AGEMERA
Critical Raw Materials for a Resilient Europe

D6.2: BUSINESS PLAN

Value proposition for business plan

This project has received funding under the European Union's Horizon Europe research and innovation programme under grant agreement No 101058178.

Project no.	**101058178**
Project acronym:	AGEMERA
Project title:	**Agile Exploration and Geo-Modelling for European Critical Raw Materials**
Call:	HORIZON-CL4-2021-RESILIENCE-01
Start date of project:	01.08.2022
Duration:	**36 months**
Deliverable title:	D6.2: Value proposition for the business plan.
Due date of deliverable:	31.07.2023.
Actual date of submission:	31.01.2024
Deliverable Lead Partner:	**Tallinn University of Technology (TalTech)**
Dissemination level:	Public

Author list

Name	Organisation
Veiko Karu	Tallinn University of Technology (TalTech)
Tony Hand	Tallinn University of Technology (TalTech)

Document History			
Version	**Date**	**Note**	**Revised by**
01	13.10.2023	Draft version for commenting	TH
02	06.12.2023	Revised version for commenting	TH
03	12.12.2023	Revised version with comments included	TH
04	29.01.2024	Revised version	VK
05	31.01.2024	Final version	J.Joutsenvaara

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Publication information

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Executive summary

The value proposition of a business plan serves as the foundational statement that articulates the unique value a product or service brings to its target market. It answers the fundamental question: Why should customers choose this offering over alternatives? A robust value proposition encapsulates the product's or service's key benefits and features and highlights how it addresses the target audience's specific needs and pain points. This strategic element of a business plan is crucial for attracting and retaining customers, as it communicates the distinctive advantages that set the business apart in a competitive landscape.

Reviewing the value proposition every six months is a good practice to check the competitiveness of your company activities compared to other businesses offering a similar service and/or product. It is a repetitive action to assess the value of your venture; it also applies to this project during the life of the project.

The following examines the Finnish companies **Radai Oy** and **Muon Solutions Oy**, **Lithica SCCL**, Spain, and **OPT/NET B.V.** from the Netherlands. Taking each company's value propositions into account, it can be seen how each enterprise is committed to delivering a first-class service that can be tailored to customers' needs while recognising and addressing any fears the customer may have. Operating in a competitive global market, each company must provide a value proposition that stands out from its competitors, delivering value to its customers and the companies themselves.

Radai Oy's value proposition is centered on delivering innovative, cutting-edge drone-based geophysical data services that provide unparalleled benefits to its customers in the mineral exploration sector. This saves valuable time, reduces costs and offers a safer and more environmentally friendly alternative to traditional ground and airborne methods.

Muon Solutions' value proposition lies in its ability to provide non-intrusive, high-resolution, and safe inspection solutions based on density imaging, empowering asset owners to make informed decisions.

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Lithica SCCL identifies trends and patterns in geospatial data to help businesses make better decisions. It also identifies areas where businesses can save money, such as optimising their resource use.

OPT/NET's focus on high-performance networked AI-assisted Geomatic applications, its dedication to cost-effective solutions, and its commitment to customer support make it a compelling choice for businesses seeking to transform their GIS data into valuable intelligence.

These services also fit perfectly with the objectives and ambitions of the AGEMERA project. Using innovative mineral exploration systems and data analysis methods, the companies satisfy customer needs and incorporate environmental and social considerations in their business models and practices to boost the EU's green and digital transition goals.

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List of Acronyms

AI	Artificial Intelligence
ANT	Analysis Ready Data
ARD	Ambient Noise Tomography
CRM	Critical Raw Materials
CSIC	El Consejo Superior de Investigaciones Científicas
D	Deliverable
ERT	Electric Resistive Tomography
ESG	Environmental, Social, and Governance
GIS	Geographical Information System
GPCs	Gas Proportional Counters
GPR	Ground Penetrating Radar
GUI	Graphical User Interface
HQ	Head Quarter of the mentioned company
SiPMs	Silicon Photomultipliers
SLE	Social Licences to Explore
SLO	Social Licences to Operate
SMEs	Small and Medium-sized Enterprises
UAV	Unmanned Aerial Vehicle
WP	Work Package

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1 Introduction

1.1 AGEMERA: Objectives and ambition

SMEs and start-ups develop new innovative mineral exploration systems and analysis methods to benefit customers and society by incorporating business/market opportunities, social licences to explore (SLEs), social licences to operate (SLOs) and environmental, social, and governance (ESG) criteria into their business models.

The deployment of innovative non-invasive methods and technologies to support a better geological understanding of ore deposits hosting CRMs, include methods such as:

- Passive seismic methods for shallow subsurface characterisation.
- Multi-sensing drone combining magnetic, radiometric and electromagnetic sensing for subsurface characterisation down to 300-500 m deep.
- Muon-based density characterisation of rocks down to 1,000 m deep.
- An AI-based platform for mineral exploration data and databases.

1.2 Value propositions for the business plan

A value proposition is a simple statement summarising why customers would choose a company's product or service. It communicates the clearest benefit that customers receive by giving a particular company their business. Every value proposition should speak to a customer's challenge and make the case of the service provider company as the problem-solver.

Main considerations for value propositions (from the technology development side):

- Enhance user experience and intuitive interface that simplifies complex processes and accelerates productivity. Examples: real-time information, ease of use, user-friendly, etc.
- Convenience and Accessibility: Providing customers with convenient access to products/services, eliminating the need for physical presence or extensive travel.

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Consider the mobility of the product, fast delivery options and customer support, ensuring a smooth experience for customers.

- Quality and Reliability: The product/service guarantees exceptional quality, reliability, and durability, providing customers with peace of mind and minimising downtime.
- Customisation and Personalisation: tailored solutions that meet the unique needs and preferences of customers. Can customers customise the product/service to align with their specific requirements? Will the product/service operate in conjunction with the customer's current operating systems/software packages?
- Innovation and Cutting-edge Technology: Product or service incorporates the latest advancements in technology, providing customers with access to unique, innovative features and functionality.
- Sustainable and Environmentally Friendly: The product/service promotes sustainability and environmental responsibility, helping customers reduce their carbon footprint and meet green objectives. Emphasis on non-invasive technology, the passivity of energy requirements, SLO and SLE, and ESG requirements.
- Expertise and Knowledge: The teams consist of experienced professionals with deep industry knowledge and expertise, offering valuable support, training, insights and guidance to customers. Consideration is also given to the creation of competitive advantages and brand recognition/reputation for the customer.
- Price value: Explain what your product or service is and why the product or service is the most cost-efficient option.
- Time Efficiency: how does the product or service enable customers to save time by automating manual tasks, improving workflow efficiency, and reducing turnaround time.
- Cost Savings: The product or service helps customers reduce expenses by streamlining processes, optimising resource allocation and competitive pricing, and delivering cost-effective solutions that provide significant savings compared to alternatives in the market.

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2 Value Proposition for Business Plan, Radai Oy

Radai Oy from Finland, founded in 2013, is a specialist company focused on drone-based physical and geophysical measurements and data analysis. Its technology is so versatile that it can be applied to different domains: from mineral exploration to environmental monitoring, including several different kinds of geophysical sensor systems. The company's high-performance exploration systems can easily detect and determine the magnetic fields in the ground, thus giving more accurate data about underground resources. The company's services can be customised and adapted to fit the customer's requirements. This adaptability is key to customer satisfaction.

2.1 Product

Drone-based magnetic, radiometric and electromagnetic survey systems - geophysical data as a service.

2.2 Benefits

- Fast, cost-effective, precise, environmentally friendly, non-invasive methods for mineral exploration.
- Flexible/agile way to conduct mineral exploration.
- Safer than ground methods.

2.3 Features

Radai's offering consists of the integration of 3 data acquisition systems into a drone platform:

- Magnetic survey system.
- Radiometric survey system.
- Electromagnetic survey system.

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2.4 Experience

Radai has expertise in drone-based environmental and geophysical surveys.

The customer will get three types of data (magnetic, radiometric, electromagnetic) that provide essential insights about what lies underground.

Access to those three types of data at once makes mineral deposit findings more precise.

Fast delivery of data supports further informed decision-making.

2.5 Customer

Customer target group;

Medium-sized, small mineral exploration companies.

Wants

- Time savings during the mineral exploration stage (usually, exploration takes a lot of time).
- Precise methods for finding mineral ores.
- Easy and available insights in one seamless application with rich visualisations.
- Cost savings.

