

Special Report (sample)

OSTEOPOROSIS

Emerging Players in Early-stage Disease Prevention & Diagnostics



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INTRODUCTION

About this report:

- ✓ Osteoporosis causes bones to become weak and brittle. In this condition, new bone cell formation is not as quick as the loss of old bone cells.
- ✓ Detection of Osteoporosis at early stage helps to prevent potential bone fracture and socio-economic burden on the patients and their caregivers.
- ✓ This report aims at providing a comprehensive overview of the leading players claiming **early-stage detection and prevention of osteoporosis progression**. These players could be **start-ups and middle-scale companies having their proprietary technology** in this domain. Well established companies, conglomerates, research institutions and laboratories have not been captured in this report.
- ✓ Scope of the report covers player profiling and their solutions within diagnosis and progression prevention of osteoporosis. These solutions could be deploying various technologies such as Mechanical vibration, Ultrasound, Electromagnetic field, Magnetic field, Shock waves, Infrared, Biomarkers and AI.
- ✓ Each profile outlines technology, financials, targeted market and intellectual property of the respective player. Further, a 20-point assessment within **Aranca 5-Factor Assessment Framework** has been provided for each player.

Relevant audience:

- ✓ Established companies and conglomerates willing to explore and acquire certain start-ups.
- ✓ Venture capitalists (VCs), institutional and individual investors.
- ✓ In general, companies looking at commercialized products used for early-stage detection and prevention of osteoporosis.

Customization:

- ✓ Report contents can be customized based on user requirements. Accordingly, report coverage shall be reduced or expanded to the specific areas of interest.

REPORT OVERVIEW

40 emerging players actively working in the domain of early detection and progression prevention of osteoporosis



Comprises of novel technique for early-stage detection of osteoporosis and prevention progression



Holistic assessment in terms of IP, technology, financial, ecosystem and organization



Technology developers and manufacturers range from start-ups to potential disruptors*



In depth analysis and key observations for each company based on Aranca's 5 factor assessment framework



Information covered on each company

Company information

- ✓ Website, year of establishment, headquarters, key personnel, etc.
- ✓ Size (employee count, revenue, funding, etc.)
- ✓ Awards and recognition

Technology

- ✓ Technology readiness level (TRL)
- ✓ Feedstock, conversion process and output
- ✓ Patents and research collaborations

Commercialization

- ✓ Applications and markets
- ✓ Product details (form, chemistry, trade name, etc.)
- ✓ Business partnerships, investments

