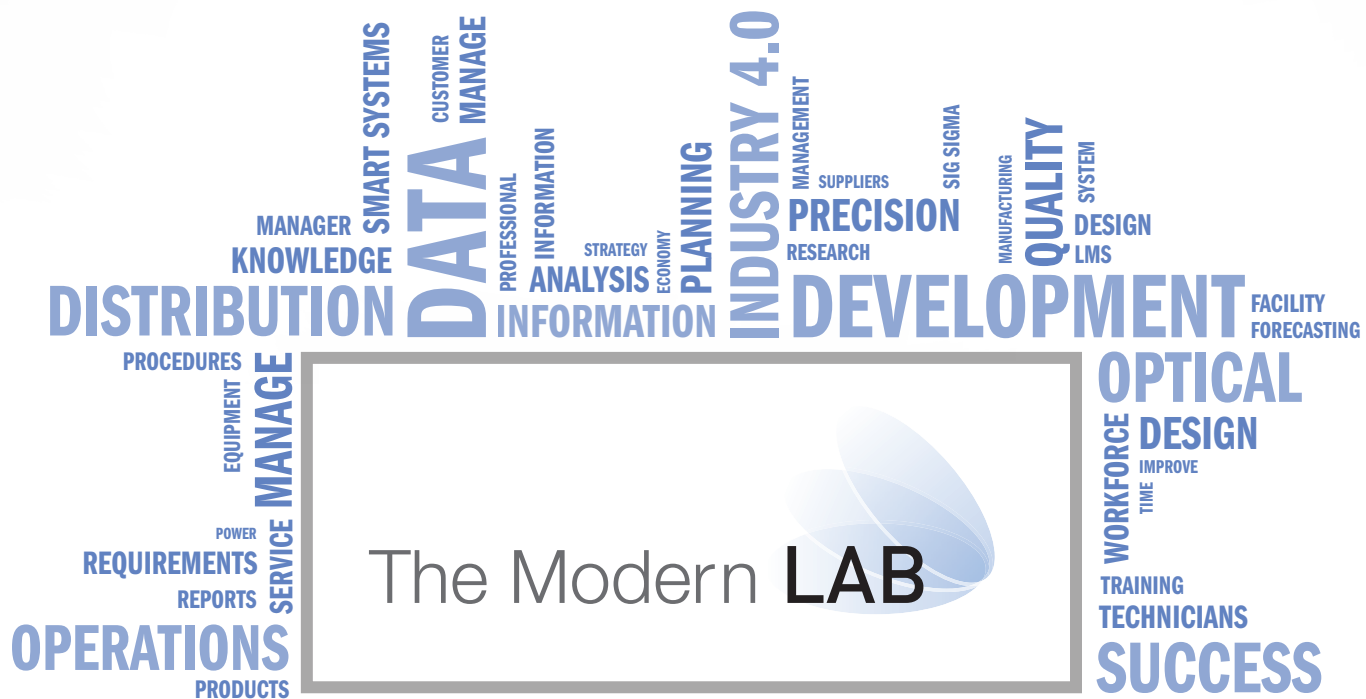


Rx for Success



The Modern **LAB**

ANDREW KARP / GROUP EDITOR, LENSES & TECHNOLOGY AND JEFF HOPKINS / CONTRIBUTING EDITOR

NEW YORK—In today's ultra-competitive service economy, the pressure to deliver products and services when, where and how consumers want them—the so-called “Amazon effect”—impacts all suppliers. Eyecare professionals and optical retailers are feeling the heat, and so are the labs they depend on.

Owners and operators of optical laboratories are responding to this new service mandate in a variety of ways. Many have implemented modern manufacturing methods to cut turnaround time on Rx orders and reduce remakes. Some are also embracing a set of principles and procedures known in the digital tech world as “Industry 4.0”. This technology-focused approach requires highly automated production facilities where real-time performance data is constantly collected and reported to the lab's management. The data is then analyzed by managers and skilled technicians who use it to control quality, instantly diagnose and fix problems and even predict where and

when production delays will occur.

