innovation activity increase active area and couple to microscope together with user EMBL



The screenshot shows a webpage from the European Commission's Horizon 2020 program. The main headline is "EIC supports BRAINIAQS: Brain imaging with arrays of quantum sensors". Below the headline is a date "Thursday, 11 June 2020" and a featured image of a human head with glowing neural connections. The article text begins with "The newly signed Pathfinder project called BRAINIAQS promises huge breakthrough for biological imaging experiments. It will develop state-of-the-art technology using quantum sensing." and continues with "Quantum sensing technology is one of many potential applications of emerging technologies based on principles of quantum physics (for more information about the potential of these technologies see e.g., the Quantum Manifesto, signed at the 2018 Quantum Europe Conference)." and "The purpose of the BRAINIAQS project is to set quantum-sensing technology in life sciences laboratories, which continuously seek for new techniques of biological imaging allowing precise and non-invasive diagnosis. Currently, brain imaging is either based on very invasive procedures (surgical implantations, atom beams, antibodies) or histology, both of which have their limitations. Imaging is sort of an endpoint method, which does not allow to track and dynamics in the organism. In addition, the invasive methods often lead to disruptive inflammatory response that can interfere with biological processes under investigation."

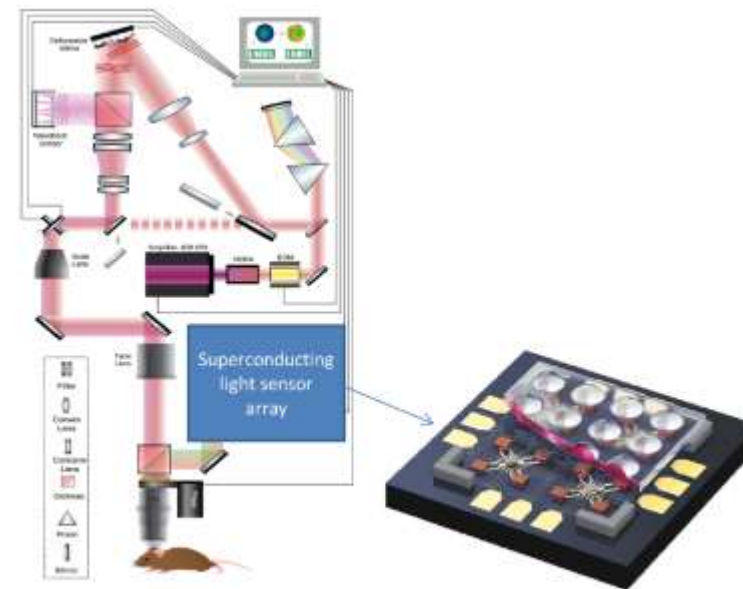
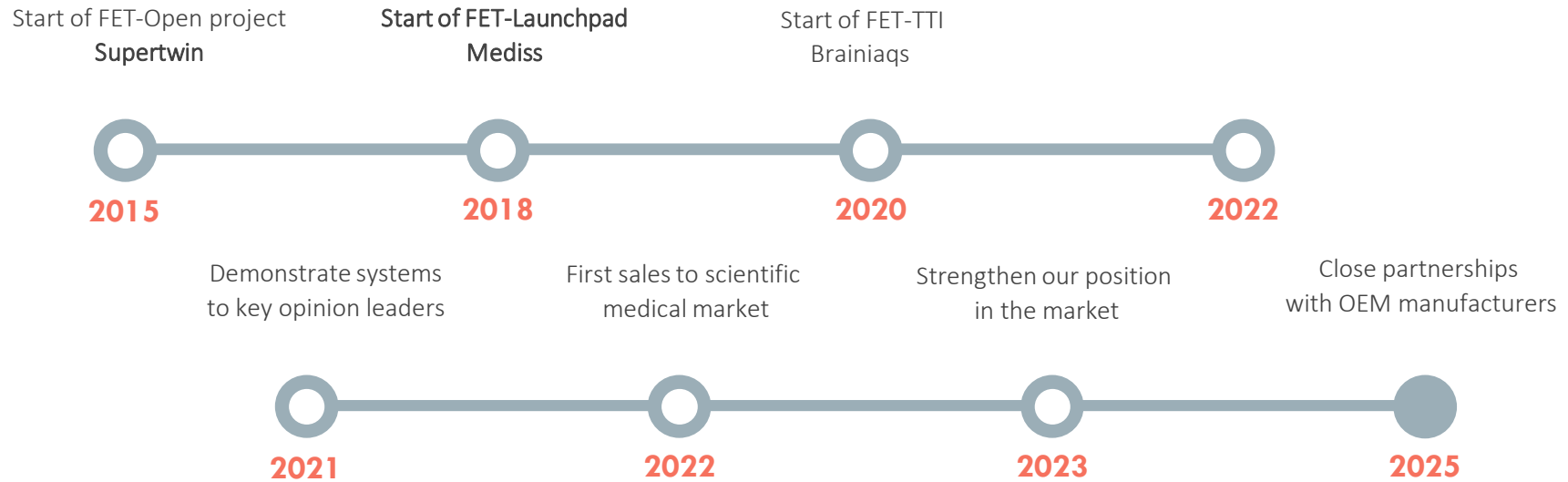


Figure 2 Schematic of the proposed device. A multi-photon microscope (left) excites and scans a sample (mouse), where the fluorescence is detected by the superconducting light sensor array (right) with 10x10 pixels.

Timeframe & pathway towards commercialisation of the snspd microscope



Potential OEM partners:

