



ECHOLIGHT

Company Profile

Our **Mission** is providing the world medical community with the very first non-invasive and office-based solution for the Early Diagnosis of Osteoporosis. EchoLight will make the early detection and monitoring of Osteoporosis more accurate and easily accessible by providing innovative, non-invasive, cost-effective and high-quality health care medical device at the primary care to meet both clinician's and patient's needs everywhere. In the next years, the healthcare market will focus on early diagnosis and prevention, enabled by emerging diagnostic technologies, mainly ultrasound based. There is an increasing confidence in non-invasive ultrasound systems globally and the 'compact revolution' represented by portable and hand-carried devices in the market continues to fuel the use of this modality in newer point-of-care application and finally there is an ongoing change in the way that ultrasound equipment is being used, not only in hospitals but also in clinics and private practices.

Our **Vision** is putting science to work by creating new non-invasive solutions essential to a better, safer, healthier life for people everywhere, building a stronger, and more effective health care system. Our aim is to be at the forefront of the medical industry arena - in knowledge, innovation, technology, and in pioneering new products and services to contribute to human welfare by application of biomedical engineering in the research, design, manufacture, and sale of new radiation-free and easy to use applications that eliminate unnecessary radiation-based exam, reduce risk, cost and procedure time. We will strive to become the world's most valued company to patients, customers, colleagues, investors, business partners, and the communities where we work and live by directing our growth in the development of advanced, user-friendly, well-designed and non-invasive medical devices.



Bone. Health. Life.

Osteoporosis is a global public health problem; the disease and its associated fractures are an important cause of morbidity and mortality affecting millions of people worldwide. Osteoporosis affects 200M women worldwide and half of women over 50 years are expected to have Osteoporosis. 1 in 3 women and 1 in 5 men over 50 years will experience one or more osteoporotic fracture. Osteoporosis has been inserted within top ten health problems by WHO for the next years and the expected change in demography will worsen the issue. In Europe osteoporotic fractures accounted for more Disability Adjusted Life Years (DALYs) lost than common cancers excepted lung cancer. Within 50 years the cost of treating hip fractures alone may exceed \$132B. As life expectancy increases for a greater proportion of the world's population, the costs associated with osteoporotic fractures will multiply exponentially.

Vertebral fractures are the most common osteoporotic fractures and occur with a higher incidence earlier in life than other types including hip fractures. 25% of women over 50 years have one or more vertebral fractures. The presence of one vertebral fracture increases the risk of any subsequent vertebral fracture 5-fold. 76% of postmenopausal women with an osteoporotic fractures have not been diagnosed. Fewer than 10% of vertebral fractures result in hospitalization, even if they cause pain and substantial loss of quality of life. It is estimated that less than 25% of vertebral fractures come to clinical attention and under-diagnosis of vertebral fracture is a worldwide problem.



Osteoporosis.

Osteoporosis is still under-diagnosed and under-treated public health issue. Only 2.8% of osteoporotic women with fractures previously had a bone strength diagnostic test. Bone strength assessment is still underutilized in the majority of countries due to the radiation exposure and high cost of the "gold standard" technique DXA and the drawbacks and low accuracy of the ultrasound technology QUS which is

unable to scan the reference sites for the diagnosis of Osteoporosis (vertebrae and femoral neck). Despite the several advantages of ultrasounds over the radiation-based technique, namely radiation-free, portability, no certified operator needed, bone quality assessment and low cost, the impossibility to scan the reference sites is the highest barrier to a widespread clinical use of this technology.



Status Quo.

Echolight has developed the very first non-invasive solution for bone strength assessment and early diagnosis of Osteoporosis. EchoS is a breakthrough device for bone characterization and micro-architecture assessment through an innovative approach that enables the scanning of central reference sites (lumbar vertebrae and proximal femur). EchoS is the only solution capable of combining the advantages of the two main existing technologies (DXA and QUS), allowing our approach to bring axial bone densitometry at the point of care, with a significant beneficial impact on current diagnostic protocols and subsequent patient management. This will also open concrete perspectives for future worldwide standardization of intervention thresholds on the basis of more objective and reliable criteria, increasing the accuracy of Osteoporosis diagnosis.

EchoS is based on the new proprietary method R.E.M.S. (Radiofrequency Echographic Multi Spectrometry): an innovative ultrasound (US) approach to the diagnosis of Osteoporosis, which integrally exploits all the spectral features of the "raw" radiofrequency (RF) signals acquired during an echographic scan of the target anatomical site to determine the status of internal bone architecture. The automatic combined analysis of B-mode images and corresponding RF data provides two novel parameters: the Osteoporosis Score (O.S.), which is directly correlated with BMD, and the Fragility Score (F.S.), which quantifies the actual bone strength by assessing structural fragility independently of BMD.



Solution.

Echolight brings to the marketplace the only radiation free bone densitometer enabling to scan the hip and spine, the reference sites for the early diagnosis of Osteoporosis. EchoS is the only solution capable to combine the advantages of the two main technologies, DXA and QUS, namely radiation free, bone quality assessment, portable, low cost, no operator certified needed and axial sites assessment. The Echolight solution will make the early diagnosis of Osteoporosis with follow up, a primary care procedure instead of an hospital one. EchoS will have a significant beneficial impact on current protocols for osteoporosis diagnosis and clinical management, opening also concrete perspectives for future worldwide standardization of intervention thresholds on the basis of more objective and reliable criteria increasing accuracy in osteoporosis diagnosis. Expected effects of our product introduction are the following: **accessibility**, prevention and earlier diagnosis allowed by availability of our effective diagnostic device in primary care settings and suitability for population mass screenings;

waiting list reduction to 1 month from current 1,5 year and cost per exam reduced to 1/3 of the current DXA cost;

more reliable fracture risk predictions based on actual bone strength while currently available methods provide only partial or indirect assessment of bone strength through BMD and/or clinical risk factors;

more effective therapeutic monitoring thanks to the intrinsic suitability of ultrasound imaging methods for repeated measurements in short time intervals;

improved clinical decisions and outcomes, due to the possible very early detection osteopenia/osteoporosis allowing for timely correction of lifestyles (prevention) or drug therapy prescription (effective treatment);

contribution to healthcare system sustainability, through the reduced costs of ultrasound investigations with respect to DXA ones and the expected significant reduction of fragility fracture associated costs: a reasonable target is a 30% reduction of direct costs now of about €40 billion/year in Europe after 5 years.



We push things forward.

The [global bone densitometers market](#) was valued at USD 777.9 million in 2012 and is expected to grow at a CAGR of 3.3% from 2013 to 2019, to reach an estimated value of USD 908.5million in 2019. The world market for drugs to treat osteoporosis is set to rise from a value of \$7.3 billion in 2010 to \$11.4 billion by 2015, according to new forecasts. The world market will grow by a yearly average of 9.2% during the period, according to the report. The study also expects the market in China for osteoporosis treatments to increase by an annual average of 13.5% from 2010 to 2015, reaching a value of \$2.5 billion by the end of the period. Major improvements in diagnostic technology have been witnessed due to change in perception for osteoporotic disease, growing elderly population and high expenditure to society and healthcare agencies. Growing ageing population combined with increased vitamin D deficient patients and rise in risk for osteoporosis in postmenopausal women contribute to the growth of this market particularly in emerging economies of Middle East, India, China and Japan.

Moreover, technological advances in bone densitometers coupled with increase in access and recognition of these technologies in emerging market, such as China, Brazil, Japan and India will serve as an opportunity for investors to invest in. Technologies are further segmented, based on axial and peripheral bone density measurement. The end users for bone densitometers include clinics and hospitals. Hospitals remain the major hub in most of the countries across the globe for bone densitometry diagnostics and devices. Major improvements in diagnostic technology have been witnessed due to change in perception for osteoporotic disease, growing elderly population and high expenditure to society and healthcare agencies. Growing ageing population combined with increased vitamin D deficient patients and rise in risk for osteoporosis in postmenopausal women contribute to the growth of this market particularly in emerging economies of Middle East, India, China and Japan.



Scenario.

About Panakès Partners

Panakès Partners invests is a Venture Capital investor that finances medical companies, early stage startup and SMEs, with extremely promising products and great ambition, in Europe and Israel, improving both patient outcomes and healthcare economics. Investments focus on the medical device, diagnostics and healthcare IT fields. Panakès Partners is headquartered in Milan, Italy. www.panakes.it

About Invitalia Ventures

Invitalia Ventures manages Italia Venture I Fund with the aim to bring support to the Italian Venture Industry. The co-investment strategy of the Fund is focused on round A investments in the best Italian innovative Startups/SMEs together with national and international private investors. www.invitaliaventures.it

About Life Science Capital

Life Science Capital Spa was formed in 2005 as a financial vehicle to invest in the italian life sciences sector with particular emphasis on new medical and diagnostic technologies through a highly qualified and reliable structure. www.lscap.it



Investors.

About Echolight

Echolight is a high-tech research based biomed company, incorporated in Italy, for the development of innovative technologies in the medical device arena. Our mission is to provide the world medical community with the very first radiation-free and office-based solution for the Early Diagnosis of Osteoporosis. Echolight will make the early detection of Osteoporosis more accurate and easily accessible to meet both clinician's and patient's needs everywhere. Echolight is in compliance with the standard: UNI CEI EN ISO 13485:2012; ISO 13485:2003; CE Mark Medical Device Class IIa.



Company.

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ECHOLIGHT

We see different things.