Other labs are employing new business models designed to strengthen their supply chain to ensure a rapid, consistent flow of products to customers. Several of the biggest lab operators have added capacity and enhanced service levels by building huge, high volume production facilities, some of which operate around the clock.

Still other labs have developed profitable niche products and services that help them and their customers differentiate themselves from competitors.

No matter what approach a lab may take, the goal is to produce a finished pair of eyeglasses faster and more accurately than ever before, and get those glasses to customers on demand. The labs that do it well, and do it consistently, are on a par with modern manufacturing and distribution companies in other industries. These Modern Labs power the optical industry and enable ECPs and retailers to meet the increasingly stringent

service requirements of their customers.

Vision Monday's Modern Lab series of articles spotlights the changes that leading labs are undergoing, and examines the reasons for the success of these important and influential companies. Previous articles explored the recent emergence of several startups, and the ways in which labs are using integrated production systems to improve operations.

This article, the third in the series, explores some major forces affecting Modern Labs, including new production and distribution strategies, the effects of automation and smart systems and new approaches to customer service. Lab owners, lab managers and suppliers discuss how these successful companies are managing to grow despite a relatively flat optical market and position themselves to better serve their accounts.

The final article in the series will look at how changing technology is impacting the lab workforce. ■

Automation Provides a Platform for Innovation

Optical labs became increasingly automated in the latter part of the 20th century, thanks to the spread of computer controlled machines, advances in lab software and a streamlined approach to production that eliminated steps in the manufacturing process. The pace of change accelerated dramatically in the early 21st century, as labs began using new automated lens processing technology designed for faster throughput, higher yields and a greater volume of work. As systems and processes became more automated, many optical labs began implementing widely used production methods such as lean manufacturing, Six Sigma and MES (Manufacturing Execution Systems) to further improve efficiency and productivity.

One lab operator that has fully embraced automation is VSP Optics. The optical division of managed vision care giant VSP Global services a network of 39,000 eye doctors through its VSPOne Optical Technology Centers located in Sacramento, Calif., San Diego, Calif., Honolulu, Hawaii, Olympia, Wash., Denver, Colo., St. Cloud, Minn.; Dallas, Texas; Houston, Texas, Columbus, Ohio, Ft. Lauderdale, Fla., Tampa Bay, Fla., Charlotte, N.C., Baltimore, Md. and Melville, N.Y.

Swen Carlson, vice president of operations for VSP Optics, has a broad perspective on lens manufacturing gained through years of first-hand experience.

“In the late ’90s labs, it was basically still manually run equipment all approximating the same performance,” Carlson recalled. “Around 2006, we saw a shift toward technologies that really looked like automation in other industries that are bigger and more progressive than we are.”

Automation, particularly self-loading machines and conveyor systems that move lenses from one work station to another have significantly boosted lab productivity at many labs.

“By automating movement of trays, you just took that part of automation, can really get to that nirvana moment that all lean practitioners



Swen Carlson, VSP Optics.



Matt Iovaldi, Midland Optical.



Ettore Mosca, Luxottica.



Paul Faibish, Plastic Plus.

talk about, which is to improve flow,” explained Carlson. “That gives you lower WIP (Work in Progress) and that gets you that turnaround time. The quality goes up.

Investments in Automation Pay Off

One lab that has invested heavily in such advanced automation is Plastic Plus, the biggest independent lab in Canada. Earlier this year, Plastic Plus relocated to a new, 30,000 square-foot facility in Toronto, doubling its size and adding significantly more production capacity.

The lab is entirely automated “from blocking to the mapper,” according to founder and owner Paul Faibish.

“Nobody touches a lens,” said Faibish, who said Plastic Plus is experiencing higher yields and reduced labor expenses. “Previously, we had people deblocking, detaping, and spin coating. This is now all done in-line. With less individuals touching a lens there are fewer rejects.

“Our service has improved substantially,” Faibish observed. “Most non-AR jobs go out same

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Suppliers Help Labs Meet the New Service Mandate

Kurt Atchison

President
Schneider Optical Machines



“The Amazon effect has been growing rapidly in the optical lab industry. As we’ve modernized equipment and processes, the demands grow, not only for quality but also speed and transparency. We’ve enabled a more demanding consumer by providing them faster turnaround of very sophisticated lens products. This overall improvement and modernization has helped us grow the industry.