Needs

- Affordable, fast and precise methods for mineral exploration.
- Environmentally friendly or less invasive exploration method.

Fears

- No valuable minerals are found.
- Data quality is not good.
- Local communities are disturbed by the exploration activities.
- Mineral exploration permit expires before enough exploration has been done to find a valuable deposit.

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2.6 Competitors

- GRM-Services Oy (https://grm-services.fi/). Based in Finland. Operates in Finland and Sweden, where it has several projects. Wide range of services, including drone-based surveys. GRM is a versatile Finnish geotechnical contracting and consulting company. The company key people have years of experience in geophysics and rock mechanics in Finland and abroad.
- Field Group (https://field.group/). Based in Norway. The company has a wide range of services and strong financial situation. The company is combining software, sensors, and autonomous technologies - to put data to work to boost efficiency and reliability within the infrastructure, construction, environment, and public sectors.
- Mobile Geophysical Technologies (https://www.mgt-geo.com/). Company HQ in Germany. The company has developed industry-specific solutions, especially for the mining industry and near-surface applications.
- Pioneer Exploration (http://www.pioneerexploration.ca/). A Canadian company based in Ottawa. Pioneer Exploration is at the forefront of innovation regarding unmanned airborne geophysical surveys. Provides services as drone-MAG; LIDAR; seismic; hyperspectral & radiometrics, etc.
- Pegasus Airborne Systems and Atlas Geophysics (https://pegair.com.au/about/). US-based company. Along with airborne magnetic data, the company can also acquire other datasets such as photogrammetry, LIDAR, multispectral, and hyperspectral data. Paired with our sister company Atlas Geophysics, the team can offer a total ground and airborne geophysical solution.
- AeroPhysX (https://aerophysx.com/). The company provides services utilising the latest disruptive technologies that create new value for exploration and environmental studies and the further development of mineral resources. They operate in North America and Africa.

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2.7 Summary

Radai's drones can collect three different sets of data, which, when combined and processed with the help of machine learning tools, can generate predictive maps of mineral resources. Those maps show where the highest probability of finding the desired mineral is.

Radai's technologies are designed to save drilling time and expenses which is one of the major costs in mineral exploration. Because drones can be easily deployed in inaccessible areas, the method is faster and safer than other technologies.

The benefits of denser line separation (200 m -> 50 m -> 25 m) clearly show the improvement in data resolution, and demonstrate why data collected by drones is an optimal solution for mineral exploration. The collection of different sets of data which, when combined and processed with the help of machine learning tools, can generate predictive maps of mineral resources. Those maps show where is the highest probability to find the desired mineral.

Radai's value proposition plan addresses the wants, needs, and fears of the customer by delivering a service that is affordable, non-invasive, and environmentally friendly to deliver data for quick informed decision-making. Its target customers are medium-sized, small mineral exploration companies that require a company that can cater to their needs for cost-effective, high-quality data. Radai's flexibility is perfect for this customer group. From the customer's perspective, Radai takes charge of everything related to the survey's execution. This includes licences, safety measures, environmental permits and planning the project. On completion of the project, the customer is supplied with the geophysical data and a fully detailed report and has the rights over the data acquired during the project.

Radai Oy is one of the few companies in the drone geophysics sector with flexibility and innovation at its core. Its employees are one of its greatest strengths, and they are world-class specialists passionate in their quest to deliver first-class results for their clientele. Therefore, Radai is partnering with other companies to get the projects outside of Europa, in the hot spots of exploration. Two examples:

- TukuTech Company LTD (https://www.tukutech.co.tz/). A company from Tanzania, Africa. TukuTech is committed to delivering cutting-edge drone

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solutions to a wide range of industries, including mining, engineering, agriculture, and research.

- Zanifi (https://zanifi.com/) is a Zambian Incorporated aerial service provider.

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3 Value Proposition for Business Plan, Lithica SCCL

Lithica SCCL is a consulting firm specialising in geophysics and geology services for the oil and gas, mining, civil engineering, natural hazards, and water management sectors. Founded in 2018 and based in Barcelona, Spain, the company offers a wide range of geophysical services, especially focusing on seismic surveys and their integration with other geophysical methodologies, including electrical resistivity tomography (ERT) and borehole geophysics. The combination of geophysical methods with geological expertise and structural validation techniques forms the foundation of the company's comprehensive services. This synergy enables us to deliver integrated solutions for mapping subsurface geology, identifying potential hazards, and optimising resource exploration.