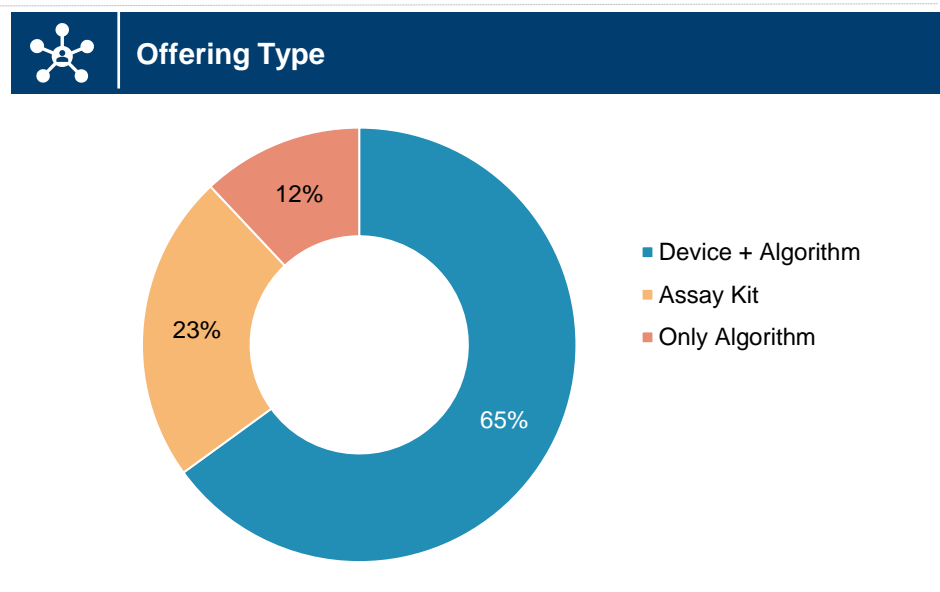
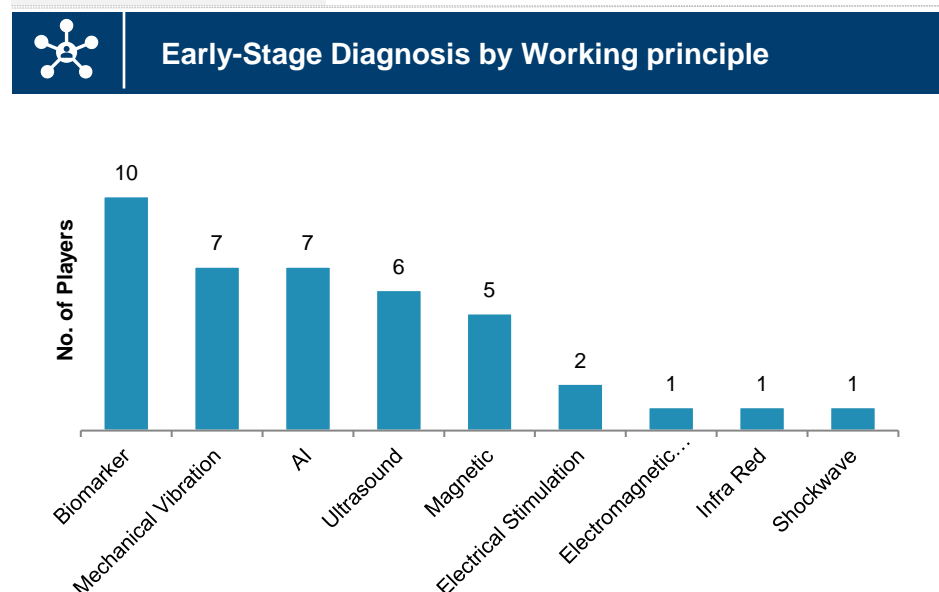
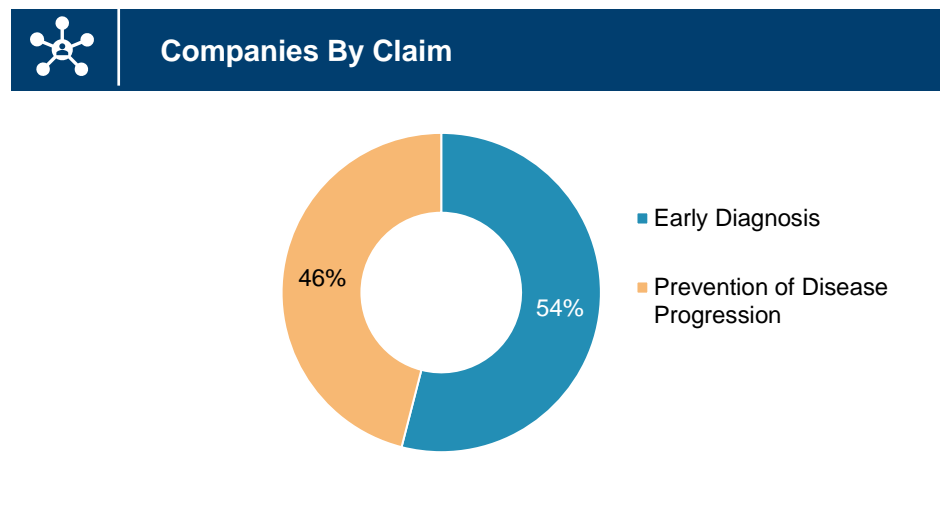
Regulatory

- ✓ Clinical Trials
- ✓ PMA and 510k Filings
- ✓ Recalls and Adverse events reporting

**Players with diversified business portfolio are excluded.*

HIGHLIGHTS

| Summary | |
|---------------------------------|--|
| Companies covered | 40 |
| Geographic focus | Global |
| Year of establishment | 2005 onwards |
| Diagnosis Technologies Observed | <ul style="list-style-type: none"> AI Biomarker Electrical Stimulation Electromagnetic Field Infra Red Magnetic Mechanical Vibration Shockwave Ultrasound |



RESEARCH METHODOLOGY

Methodology

- A comprehensive search was performed on various platforms to map the relevant technology developers. Mapped entities were scrutinized for relevancy based on technology and product offerings.
- Corporate players and entities having diversified portfolios.
- Focused secondary research was conducted for the relevant players in order to capture relevant information. In order to fill the gaps existing after this, primary research was conducted wherever necessary.
- Entities with establishment year 2005 onwards have been considered, however, this has not been considered strictly in order to capture all significant players.
- Each relevant player was evaluated on five important factors namely intellectual property, technology, financials, ecosystem and organization (refer Aranca 5 Factor Framework for more details).

