

# OUTSIDE IN

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*Seeing opportunity, well-financed business forces move to consolidate their share of this fragmented market.*

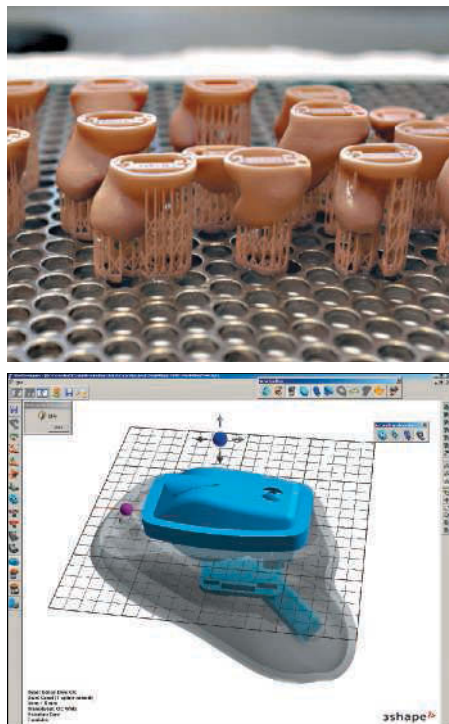
*By Richard Palmer*

The dental laboratory industry is witnessing the beginning of an industrial revolution already endemic to almost every other business sector worldwide from manufacturing and healthcare to finance and government. The transition from manual craftsmanship to digital workflow is recent history to many of these industries, but very much part of the present and future of dental technology.

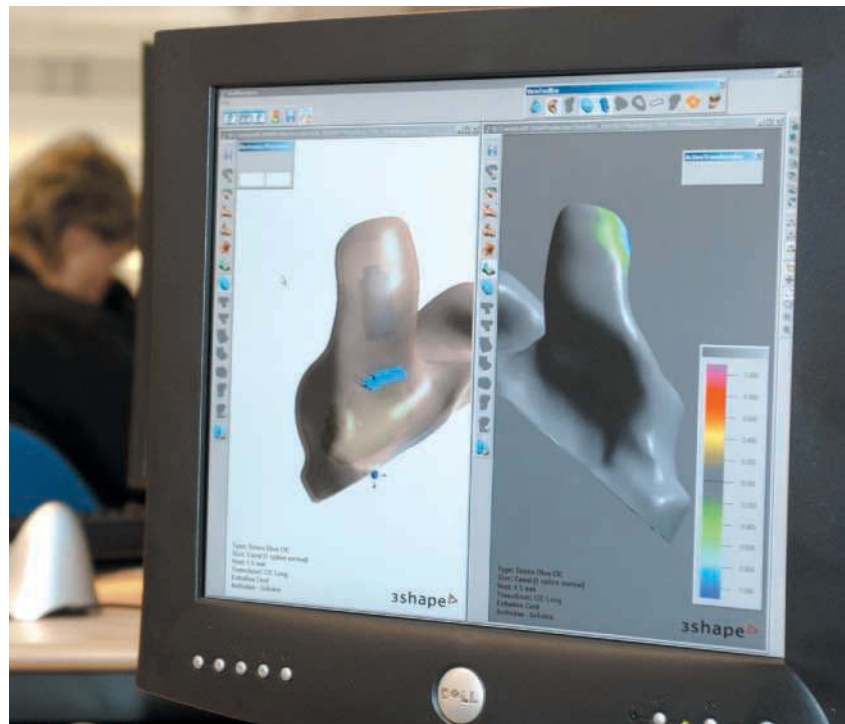
What the next-generation business landscape will look like five or 10 years from now is uncertain. However, what is certain is that the transition to automated production has captured the interest of

outside corporate entities who have been instrumental in the transformation of other industries. They bring with them alternative business strategies with roots in finance and economics. What these entrepreneurs see is a fragmented industry comprising an aging workforce and facing rapid integration of automated manufacturing. Seizing this lucrative opportunity, these outsiders are bringing new and progressive business models to dentistry that embrace industrial manufacturing principles and capitalist practices to bring direction to an evolving industry.