3.1 Product

Passive Seismic Methods.

3.2 Benefits

- Very affordable.
- Exceptionally low social and environmental impact.
- Repeatability in time (4D characterisation and monitoring).
- No need for seismic sources (controlled sources and earthquakes).

3.3 Features

- Reflectivity pattern.
- 2D/3D seismic velocity models.
- Monitoring: The measure of subsurface variations of properties and their location in space.

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3.4 Experiences

- Affordable, tailored solutions to solve customer's needs.
- Innovative methods allow characterisation and monitoring of the subsurface at very affordable rates while ensuring low environmental and social impact.
- Easy to acquire in remote and difficult-to-access areas.

3.5 Substitutes

- 2D/3D seismic reflection surveys.
- Seismic refraction and tomography.

3.6 Customer

Ideal customers are geoenergy/georesource/infrastructure companies and public authorities.

Wants

- Time saving.
- Cost saving.
- Non-invasive technology.

Needs

- Affordable, fast and precise methods for subsurface monitoring.
- Environmentally friendly or less invasive exploration/monitoring methods.

Fears

- Data quality is not good.
- Local communities are disturbed by the monitoring activities.

3.7 Competitors

The competitive landscape is characterised by a mix of international companies with global reach, regional firms with strong local expertise, and specialised niche players

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focused on specific applications. Lithica SCCL differentiates itself through its focus on high-quality services, client-centric approach, and commitment to sustainability. Its main competitors include:

- DMT-Group (https://geosciences.dmt-group.com/). Based in Germany. The company has a geophysical consulting with a global reach. From finding ways to resolve high-arctic exploration issues to integrating geophysical solutions to engineering problems, the DMT GROUP has the depth and experience to help the global resources industries.
- Belevion (https://belevion.com/). They are based in Romania. Geophysical services target mineral-rich potential zones: intercepting, delineating, pin-pointing and assessing their type and potential economic value.
- Sisprobe (sisprobe.com). This company, based in Grenoble, is composed of internationally recognised experts in noise-based seismic imaging and monitoring. This company provides subsurface imaging and monitoring using ambient noise surface wave tomography.
- Fleet Space Technologies (fleetspace.com). This is a space company based in South Australia, specialising in communications and space technologies. They offer real-time ambient noise tomography (ANT) as an exploration tool for mining customers as it provides important structural information at both regional and localised scales.
- Terradat Geophysics (terradat.co.uk). This company specialises in geophysical studies and has headquarters in the United Kingdom. They offer geophysical consulting and contracting services for clients interested in the fields of energy, geotechnics, civil engineering, mining, archaeology, and the environment.
- Landtech Geophysics (https://landtech-geophysics.co.uk/). LandTech was the first company to apply passive seismic services to the oil industry since its establishment in 1998 and has become the leader in High Resolution 3-D Passive Seismic Tomography surveys worldwide.
- SeismoTech (https://seismotech.gr/). They have successfully applied ambient noise tomography for a variety of sectors including O&G, mining, geothermal.

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3.8 Summary

Lithica's ambient noise data processing methods have a foundation in long-term research conducted in collaboration with researchers at the Spanish National Research Council (CSIC). The continuous updates to codes and processing strategies, adaptation to various applications, geological environments, and target scales, along with extensive experience, enable Lithica to provide data-adaptive, leading-edge tools tailored to specific applications, ensuring high-quality data acquisitions.
Among the company's strengths are its extensive experience in seismic data acquisition and processing, its commitment to quality, client focus and sustainability. Despite being relatively smaller in size compared to some competitors, Lithica SCCL demonstrates adaptability to evolving market trends and technological advancements in geophysics and geology. The emphasis on continuous investment in research and development to refine existing services and explore new applications highlights the company's commitment to staying at the forefront of the industry. This adaptability ensures that Lithica SCCL remains at the forefront of the industry and attractive to potential customers.

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4 Value Proposition for Business Plan, Muon Solutions Oy

Muon Solutions Oy, founded in 2016, develops and applies cosmic-ray muography, a unique brand of novel geophysics.