Information Sources

Following paid and public sources of information were referred (not exhaustive):

- Company websites, product brochures and news/media sections
- Specific publications/magazines on biomedical, and orthopedics transactions
- Other commercial databases such as Factiva, Crunchbase, Pitchbook, Bloomberg and EMIS to capture/validate company-specific information
- Patents on databases such as Questel Orbit
- Scientific literature published on databases such as ScienceDirect, ResearchGate, Scopus, SpringerLink and Wiley Online
- Aranca internal knowledgebases and industry experts

ARANCA 5-FACTOR ASSESSMENT FRAMEWORK

| Factor | Parameter | Score (1–5); higher is better | | | | | Min | Max |
|---|-----------------------|-------------------------------|----------------------|----------------------|----------------------|----------------------|----------|-----------|
|  Intellectual Property | No. of Patents | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | 3 | 15 |
| | Forward Citations | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Patent Status | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
|  Technology | Novelty | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | 5 | 25 |
| | Scope | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Scalability | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Competitiveness | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | TRL | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
|  Financials | Total Funding | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | 5 | 25 |
| | Funding Rounds | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Type of Investor | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | No. of Investors | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Revenues | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
|  Ecosystem | Target Industry Size | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | 3 | 15 |
| | FDA & Clinical Trials | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Environmental Impact | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
|  Organization | Global Presence | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | 4 | 20 |
| | Employee Size | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Active Years | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |
| | Awards/Recognition | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | | |

Notes:

- Total score is obtained by adding the individual factor scores.
- For uniform representation, final score is normalized on a 0-100 scale and factor scores are adjusted accordingly.

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Under-research Technologies, Technical Papers

Product-wise List of Companies (*Illustrative; overall 40 companies are covered*)

|  AI Based Analysis (10) |  Biomarker (7) |  Mechanical vibrations (7) |
|--|---|--|
|   |   |   |
|  Ultrasound(6) |  Electrical stimulation (5) |  Magnetic Field (2) |
|   |  |   |
|  Infrared (1) |  Shockwave (1) |  Electromagnetic (1) |
|  |  |  |

Website: [Link](#)

Est.: 2011



HQ: Finland

Bindex technology developed a painless ultrasound-based technique for diagnosing and treating the osteoporosis at its early stage. The ultrasound technique scans of the left tibia (shinbone). Its results can be obtained instantly, and the treatment of the patient can be initiated immediately.

Technology



- Plug in device
- Process: Ultrasound
- Results: Bone mineral density
- TRL: Matured

Financials



- Total revenue: \$ 0.41 mn to \$ 3.06 mn
- Total invested amount: \$ 27 mn
- Investors: Venture capitals and major players from same domain

Operating locations



- R&D center in Kuopio Finland
- Manufacturing facilities in Finland

Applications



- Osteoporosis early-stage diagnostic device



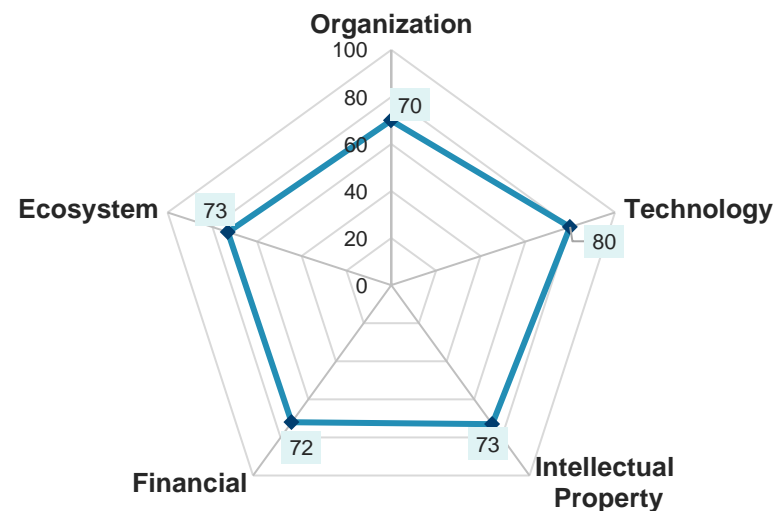
Aranca View

- The company has developed device that can be plugged in using USB cable into the computer and bone mineral density can be measured.
- The technique used is ultrasound with immediate results in 30 secs



Aranca 5 Factor Assessment

74/100








Note: Scores have been normalized on a 0-100 scale. Detailed analysis has been provided in the next slide.