Schneider’s Modulo system pioneered this Industry 4.0 idea for labs five years ago. In 2018, we not only expanded the Modulo system and capability through its cognitive machine processes, but we also introduced the fastest production machines ever for the industry. Like the Amazon benchmark, this combined machine capability and total data and system control creates a radically consistent and reliable result. The modern Modulo lab empowers opticians to sell premium lens products with confidence.

The modern lab difference versus historical methods is complete technology integration along with vast amounts of data and control. Management knows so much more information in real-time than ever before. These metrics have always been there in some form “after the fact,” but today more labs can tell you all the critical performance measurements nearly minute by minute. Schneider’s Modulo system was created to drive this real-time performance maximization. Responsible production personnel are always on top of the perfor-

mance. From a single Rx job and where it stands to a complete overview of exactly what’s going on at the moment, risks and issues are identified. Adding to this predictive maintenance and up-keep, labs can make promises and meet the demands of the new service expectations. The system takes care of every special job requirement, even automatically prioritizing rush jobs. With the intelligent system in complete control, we eliminate the inconsistencies of constant human intervention. Even predictive and reactive maintenance are now controlled through the Modulo system. With millions of daily orders around the globe, Amazon seems to have seamless, total control of all its process steps. Schneider’s Modulo process offers today’s modern lab that same kind of sophistication.”

Andy Huthoefer
Head of Marketing and
Global Aftermarket Operations
Satisloh



“Providing our customers with solutions that allow them to meet their customers’ demand for speed is a major focus for Satisloh. Our two approaches to enabling fast service are helping large, central labs to speed up their through-

put times with innovative technologies and providing high quality manufacturing solutions for small, decentralized labs that are close to the consumer.

For larger, central labs, many factors contribute to getting jobs through the lab faster. It all starts with ART alloy free blocking technology that is not only good for the environment but also saves time

by eliminating cool down periods. Fast and reliable equipment, like the VFT-orbit 2 generator or the Multi-FLEX polishing system, process jobs at unprecedented speed. Intelligent automation plays a major as well. It’s critical that bottlenecks are avoided and that jobs are sent to machines that are actually available to process them. The best way to ensure an efficient production flow is by using a Manufacturing Execution System (MES). Satisloh’s MES-360 captures all machine and process data in the lab in real time. It routes jobs dynamically based on machine availability, yield and job specific data. This means maximum utilization of available equipment, fastest throughput and delivery times and best quality.

The slowest process in most labs is AR coating, which usually adds a day and often more. Our new Express-AR process cuts the time in the coating room down to 60 to 90 minutes, a huge advantage when fast service is of the essence. This is achieved by combining front side AR pre-coated blanks (only the back side has to be coated in the lab) with automated UV spin coating, an innovative fast degassing process, robots for automated sectoring and de-sectoring, and fast AR equipment.

Small decentralized labs, on the other hand, achieve fast service by being close to the eye-care professional (or even in the store) therefore reducing or eliminating the time needed to ship the completed job. Key for this segment is equipment that presents a low enough investment to allow generating profits at lower volumes while at the same time producing the same top quality and features that central labs can offer. Satisloh has developed a full line of equipment for this segment with the VFT-macro generator as its centerpiece, which is compact and affordable yet uses the same cutting-edge fast tool turning technology as Satisloh’s flagship generators.” ■

Continued from page 39

day. Over 80 percent of our AR jobs leave same or next day. Our job checks from customers are way down, and we're getting more business from our existing customers. They're giving us more work as they see our turnaround time decreasing.