4.1 Cosmic-ray muography: Fundamentals

Muography utilises secondary cosmic-ray muon particles to probe the internal structure of geological formations, including rocks and soils. Cosmic rays are high-energy particles originating from outer space that, upon entering the Earth's atmosphere, interact with air molecules to produce a cascade of secondary particles, including muons. These muons are highly penetrating and can traverse significant depths of rock and soil before being absorbed.

Muon detectors are placed at strategic locations to detect the muons passing through the geological formations. They can be placed in a variety of environments, such as natural and man-made caves and tunnels, as well as surface conditions conducive to muon measurements. Examples of such surface conditions are landscapes with prominent topographic highs, open pits in mining areas, and even large buildings and industrial equipment that can be imaged or monitored.

The number and trajectory of detected muons are analysed to create a density map of the internal structure of the geological formation under study.

Muography has a diverse array of applications that span nearly the entire spectrum of industrial activities and various scientific disciplines. These applications include, but are not limited to, scientific geological studies, mineral exploration, mining operations and environmental monitoring.

4.2 Value Propositions

The company's primary offering encompasses the provision of data, data analysis, interpretations, and actionable recommendations tailored to the specific needs of its clients in the mining industry, among others.

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The value proposition provides a preliminary analysis of customer needs, wants, fears, and substitutes.

4.3 Benefits

- Cost Savings: Efficient resource allocation and reduced operational costs. This is a benefit as it directly impacts the financial aspect of the customer's operations. Efficient resource allocation and reduced operational costs are tangible benefits that can be quantified.
- Depth of Analysis: The technology enables in-depth geological characterisation up to a kilometre, providing comprehensive density data that traditional density mapping methods may not achieve. This depth of analysis can lead to more accurate resource estimates, better risk assessment, and more effective long-term planning.
- Convenience: Minimal physical presence required at sites. Reducing the need for physical presence is a convenience that also has financial implications.
- Quality: High-resolution, reliable data is a benefit but could also be considered a feature depending on how it is framed. In this context, the quality of data can directly impact decision-making and outcomes, and therefore, it is a benefit.
- Customisation: Tailored to unique geological needs. This could be seen as both a feature and a benefit. It is a feature in the sense that the technology can be tailored, but it is a benefit in that this customisation meets unique geological needs, potentially saving time and resources.
- Innovation: Cutting-edge muon imaging technology. This is more of a feature than a direct benefit. While using cutting-edge technology may be appealing, the benefit to the customer would be the specific advantages that this innovation provides, such as improved accuracy or efficiency.
- Sustainability: Eco-friendly, non-invasive methods can help companies meet sustainability goals and regulatory requirements, which is a clear benefit.
- Expertise: The company's deep industry knowledge is valuable as it could lead to benefits like more effective implementation and better customer support.

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4.4 Features

- Density Imaging: Maps rock densities in 2D or 3D.
- Real-Time Density Monitoring: Monitor changes in rock densities in 2D or 3D (time-sequential mode), thereby providing real-time operational data.
- New Drilling Targets: Identifies optimal drilling locations.
- Structural Identification: Detects geological fault lines.
- Safety Measures: Early detection of risky zones.
- Tunnel Optimisation: Outlines best tunnel trajectories.
- Post-Collapse Imaging: Assessment of tunnel collapses.
- Mapping of old mines: Detects unknown cavities.
- Economic assessment of stockpiles: Detects density anomalies in waste rock piles.
- Environmental Monitoring: Detects density anomalies or changes in mine infrastructure (e.g. tailings dams).
- Water Table Monitoring: Potential for groundwater level monitoring.
- Seismic Monitoring: Potential for early seismic activity warnings.

4.5 Experiences

Customers using these services benefit from the company's expertise in astroparticle physics and geosciences, simplifying the complex field of cosmic-ray muography. This allows mining professionals to focus on strategic decisions rather than acquiring new skills. The technology is designed for easy deployment and remote monitoring, reducing the need for frequent site visits and minimising logistical challenges. Muon Solutions also provides comprehensive training and ongoing support to maximise technology utility. Strict data privacy protocols ensure customer information remains secure, enhancing trust and confidence.

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4.6 Customers

Needs

- Accurate Geological Data: Essential for effective mining and exploration.
- Cost-Efficiency: A need to reduce operational costs for long-term sustainability.
- Safety Measures: Imperative for both workers and environmental compliance.