**Audiology automation** The CAMISHA (Computer-Aided Manufacturing of Individual Shells for Hearing Aids) process has greatly speeded, simplified, and automated hearing aid production. Working from a digitally scanned impression of the ear, the technician fits the electronics into the virtual design prior to the 3D printing of the shell from a UV-light-cured acrylic material in batches of up to 100 custom units.



PHOTOS: WIDEX HEARING AID CO.

**HISTORY LESSONS**

A short look outside the microcosm of dentistry can teach us valuable lessons. Other healthcare industries have experienced the growing pains of industry-wide digitization and automation of production processes. In spite of a rocky transition, they not only survived, but thrived.

“What is happening in the dental industry holds similarities to what has already taken place in other fields, particularly the medical industry,” said Morten Brunvoll, Executive Chairman of Biodenta ([www.biodenta.com](http://www.biodenta.com)), a Swiss company that has developed CAD/CAM systems as part of an affiliation program to bring laboratories under a network umbrella. “The dental industry—the dental technicians and the laboratories—is one of the last industries that faces the facts of life that all other industries have met over the last 15-25 years.

“Now at a very late stage, it hits the dental industry. A lot of the manual work, or the down-and-dirty work, is going away and being replaced by machines. The technicians’ daily work rhythm is going to look different. They’ll spend more time in front of the screen doing design work and then use their competence in the final stage, which still needs their qualifications and know-how. The craftsmanship will not go away. It will just take other forms and will be expressed in other ways.”

The transition to automated production can be an extended evolutionary process, or it can come practically overnight. Though there isn’t the same degree of manual labor involved in creating prescription eyeglasses or hearing aids, the ophthalmology and audiology industries now thoroughly embrace their own digital production workflow.

According to Richard Cortez, MS, an audiologist with Widex Hearing Aid Co. Inc., a manufacturer based in Long Island City, N.Y., in just over five years, CAD/CAM technology has practically revolutionized the design and production of in-the-ear hearing aids. “It’s now become the standard in the industry, with 98% to 99% of custom shells being made using CAD/CAM technology,” he said. Cortez commented that when automated production technology first emerged in audiology, he predicted that by the end of that first year 10% of the company’s shells would be made with the CAD/CAM system. “After about six months, up to 40% of the shells were being made that way. And it’s just blossomed from there. Before, we had 100 people doing the job that less than 30 are doing today.”

Computer-based manufacturing has been part of the optical industry almost as long as computers have been around.

“For the last 30 years, it’s been computer

controlled,” said Larry Clarke, President/CEO of Satisloh North America Inc., a Milwaukee-based manufacturer of various equipment used for producing prescription eyewear. “In the beginning, technicians were optical experts who had to calculate which type of curve to generate and grind lenses by hand. The first computers performed very simple operations such as grinding a simple curve in a lens. Today, it’s all automated, and the machines fabricate very complex curves digitally.”

Clarke estimates that there are between 300 and 400 optical labs in the United States, down from around 1,000 not too long ago. “Our industry is consolidating very fast. The big lens manufacturers have started buying up all the mom-and-pop labs,” he said. The cost of the specialty equipment, including generators, polishers, coaters, and edgers often proves out of reach for many, running into millions of dollars for some production equipment. “It’s difficult

to compete now without a lot of capital.”

According to both Cortez and Clarke, outsourcing of component production is rare in their respective industries because most processes involved are done at the same location. Though, Clarke adds that in some instances a group of independent lab owners may join together and form a centralized facility for the very high-ticket equipment. “It’s a way that small labs can compete with big guys with a lot of capital,” said Clarke.

**CARPE INDUSTRIOUS**

Slowly over the past few years, there has been a growing interest toward the dental laboratory industry by outside investment firms drawn to its desirable growth potential and its disjointed, fragmented nature. In the past three years, Novadent, a capitalist investment firm, aggressively bought up several large operations on the West Coast while others such as Healthpoint-



**Seeing the future** With “mass customization” equipment that automatically loads the lens blanks into processing equipment, large modern optical labs can produce as many as 5,000 lens pairs per day. From the prescription, a mathematical formula creates a point file of approximately 3,000 points across the surface of the lens. The data is then sent to the generator, which automatically grinds the lens material to the precise profile based on the calculations.