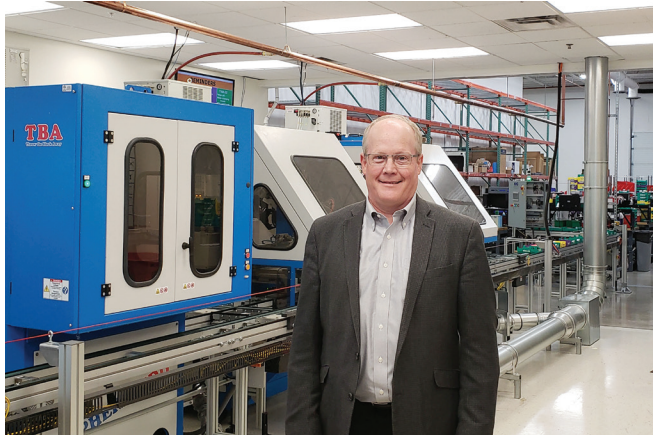
"Automation separates the bigger independents from the small guys," said Faibish. "But the new smart lab and the 4.0 is going to separate the really successful guys from the medium guys. That's going to be the next level."

Machines are good at doing repetitive tasks, and automating those tasks in the lab has allowed lab owners to reassign workers to other tasks that require skill, specialized knowledge and judgment. According to Matt Iovaldi, owner of Midland Optical, which operates facilities in St. Louis and Chicago, this shift has benefitted both his lab and his customers.

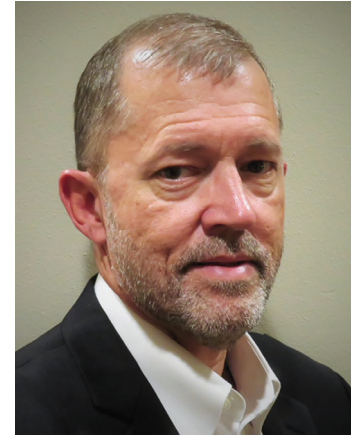
"As we've brought automation into our laboratory we've actually been able to redeploy folks into other areas. So for us it's been a situation where we've been able to do increasing volumes of work with the same amount of people. There are functions in the lab still, especially in the bench department which require a lot of human handwork, so you'll never totally eliminate the need for production work. I think the effect on them (ECPs) is giving them a higher quality product in a faster service time," Iovaldi said.

Developing a Data Driven Approach

Recently, a new data driven approach to manufacturing known as Industry 4.0 has begun influencing the way optical labs function. Some industry observers believe Industry 4.0 will fundamentally change the way labs operate because it unlocks the full power of automation. As the Boston Consulting Group asserted in a report titled, *Man and Machine in Industry 4.0*, "Industry 4.0 will transform production: isolated, optimized cells will come together as a fully integrated, automated, and optimized production flow, leading to greater efficiencies and changing traditional production relationships among suppliers, pro-



Bryan Schueler, Walman Optical.



Jeff Grumbling, OptoTech Technologies.

ducers, and customers—as well as between human and machine."

A growing number of lens processing equipment manufacturers are championing Industry 4.0 concepts and helping their customers incorporate the new procedures into their facilities.

Because of the sheer volume of work they process, supplier-owned labs have been quick to adopt Industry 4.0 techniques. One of the first to implement the new production methods is Luxottica, which operates three large Rx labs in the U.S., including a new state-of-the-art facility near Atlanta, Ga. Ettore Mosca, senior vice president of Luxottica Global Rx Operations, said the new smart systems allow Luxottica to process a large volume of orders with maximum efficiency.

"With the improvement of data gathering, including an increased number of inputs throughout the process, real time data analysis provides the ability to keep the processes stable and operating within control limits," Mosca observed. "It allows the improvement teams to focus quickly on an issue and stop a potential problem before it occurs. In an operation where we produce over 50,000 orders a week in our larger facility, getting the data quickly can make all the difference. We can now impact a large number of orders in a small period of time, which improves and maintains quality and planned turnaround time."

Mosca said the biggest impact on Luxottica's customers is the reduction in the number of re-makes, or "making it right the first time and keeping it that way." As he explained, "When there is a process of repeatability and consistency in place, we can identify a systemic problem and correct it and have a meaningful and lasting impact. Having equipment and processes under control in an automated environment is crucial."

There's a learning curve for labs that implement these production methods, and Mosca said it was hard at first for him and his colleagues to let statistical data drive their decisions. "We have seen how valuable it can be to implement improvements or changes in process or equipment based on a significant amount of data," he said. "Yes, anecdotal feedback will always have value and reveal trends we can act on. But we do not necessarily make a meaningful change without fully applying both good reasoning and data support."