Wants

- Convenience: Desire for remote monitoring and minimal site visits.
- Customisation: Preference for tailored solutions to unique geological challenges.
- Sustainability: Increase for eco-friendly and socially responsible methods.

Fears

- Inaccuracy: Concerns over the reliability of geological data.
- High Costs: Fear of escalating operational and capital expenditure.
- Environmental Impact: Worries about the ecological footprint of mining activities.

4.7 Substitutes

- Traditional Drilling: Often used for geological characterisation, but this can be more invasive and less comprehensive.
- Seismic Surveys: Commonly used for subsurface imaging but may be less precise for certain applications.
- Electrical Resistivity Tomography (ERT): Used for subsurface imaging but may have limitations in depth and detail.
- Ground Penetrating Radar (GPR): Used for shallower subsurface imaging but limited in depth. Gravimetric Methods: Used for density mapping but may lack the depth and detail that muography can provide.

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4.8 Competitors

The global muon imaging market is a competitive landscape with a few major players that include:

- Lingacom (https://lingacom.com/). They are based in Israel. Lingacom's underground exploration using cosmic ray muons maps the underground soil densities using muons. The mapping extracts information on the depths of the geological layers and soil densities above the muon detectors. Operates on both flat and borehole muography detector systems.
- Ideon (ideon.ai). This Canadian company works with some of the world's largest mining companies, using innovative muon tomography to detect mineral deposits. By transforming muon data into reliable 3D density maps, Ideon helps geologists identify, characterise, and monitor mineral deposits with confidence. They have developed technology that allows for imaging up to 1 km beneath the Earth's surface, useful in mining and geological exploration.
- Muon Vision (muonvision.com). Founded in 2019 in Cambridge, MA, the company's technology provides a passive, non-invasive X-ray imaging technology that can be used to visualise the percolation of process fluids across leaching heaps at scale and monitor the stability of dams, heaps and mining assets.
- Muon Systems (muon.systems/en) is a start-up founded in 2015 in Spain. The company is currently focusing its activity on three specific areas: industry, security, and civil engineering.
- Geoptic (geoptic.co.uk). Based in the United Kingdom, the company provides geotechnical muon services to the civil engineering sector. The company provides small muon detectors suitable for deployment down boreholes for the imaging of carbon capture and storage rather than for exploration purposes.
- Lynkeos Technology (https://www.lynkeos.co.uk/). Based in UK. The company technology allows novel 3D imaging system what can be passively inspect the contents of shielded structures to identify the different materials contained within.

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- IRIS Instruments (https://www.iris-instruments.com/). Based in France. The company is developing a non-destructive system using muon particles for imaging and monitoring large volumes of matterer. Design, fine characterization and industrialization of a very compact detector for muons.
- Decision Science Inc (https://www.decisionsciences.com/). Based in US. The company technology detects muons and electrons—naturally occurring charged particles that constantly and safely pass through the atmosphere. The scanning translates this particle data into accurate, informative, 3D visualizations.
- mDetect (https://mdetect.com.au/). Based in Australia. The company technology platform has the ability to be utilised to assist mining companies to identify: Changes in composition of rock, sands, clay and silt; Underground movement and subsidence; etc.
- Muodim (https://muodim.com/). Based in France. The company offers 2D/3D structural imaging services and functional monitoring of blind or inaccessible structures.

Muon Solutions' technology offers state-of-the art sensitivity. The company develops detectors based on a multiple approach, including plastic scintillation and gas-based detection by using multi-wire proportional counters (MWPCs).

- In Muon Solutions' scintillation detectors, muon-induced excitations of atoms (or molecules) result in the emission of photons. These photons are emitted uniformly in all directions. The scintillating material is encased by numerous photomultiplier tubes or SiPM diodes, which collect the photons and generate an electrical signal (current or voltage) that is proportional to the number of photons produced. This voltage signal is then converted into a digital signal and stored on the computer hard drive.
- In Muon Solutions' gas-based Multi-Wire Proportional Chamber (MWPC) detectors, muons ionize the gas by removing electrons from gas atoms or molecules. An electric field is then employed to transport these electrons to the anode. At the anode, a signal is generated that is proportional to the number of

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electrons removed. This signal is subsequently digitised by the associated electronics and saved to a computer hard disk.

