2007 Frost & Sullivan Technology Innovation Award

Award Recipient: Demetech AB

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Award Description

The Frost & Sullivan Award for Technology Innovation is presented to the company that has demonstrated technological superiority within its industry. This Award recognizes the ability of the company to successfully develop and introduce new technology, formulate a well-designed product family, and make significant product performance contributions to the industry.

Research Methodology

To choose the recipient of this Award, the analyst team tracks emerging and existing technologies, as well as R&D developments. This is accomplished through interviews with major market participants and extensive secondary research. Also considered are elements such as product launches, customer acceptance, penetration rates, and time to market. Finally, competitors are compared and ranked for relative position. Frost & Sullivan then presents the Award to the company that received the number one industry rank.

Measurement Criteria

In addition to the methodology described above, specific criteria are used to determine the final competitor rankings in this industry. The Award recipient has excelled based on one or more of the following criteria:

- Technology innovation contrasted against competitors
- R&D expenditures
- New product/process introduction
- Price premium
- First to market
- Adoption rate
- Penetration rate

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The 2007 Frost & Sullivan Award for Technology Innovation in the European Bone Densitometry Systems Market has been conferred upon Demetech for their proprietary Dual X-Ray and Laser (DXL) technology. This innovative system is set to fulfill the need for affordable yet accurate technology in the European bone densitometry systems market.

Company Profile:

In late 2005, Scanflex International AB, a leading provider of state-of-the-art imaging systems for orthopedic surgery and products for personal radiation protection, acquired Demetech. This acquisition strengthens Demetech's position in the market. Demetech develops, manufactures and markets systems for the diagnosis and early detection of osteoporosis. Demetech, headquartered in Sweden, was founded in 1996 through funding by Venture Capitalists. Dual X-ray and Laser, commonly called DXL, was invented by a team of Swedish doctors, researchers and engineers. Demetech's DXL Calscan machine is the first instrument based on this technology. The clinical trials for Demetech's DXL Calscan system, which began in 1997 ended in 2000. Demetech's first DXL Calscan system was sold in Sweden in 2001 and since then they have sold 100 units in Sweden. In the year 2004, Demetech obtained the U.S. Food and Drug Administration clearance for Calscan.

Technology Innovation:

Demetech is the only company in the market with the DXL technology. Demetech has patented its Dual X-ray and Laser technology, commonly called DXL in Europe, North America, China and Japan.

DXL technology differs from the current gold standard Dual Energy X Ray Absorptiometry (DEXA) technology as it combines a dual-wavelength X-ray source with laser definition of the measurement area. While using DEXA, two inputs are used to arrive at three outputs. Hence, DEXA measures water and then bone and fat are clumped together. DEXA then estimates the amount of fat and subtracts it from the bone. This method estimates the fat outside the bone accurately but the adipose tissue inside gets lumped in with the bone. Thus a person with a very low or high fat content will get a distorted result. Many articles, which have been published, have accentuated the error due to fat in DEXA. Fat error has been estimated to be anywhere between 10-40% for individual patients.

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DXL Calscan solves this issue by using both X-ray and laser technique. Measurements are made in the heel, which consists of 95% trabecular bone. Calscan measures thickness, and by this one knows how far the photons had to travel through fat, bone and water before they are either absorbed or not absorbed. This is the extra information that DEXA is unable to provide. This provides a more accurate estimate of the amount of fat and therefore a more accurate measurement of bone density.

Fig 1-1 given below highlights the differences between DEXA and DXL techniques:

Categories	DEXA	DXL
Site of measurement	Spine, Hip and Body	Heel
Scantime (minutes)	10-15	Less than 1
Accuracy error (Standard Error of Estimate %)	9-12	Less than 2
Radiation Dose (Micro Sievert)	1	Less than 0.2

Demetech invests substantially in Research & Development. In 2007 their R&D expenditure as a percentage of cost is estimated to be 15-20%. To date, 19 clinical studies have been published in scientific journals using the DXL technology. The company in collaboration with the Karolinska Institute in Stockholm is currently conducting a new breakthrough study. The study, which involves over 15000 patient examinations, is expected to prove that Calscan can predict hip fractures as well if not better than axial DEXA machines, based upon cross-sectional fracture results from the same population. Published studies and the resultant evidence are important factor in making a product a success. This is especially true in a relatively mature market, like bone densitometry, where the acceptance of any new technology is dependent on its ability to prove itself against established technologies.

Conclusion:

Demetech has carved a niche for itself, by investing substantially in R&D activities, in a market characterized by the well-established DEXA technology. Through a well-established distribution network and focused marketing strategies, Demetech can fulfill the need for affordable yet accurate technology in the European bone densitometry market. Demetech is already demonstrating this in eastern European countries like Turkey and Serbia where the company claims to be the largest selling densitometry systems company. Demetech is planning on launching Calscan DXL in North America in the near future and has already made inroads in South America and the Middle East. Demetech is set to achieve success, having developed an alternative technology that offers accuracy in detection of bone density in a cost effective manner. By enabling the early diagnosis and treatment of osteoporosis in a primary care setting, quality of life may be extended using DXL Calscan.

Chart 1.1 illustrates the key benefits of the DXL Calscan system.