PHOTOS: SATISLOH NORTH AMERICA



PHOTOS: LORD'S DENTAL STUDIO

Capital purchased laboratory groups like DTI Dental Technologies Inc., a network of full-service dental laboratories located in the United States and Canada. Recently, Bolder Capital bought out Dental Services Group, with nearly two dozen locations. Often the influx of capital goes straight into expanding the laboratory businesses for growth and investment, while others see drastic changes in daily and long-term operations.

"Anytime people use the words 'industry consolidation' or 'acquisition' or anything like that, it provokes a lot of dark fears and suspicions," said Andrew Hofmeister, President and CEO of GeoDigm Corp. ([www.geodigmcorp.com](http://www.geodigmcorp.com)), a Minnesota-based company that recently arranged a \$100 million commitment with Welsh, Carson, Anderson & Stowe, a New York private equity firm, to fund its purchase and consolidation of dental laboratories. Simultaneous to the agreement, GeoDigm purchased Lord's Dental Studio ([www.lordsdental.com](http://www.lordsdental.com)), with Wisconsin facilities in Green Bay and New Berlin. "The fact that many players from outside the dental laboratory industry are interested in investing is an indication that others see opportunity here," Hofmeister added.

Even before Welsh Carson's impressive investment in GeoDigm's consolidation strategy and the resulting purchase of Lord's Dental Studio, Hofmeister said that GeoDigm had been aggressively growing its portfolio through acquisitions of four other laboratories in the Wisconsin/Minnesota area. "Currently, we have more than 150 technicians working in five different locations that generate about \$25 million in revenue," he said. "Welsh Carson's investment in us was just to further something that we were already down the road on doing from a technology standpoint. We saw this as an industry that was large, growing, and unconsolidated. It looked like an opportunity to do a better job leveraging the skills of the laboratories with technology."

Like Hofmeister at GeoDigm, Brunvoll's background is not directly in the dental field but mainly in business management, as is that of other principles in Biodenta management. "We have spent a lot of time trying to understand this industry," he said. "I look at it as an advantage when you are coming from the outside. All the 'do nots' and all the 'should dos'... you just disregard because you can look at it with your own eyes. From a management point of view, we can think freely and differently."

#### NEW IDEAS, NEW DIRECTIONS

The GeoDigm business model is just one of the new approaches toward laboratory its that are coming into the industry. The



**All together now** A Lord's Dental technician can set the parameters on each of its three GeoDigm scanners that then operate autonomously. Four design technicians currently can design and produce more than 300 full-contour crowns in a single shift.

**"This industry is in for some major consolidation and changes in the next 5-10 years."**

—MORTEN BRUNVOLL, BIODENTA

disjointed profile the dental industry presents proves quite attractive as one that is ripe for consolidation, partnering, merging, and otherwise bringing together both here and abroad.

"When you look at it globally, it is very fragmented with very small, tiny players dominated by three-to-eight-person labs working with three to four dentists," said Brunvoll. "When you look at that, you know from the get-go that this industry is in for some major consolidation and changes in the next five to 10 years."

Biodenta has turned its attention to moving into the laboratory business through development of its own complete CAD/CAM system and through the combination of laboratories under the DentaSwiss brand (See "Swiss mission," on page 22).

Other European and U.S. firms have developed business models centered



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## SWISS MISSION

As part of its international consolidation strategy, **Biodenta** ([www.biodenta.com](http://www.biodenta.com)) has launched a plan to combine dental laboratories into a global brand, DentaSwiss, on a multi-tiered partner model. The concept would allow laboratories to incorporate Biodenta's proprietary open-architecture scanning and milling CAD/CAM technology into their own autonomous operations while receiving marketing and branding support.

"We give them access to top-notch technology without having to make major investments," said Biodenta Executive Chairman Morten Brunvoll. "A lot of these labs are small, but they have this challenge that they all realize that this industry is going to see a dramatic process of industrialization through CAD/CAM."



PHOTOS: BIODENTA

**"The fact that many players from outside the dental laboratory industry are interested in investing is an indication that others see opportunity here."**

—ANDREW HOFMEISTER, GEODIGM CORP.

around bringing existing labs together through various means. Some work as "silent partners" by infusing capital into business for growth, while others completely incorporate the laboratories' business into their own structure.