Muon Solutions' systems are compact and lightweight compared to many competitor's solutions. This portability makes Muon Solutions' systems easier to deploy and transport, particularly for field applications in the European exploration sector and other regions globally. The high field-applicability stems from the company's team multidisciplinarity as its know-how extents from particle physics and detector designing to the actual end applications and sound exertise on mineral exploration and mining industry.

Muon Solutions' borehole probe is notably the most slender design that has ever been constructed. This design approach was specifically chosen to align with the average diameters of exploration boreholes, which are typically just over 70 mm, known as NQ-size holes. The primary advantage of such a slim borehole probe is its compatibility with the majority of boreholes used in the industry. Although these narrower probes do not yield as detailed density images as their wider counterparts, their ability to fit into most industry-standard boreholes is a critical benefit. In contrast, many competitors appear to have developed borehole probes that offer higher resolution imagery. However, this increased resolution often comes at the cost of reduced compatibility, as these probes are typically too large to fit into the standard boreholes used in the industry.

Moreover, owing to the truly multidisciplinary nature of the company, Muon Solutions can offer an unusually wide range of products and services. This diversification of applications broadens their market reach and reduces reliance on a single sector, mitigating potential risks associated with industry-specific downturns.

4.9 Summary

Muon detectors represent a paradigm shift in technologies applied to mining operations, offering a wide variety of applications that extend beyond mere cost savings to include operational efficiencies and safety enhancements. These detectors are particularly advantageous for companies in the mining sector that are committed to innovation and forward-thinking operational strategies. The muon imaging industry is still in its early stages, but it has the potential to grow rapidly in the coming years,

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and Muon Solutions Oy is ideally placed to become a major force in this burgeoning industry sector.

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5 Value Proposition for Business Plan, OPT/NET B.V.

OPT/NET B.V. builds comprehensive AI products based on decades of critical industry experience of its employees. Founded in 2018 and having served and protected IT assets for clients worldwide, OPT/NET developed a suite of advanced AI platforms which can deal with an ever-increasing volume of data and complexity in real-time. Initially serving as a tool for its own telecom consulting practice, OPT/NET's OptOSS AI(c) engine has grown into a series of purpose-fit platforms (adding MONITORED AI) with unlimited potential across a variety of critical and data-intensive industries.

5.1 Product

OptOSS AI Engine (telemetry analysis) + MONITORED AI (GIS Analysis)

5.2 Benefits

Advanced AI Capabilities

OPT/NET offers a next-generation AI platform that combines processing and automation capabilities of AI with the natural problem-solving approach of humans, increasing the data analysis and monitoring capabilities of users by several orders of magnitude.

Expertise in Critical Industries

Background and experience in many critical areas, such as remote sensing, emergency management, rapid terrain monitoring, change detection, mineral exploration/exploitation and more, making OPT/NET a valuable partner for organisations in data-intensive geospatial sectors which are so relevant for critical infrastructures and strategic industries.

Efficient Data Utilisation

OPT/NET's AI engine, with its user-friendly GUI, enables the efficient utilisation of multi-source heterogeneous and multi-modal Earth Observation data for various

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applications to improve safety, reduce environmental impact and enhance the profitability of entire industrial sectors.

5.3 Features

MONITORED AI Engine

Powerful backend data processing component that serves as a foundation for multi-source data fusion and integration with AI-driven specialised applications (AI Knowledge Packs) and solutions and user-friendly web-browser-based frontend for decision making and analysis.

Versatility across industries

The approach of OPT/NET to a variety of business applications across different industries is based on AI Knowledge Packs, which allow the broadest categories of stakeholders to exploit various field cases assembled in a modular and easy-to-use format. This approach works in complex environments in several fields of interest without prior deep technical knowledge of High-Performance Computing, programming, specifics of the AI methods and data formats and sources of input/output data.

Cost saving through time efficiency

Integration of data streams into Analysis Ready Data (ARD) cube optimises workflows and allows for the generation of valuable insights for specific use cases within significantly shorter timeframes compared to traditional methods, reducing overall duration and costs.

5.4 Experiences

OPT/NET solutions deliver exceptional user experience through the intuitive interface based on the processing of the natural human language with AI (LLMs), simplifying complex remote sensing data acquisition, pre-processing and AI pre-processing to accelerate productivity. With a commitment to innovation, OPT/NET combines the processing and automation capabilities of AI with the natural problem-solving abilities

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of humans, resulting in an interactive, user-friendly and extendable web-based platform for a wide range of industry-specific challenges.