Overall Rating



Aranca 5-Factor Assessment



| | | Criteria | Low 1 | 2 | Score 3 | 4 | High 5 | Total |
|--|--|------------------------|----------------------|----------------------|---------------------------------|---------------------------------|---------------------------------|-------|
|  Intellectual Property | <ul style="list-style-type: none"> IP portfolio with granted patents Strong geographical coverage | No. Of Patents | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | 11 |
| | | Forward Citations | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | Grant Status | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
|  Technology | <ul style="list-style-type: none"> Backed with mature technology Product include an easy to operate, handheld device, using ultrasound principle to detect bone density | Novelty | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | 20 |
| | | Scope | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |
| | | Scalability | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | Competitiveness | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |
| | | TRL | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | |
|  Financial | <ul style="list-style-type: none"> Funding received from Venture Capitalists in Series C rounds | Total Funding | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | 18 |
| | | Funding Rounds | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |
| | | Type of Investor | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | No. of Investors | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |
| | | Revenues | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
|  Ecosystem | <ul style="list-style-type: none"> Bindex has attracted many investors since the products are cost effective and expect to benefit the patient in early detection of osteoporosis | Target Industry Size | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | 11 |
| | | Policies & Regulations | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | Environmental Impact | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |
|  Organization | <ul style="list-style-type: none"> Product have cleared extensive clinical trials and are FDA approved | Global Presence | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | 14 |
| | | Employee Size | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | Active Years | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | |
| | | Awards/Recognition | <input type="text"/> | <input type="text"/> | <input checked="" type="text"/> | <input type="text"/> | <input type="text"/> | |

Backed by its innovative technology, Bindex has recorded significant growth through its business collaborations in the osteoporosis diagnostic technology.

Patents



- Has three granted patents families
- Patents relate to measurement of bone mineral density, thickness of bone and an anatomical measuring point.

Financial



- Received funding from **Finnvera, Tekes, Ely Kesus, European Regional Development Fund (EDRF) and Business Finland** etc.
- Not supported by any university.

Research and Development



- The company produces **Bone mineral density measurement device based on ultrasound principle.**
- The current research emphasis are optimizing the complicated process with **artificial intelligence algorithm, ultrasound, electrical stimulation, electromagnetic field, magnetic field and infra-red.**

Collaborations and Partners



- No collaborations or partners recorded

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Under-research Technologies, Technical Papers

| University | Journal | Technique used | Impact Factor | Analyst Comment | DOI |
|--|---------------------|-------------------------------|---------------|--|---|
| Tong University School of Medicine, Shanghai | Elsevier | biosensor | 16.744 | Claims osteoporosis bone regeneration | https://doi.org/10.1016/j.cej.2020.127413 |
| Lausanne University, Switzerland | Springer | Quantitative ultrasound (QUS) | 5.964 | Claims early detection of osteoporosis | https://doi.org/10.1007/978-3-030-91979-5_2 |
| National University of Ireland Galway | Springer | Microwave imaging | 3.079 | Claims early detection of osteoporosis | https://doi.org/10.1007/s11517-021-02344-8 |
| IIT Ropar, India | IEEE Sensors | Infrared thermography | 4.375 | Claims early detection of osteoporosis | 1https://doi.org/10.1109/JSEN.2020.2973233 |
| Fudan University, China | Elsevier Ultrasonic | Pulsed electromagnetic field | 4.062 | Claims osteoporosis prevention | https://doi.org/10.1016/j.ultras.2023.106973 |

Value-added Customization Possibilities

This report can be customized to include the following aspects...

| Regulatory | Industry/ Company | Research |
|---|--|---|
| <ul style="list-style-type: none">• Regulatory laws/ Government policies• Clinical Trials• 510k, PMA approvals in the domain• Breakthrough device designations• Recalls, MAUDE reported• Active/ Pending Patents in the domain with infringement probability• Activities from the Payors side/ changes in the laws/ codes | <ul style="list-style-type: none">• New product launches• Partnerships, M&As in the domain• Licensing details, guideline royalty rate• VC Investments – Why? By whom? How much?• Business models• New entrants/ Start-ups• Supply chain activities | <ul style="list-style-type: none">• Research articles• Patents• Conference papers, sayings by top officials• New manufacturing set-ups |



Our work

500+

Market & Business Advisory
Projects

100+

Procurement & Supply Chain
Projects

150+

Projects & Technology
Assessments

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