THE PROBLEM
The underground is where most of the energy is stored as fossil fuels or geothermal power, but is mostly inaccessible to detailed analysis. Among available techniques, tracer surveys are the only direct means of assessing the structure of geothermal or oil reservoirs, by tracking subsurface fluids with various substances. Besides being expensive and toxic, existing tracer substances (fluorobenzoic acids, radioactive molecules) provide low versatility (= low number of distinct tracers), which brings to a poor underground reservoir description. Consequences are large expenditures (~$5-10 million/well), low or no productivity of the fields, and unnecessary well drilling and development, with associated environmental impact.

THE SOLUTION
It’s time to improve the underground knowledge for a transition towards energy efficiency and sustainability! Haelixa makes this happen by providing reservoir assessment solutions based on a patent-pending DNA-tracer technology developed at ETH Zurich. In a field assessment operation, the DNA-tracers are injected underground, and later read-out at the surface to obtain a high resolution map of a reservoir at an affordable price, and in a clean manner. Obtained information allows to wisely plan production and development activities, maximizing productivity, and minimizing cost and environmental impact.

Apart from monitoring underground fluids, Haelixa tracers can be incorporated within any material or product (e.g. precious materials, textile fibers, fuels, polymers), to identify and prevent illegal trade, ensure supply chain integrity and sustainability.

COMPETITIVE ADVANTAGES
Versatile: unlimited number of distinct tracers.
Safe: harmless and environmentally friendly tracers.
Fast: results can be delivered onsite within tens of minutes.

MARKET & COMPETITION
- $400 million market for tracing services in the energy sector in 2016, growing at a CAGR of ~7%;
- Market leaders: Resman, Corelab, Tracerco, providing fluorobenzoic acids, radioactive and other chemical tracers as a field survey service;
- Primary target customers (energy): oil/geothermal companies;
- Secondary target customers (product traceability): manufactures, processors, brand owners in the precious material, textile, packaging and other markets.

BUSINESS MODEL
- Primary offering (energy): field survey service package including survey planning, tracer material, injection and sampling, analysis, and data processing/modelling.
- Secondary offering (product traceability): subscription service for the monthly supply of tracers and analytic service or kit for independent analysis.
STRATEGY

Vision: to become a global leading provider of tracer services, with focus on the energy industry.

- Ensuring a strong pool of demand among primary target customers.
- Completing field validation and build a case study “history”.
- Establishing strategic partnership with oilfield service providers such as Clariant Oil Services to: 1) gain credibility towards customers; 2) access oilfield/pump equipment on-site.
- Disseminating relevant case study results to attract customers, mainly through Society of Petroleum Engineers channels (journals, expositions).
- Exploring 1-2 attractive secondary market opportunities in the product traceability space.

KEY ACHIEVEMENTS TO DATE

- **Tracer test site validation**: tech validation in a geothermal system at the Swiss Grimsel test site.
- **First oilfield trials (ongoing)**: execution of field trials together with oil service providers such as Clariant Oil Services to validate the technology in the real-life oilfield environment.
- **Product launched in precious material tracing (Mar 2017)**: development and launch, in collaboration with Gübelin Gem Lab, of a product enabling gemstone traceability from the mine to the end customer (label **Provenance Proof**: [http://provenanceproof.com/](http://provenanceproof.com/)).
- **Exceptional media press**

WE MAKE THIS HAPPEN!

Haelixa is located in the innovation and entrepreneurship space of ETH Zürich. We are world leaders in DNA and particle-related aspects. Our team and solutions embrace current sustainability trends in the energy/chemical industry. The team currently consists of:

**Dr. Michela Puddu**, catalyst: she has co-invented the technology during her PhD at ETH. She has received the ETH Pioneer Fellowship, has joined various business development programs ([VentureLab 2014, Venture Leaders](#)) and was ETH nominee for the [Forbes 30 Under 30 2017](#). Main responsibilities: Biz Dev, fundraising, sales/marketing.

**Gediminas Mikutis**, CTO: ETH MSc in Chemistry, he has worked in pharma ([Roche, Philochem](#)), and later came back to ETH for his PhD in Chem. Eng. He has co-invented the technology and shown extreme commitment to the project, carrying it on together with his PhD (expected graduation: Q1 2018). Main responsibilities: product development, IP, sales.

**Punit Merha** – R&D engineer (ETH), he is responsible for fulfilling ongoing development projects with customers, tracer manufacturing and upscaling. **Daphne Asgeirsson** – Product manager, she conducts development toward new process or improvement of existing processes with focus on analytics. **Oliver Vetterli** – trainee (ETH), he has just joined the team to upscale the laboratory capacity and to serve the growing number of requests.

**Advisors** include ETH Prof. Wendelin Stark, Dr. Robert Grass, CEO and co-founder of TurboBeads, [Michael Suana](#), Executive Director and Partner at Geneva Petroleum Consultants International S.A. with +30 years management/executive positions in the oil&gas industry, [Ludovic de Labrusse](#), +5 years in strategy & business planning and +12 years in consulting (oil&gas), Andrea Schlapbach, CTI coach and co-founder at FLARM Technology Ltd.