5.5 Customer

Ideal Customer: Large operator of critical infrastructure which requires high-frequency autonomous monitoring for service assurance purposes (industries: Energy, Telecommunications, Mining Companies, Government) and easy-to-use intelligent decision support systems.

Needs:

- Industry expertise and referrals to prospective customers.
- Well-established operational workflows.
- Ability to analyse multi-source data quickly to promote data-driven decisions.

Wants:

- Customisable solutions for customer's use cases with reduced cost and improved time-effective rapid access to actionable insights.

Fears.

- Proprietary Data confidentiality/inaccessibility of the outputs Integration.
- Challenges with proprietary undocumented systems, AI model robustness and reliability, emerging ethics, and regulatory issues.

5.6 Substitutes

OPT/NET substitutes traditional, time-consuming, and potentially error-prone remote sensing and proximity (in-situ) data analysis with advanced data processing and AI Machine learning techniques, enhancing the quality of the process, improving time efficiency, and reducing costs across various industries.

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5.7 Competitors

OPT/NET faces competition from various established players in the technology industry, including:

- Four Point (https://www.fourpoint.com.pl/). Based in Poland. The company app TerraEye provides real-time data streams, analyse historical patterns, and predicts future scenarios. Whether you're monitoring environmental impacts or planning future investments, the TerraEye app empowers you with the critical data and insights you need.
- K-MINE (https://k-mine.com/). A UK-based company having offices in Ukraine, Singapore and the US. End-to-End Software Solution For the Mining Industry
- AI consulting group (https://www.aiconsultinggroup.com.au). Australia-based company. The company uses Data, AI, ML, IoT, Predictive Analytics & Advanced Insights to optimise business success and improve efficiency and safety in mining using drones and robots as data inputs.
- Infosys (Infosys.com). A global IT services and consulting company focused on digital transformation, cloud computing, and data analytics. The solution for ESG is could be followed as a helpful tool.

These competitors offer services similar to OPT/NET, including networking solutions, business consulting, software development, and cloud computing. They have a global presence and serve a wide range of clients across various industries.

5.8 Summary

OPT/NET B.V. is a leading provider of high-performance networked IT solutions, specialising in small and medium-sized businesses. The company is committed to delivering cost-effective solutions that enhance data and information exchange within organisations, thereby improving overall efficiency. At the core of OPT/NET's offerings is a cutting-edge Software as a Service (SaaS) solution designed to streamline internal communication and optimise organizational workflows.

With a strong emphasis on innovation, OPT/NET consistently develops new products and services to address the dynamic needs of its clients. The company remains at the forefront of technology by investing in emerging areas such as cloud computing, artificial intelligence, and cybersecurity. This commitment to staying ahead of the

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curve ensures that OPT/NET's clients benefit from state-of-the-art solutions that align with the latest industry trends.

To maintain its competitive edge, OPT/NET B.V. actively expands its client base, enhances its international presence, and continues to invest in research and development. The company's combination of specialised expertise, focus on SMEs, innovation-driven approach, cost-effective solutions, and dedicated customer support positions it as a compelling choice for businesses seeking reliable and efficient networking solutions. OPT/NET B.V. empowers organisations through cutting-edge technology, enabling them to thrive in an increasingly interconnected and competitive business landscape.

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6 Conclusion

Each company provides specific solutions for customer needs, which are addressed in their respective value propositions. Radai Oy empowers businesses across industries to harness the power of drone and UAV exploration services through its expertise, innovation, and customer-centric approach. Muon Solutions delivers unparalleled non-destructive testing and inspection solutions using cutting-edge muon radiography and muon tomography technology, providing deep inside insights and enhanced safety for raw materials exploration, mining and critical infrastructure imaging. Lithica SCCL offers customer-tailored, affordable, non-invasive subsurface exploration and monitoring services based on ambient noise methods. OPT/NET B.V. enables businesses to harness the power of multi-source data fusion and AI-driven insights through its innovative platform and AI Knowledge Packs, simplifying complex data analysis without deep technical expertise.

Utilising these new, innovative, environmentally and socially friendly methods for mineral exploration and data management platforms will identify new areas and re-evaluate old mining sites to assist the EU in achieving its green and digital transition goals and support its autonomy concerning critical raw materials.

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