According to Brunvoll, Biodenta's business plan centers around the expansion of its laboratories in Europe and Taiwan to the integration of a worldwide chain of 40 to 50 dental laboratories in the next three years. "We will be setting up six to eight milling centers around the globe within the next eight to 10 months, and we will place 60 to 80 scanners in labs," he said, also hinting at a move toward the North American market in the next year.

Brunvoll admits that the plan is fairly aggressive, especially for a company that was founded just 20 months ago, but the setup offers different tiers of involvement to match various levels of commitment and case loads. The businesses that are on the DentaSwiss radar are those interested in getting into digital production and CAD/CAM, yet have not already incorporated a system into their workflow.

One of the key drivers in the development of the DentaSwiss franchise concept was that Brunvoll feels dentists prefer to work

with smaller labs, where they can receive individual attention and actually know the technicians working on their cases.

### TECHNOLOGY TO THE RESCUE?

Brunvoll acknowledges that many small laboratories are centered around an artistic vision rather than sound business principles. Because of this, many owners lack a clear exit strategy as they near the end of their careers, and many others do not have access to the capital to invest in a transition to automated production to help propel the business after retirement. However, the new business models coming to the U.S. market may offer laboratories a solution to both problems.

Hofmeister saw an industry with production processes that were extremely challenging and that prevented lab owners from growing their enterprises. "When I saw the GeoDigm technology back in early 2000, it looked like a lucky intersection of a technology, a skill set, and a knowledge base, all coming together at the same time at the same place," said Hofmeister whose background in management consulting provided an objective viewpoint on the industry as an outsider.

GeoDigm started 12 years ago with a proprietary laser scanner and design software engineered to generate 3D virtual models for orthodontic treatment planning. To expand this limited digital technology beyond orthodontics into prosthodontics, GeoDigm first bought a small dental lab so its engineers could work side-by-side with laboratory technicians, then developed the proprietary ICON CAD technology for crown and bridge design with physical units produced on CAM equipment based on the specifications prescribed by the dentist. The open-architecture design files could also be sent to a variety of production machines—either an affiliate GeoDigm facility or third-party vendor.

The company then fine-tuned its concept through the acquisition of additional small labs for real-world testing. But rather than offering its CAD system to dental laboratories for purchase and integration into their work processes or continuing a straight plan for mergers and acquisitions of existing dental laboratory businesses (both of which had already existed in separate forms on different levels by others), GeoDigm spun a whole new concept that combined the development of technology with the consolidation of properties. "We're a lab operator, not a technology purveyor," said Hofmeister.

By acquiring laboratories and setting them up with the GeoDigm CAD/CAM platform, Hofmeister said that GeoDigm addresses three major concerns of dental laboratory owners in short-term and long-term goals: 1. Improve consistency of operations and manufacturing practices, 2. Extend productivity and capability of technicians, and 3. Provide a viable exit strategy.

The first two concerns typically can be covered with the integration of any process that helps automate production—such as CAD/CAM—but the high initial capital expenditures required to purchase the equipment can be a daunting barrier, especially to smaller, independent laboratory owners, which factored into GeoDigm's strategy.

"Those who could afford to buy it, wouldn't necessarily want to," said Hofmeister. "There really isn't any liquidity option or retirement plan for a huge number of laboratory owners. It became a much more attractive option for all those concerned to buy the laboratory. Interestingly, a lot of this came from the lab owners themselves, which makes a lot of sense."

In its continuing process of qualifying potential laboratories for acquisition, GeoDigm is focusing on well-managed labs with strong customer relationships that are open to technology integration, and that have a high concentration of their revenue in crown and bridge. Since the Welsh Carson investment announcement was made in February, GeoDigm has been approached by several laboratories inquiring about being purchased.

Brunvoll says that Biodenta also has received interest from lab owners on his new direction. "We give them access to top-notch technology without them having to make major investments."

For the average lab owner who has spent a lifetime building up a successful business and does not want to see that hard work vanish when retirement approaches, consolidation and the promise of technology offer a very attractive exit strategy. **lab**