Some large independent labs are also discovering the benefits of smart systems. "Industry 4.0 is advantageous on almost every front as we move to this, because it will improve our quality and productivity and throughput and consistency," said Bryan Schueler, vice president and general manager of Walman's ophthalmic lab division, the largest independent lab network in the U.S. "The robotics and automation are part of it, but so is having systems

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LMS Puts Lab Managers in Control

All labs, no matter how big or small, depend on a Lab Management System (LMS). LMS software enables managers to control Rx processing, accounts receivable, inventory management, order tracking and sorting, production and interface with laboratory equipment.

VM asked the heads of two leading LMS companies, Robert Shanbaum, president of Ocuco, and Gordon Keane, founder and president of DVI (Digital Vision Inc.), to comment on how LMS systems are advancing, and how these advances have helped labs operate more efficiently and, in turn, deliver better service to their customers.

Robert Shanbaum

President
Ocuco



“Ten years ago, LMS providers were still struggling to integrate their software with Lens Design Systems (LDS) and freeform manufacturing equipment. Fortunately, The Vision Council’s Data Communication Standard

was extended to cover the communications needed for freeform very early in the period of adoption of the new technology. Even so, a lot of unanswered questions arose, mostly related to the new division of labor between the LMS and LDS. In freeform production, some of the functions traditionally performed by the LMS are more appropriately performed by the LDS. Although most of these issues have been settled, the occasional novelty still comes along.

Freeform has brought two rather different kinds of benefits. First, there is the potential for cost reduction, which is diminished to some extent by the relatively high cost of the production equipment. Second, it offers a completely new capability to better individualize lenses to customers’ requirements.

Within the past five years, we’ve seen more outsourcing of orders to foreign labs, especially Asian, labs. We’ve had to substantially enhance our ability to outsource orders to different labs based on an ever expanding array of criteria.

Also, although the consolidation of labs has slowed down, it continues. As a result, we’re inventing better ways to manage not just one lab, but an entire estate of labs.

On the LMS side, we are expanding our ability to track problem jobs back through their production paths. Also, there are still significant opportunities within our standards efforts to better promote the integrations of MES systems (Manufacturing Execution Systems) with LMS systems, as well as across disparate manufacturers’ MES systems. Most MES systems are presently provided by machine manufacturers, and they do not communicate with each other or with LMS systems (other than the vendor’s own, if one exists).”

Gordon Keane

Founder and President
DVI

“For DVI there are three important areas:

Integration and understanding of DS (Digitally Surfaced) lens designs.

In many cases, an order for a digital design occurs remotely to the actual manufacturing. How-



ever, the special requirements of these orders (fitting values, coating compatibility, base curve limitations, etc.) as well as cosmetics need to be incorporated from the beginning so the ordering party (lab or ECP) can be sure that the finished product will meet their expectations.

Stronger integration of electronically transmitted Rx’s from ECPs and other labs.

The volume of electronically transmitted orders from POS systems and other non-DVI sources has increased for us significantly. Success in this area involves working with externally created orders that may not be carefully edited for completeness and “make-ability.” So we continue to reach out and work with these sources to improve the first-time success for order transmission with error free processing.

Real time customer service information for lab customer service reps and the ECP.

An important part of this process is to make lab status information (breakages, delays, expected delivery time) available from our Enterprise web site. This is a large area of development for us and serves our customers by enhancing communication with their customers. A piece of this function that is not often discussed is passing inspection values (compensated prescriptions) from subcontracting labs back for remotely surfaced orders.

Many of our customers with multiple labs now offer consolidated customer service with access to our Enterprise web service.” ■

How Digital Lens Processing ‘Democratized’ the PAL Business

Bob Niemiec is a keen observer of the optical lab industry, having managed labs for major retail and managed care companies during the course of his career. Now working as a consultant, Niemiec offered his perspective on how digital spectacle lens surfacing and automated finishing processes have reshaped the lab business.

“More strategically, digital processing has ‘democratized’ the progressive lens business. In the digital world, producing a digital, backside progressive lens is a primarily a matter of creating a design and the accompanying points files to feed the LMS for downloading directly to the lab for manufacturing. It no longer requires the lengthy, expensive sometimes variable process of designing, producing and maintaining the thousands of molds that were required in the old, progressive lens blank production process, all of which favored larger, more heavily resourced lens producers. In the lab, instead of dealing scores of front side progressive designs, creating a backside progressive means just dealing with comparatively few materials and base curves.

Another more recent development which has had a significant impact in the finishing area has been the advent and widespread adoption of high capacity automated finishing/edging systems. While not as transformative in terms of the strategic upstream and downstream effects as the conversion from analog to digital surfacing, automated edging systems have had a huge impact in terms of streamlining the finishing process and in doing so improving quality, reducing costs and broadening capabilities.”



Bob Niemiec.

Many of the benefits of these advances tend to favor the larger, more technically sophisticated labs. These industry players first, have the capital to purchase the equipment, second, the means to hire and train the talent needed to effectively operate these systems and finally the volume to fully leverage the throughput these technologies provide. This trend favoring larger, more technically adept players is expected to continue, as existing technologies mature and as new technologies emerge.” ■

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Coburn Technologies: Hearing the Voice of the Customer, Large and Small

NEW YORK—For Alex Incera, president of Coburn Technologies, the process of innovation begins with the voice of the customer. “They’ll talk about things like serviceability—the ability to extract data and the ability to incorporate that data into their own systems and reporting.” From there, Coburn extrapolates from the need to “deliver the tools that the customer may never have even envisioned when they made the initial request.”

This has meant taking the concept of extracting data from the equipment to offer the ability “to apply predictive components to their service and preventative maintenance schedule,” so maintenance teams can be more proactive. He cites the company’s Velocity automated coater and the Duality de-taper and lens cleaner as an example of a fully automated system that “delivers historic data

through AI with predictive algorithms that can offer data used to ward off failures and potential maintenance that is required.”

According to Incera, a trend has emerged from the application of the “voice of the customer” approach, whereby “these needs are almost always first and foremost verbalized and developed for the larger labs, and over time evolve to the point where they kind of migrate down to the smaller facilities.” Often, while the technology applied to larger and smaller labs is similar, the needs are different. Incera said, “The larger automated labs just can’t afford to have equipment down. At the smaller labs, they don’t have the trained personnel to predict when they’re going to have to perform certain functions on equipment.”

This is why Coburn has developed the Free-Form



Alex Incera, Coburn Technologies.

Mini-Lab Concept, where, Incera said, they have “taken the concept of a large-scale, high-speed, fully automated surfacing system and scaled it down into a smaller footprint that is more economical. We’ve bought that technology and the same concept of forward-thinking preventative maintenance down to that level.” ■

Automation Provides a Platform for Innovation

Continued from page 42

that talk to each other, and a line management system that ties everything together at the product level. These systems allow us to more readily run 24 hours, and allow us to worry less about a really tight labor market.”

Schueler said smart systems are helping Walman deliver an “effortless experience” for customers. “We pride ourselves on offering premium service and quality. This level of automation enables us to provide consistently good turn time, and the same high-quality job, time-in and time-out.”

Prevention, Quality and Consistency

Optical labs face special challenges when applying smart manufacturing protocols developed in other industries because labs need to mass produce customized products instead of uniform batches of products.

“One aspect of lab processing that may differ from “generic” manufacturing is the uniqueness of

each eyeglass prescription order,” noted Gordon Keane, founder and president of DVI (Digital Vision Inc.), a pioneering LMS (Lab Management Systems) company. “We have one customer that is filling 5,000 orders per day with 250 different progressive styles in 50 different lens materials to be inserted into several thousand different (and usually unfamiliar) frames. This is a complicated business.”

The data generated by smart manufacturing systems makes it possible for labs to spot variations in the production process that can lead to problems with lens quality. “We produce so many lenses, and there’s so much variation it’s hard to see trends,” Swen Carlson of VSP Optics pointed out. “For example, it’s impossible to see that our +6.00 spheres that we’re cutting on the generator are starting to push toward +6.5. Those kinds of drifts are impossible for people to internalize and understand be-



Steve Swalgen,
Santinelli International.

cause we’re running every kind of curve possible. But these smart systems with these sensors allow us to digest a massive amount of data and then turn that data into something that our techs can take action on before a job is rejected. It allows us to be preventative. That’s exciting, not only what it does to the business and what it does to the customer. We’re able to make a great product and do it consistently.”

Jeff Grumbling, president, OptoTech Technologies, said the new production methods “are about how you take that data from the machine and put it in the facility manager’s hands. Not only is it about how many lenses do I get per hour, it’s also about how many times was my machine idle, how many hours of preventive maintenance was done on the machine, and when is my preventive maintenance due.”

Steve Swalgen, national director, lab business,

Continued on page 58

Strengthening Supply Chains and Creating New Business Models

The consolidation of the wholesale lab sector in the 1990s and 2000s by vertically integrated suppliers created powerful lab networks while thinning the ranks of independent labs. In the past decade, optical labs have faced rising capital equipment and labor costs. Those factors, plus the pressure to process high volumes of work for managed vision care customers, have pushed labs to improve supply chain efficiencies and, in some cases, develop more streamlined business models.

Essilor of America operates the largest lab network in the U.S. Essilor maintains dozens of full-service facilities spread throughout the country which it acquired over a 20-year period starting in 1996. The Essilor lab network is made up of both ELOA (Essilor Laboratories of America) that are wholly-owned and partner labs in which Essilor holds a majority stake. The company also works closely with a large network of independent distributor labs.

“Our lab network, at its core, is an integrated supply chain designed to reduce complexity while improving turn time and quality,” said Rick Gadd, the new president of Essilor of America. “Being able to continuously innovate and design service platforms for the future is critical for the success of our customers. Therefore, we continue to develop and enhance our solutions to meet the needs of our customers today and future demands of the highly dynamic optical market.” Gadd, who previously served as president of the Essilor Lab Group, told VM that Essilor doubled its investment in equipment this year alone, “to make sure we have the latest state of the art capital equipment in digital surfacing and coating.”

Gadd noted that Essilor recently has launched a Specialty Lens Lab service within its CustomEyes lab in Minnesota that will service patients with low vision and high prescriptions. The lab is modeled on a similar facility Essilor operates in France.

A different business model which is being embraced by both supplier-owned lab networks and major independent labs involves building large



Rick Gadd, Essilor of America.



Scott Pearl, Digital Eye Lab Network.



David Jochims, GSRx.

scale, highly automated labs with high production capacity. These manufacturing and distribution hubs are playing an increasingly influential role in the optical industry supply chain, supplying prescription lenses and frames to wholesale and retail customers, often with unprecedented speed and accuracy.

Operating a few, high volume labs as opposed to a number of smaller locations spread around the country has many advantages, according to Ettore Mosca, SVP of Luxottica global Rx operations. “Luxottica has invested heavily in its Rx labs, which serve both wholesale and retail customers,” Mosca said. He noted that the company recently opened a major distribution and manufacturing facility in Atlanta which complements its existing Rx labs in Columbus, Ohio and Dallas, Texas. “Our ability to improve quality and service can be concentrated in fewer locations, providing consistency to our customer regardless of the location making the eyewear.”

Zeiss has also geared its operations around three big, full scale labs. The lens maker’s facilities, located in Portland, Ore., St. Cloud, Minn. and Hebron, Ky. are integrated with a network of smaller, cut-and-edge labs that service local customers. This hub and spoke arrangement is designed to deliver consistent service.

Another lens manufacturer, Hoya Vision Care, also employs a hub-and-spoke model in which a full service lab in Dallas and a nearby distribution center feed a network of smaller labs that perform lens finishing and offer local service.

Independent labs such as Walman have also moved to the hub-and-spoke model in which full service labs in Minneapolis and Omaha service a network of smaller labs.

“The primary advantages of hub-and-spoke are more efficiency and productivity, both from a labor perspective, and significantly, from a capital perspective,” said Walman’s Bryan Schueler. “Because the capital equipment requirement—the leading-edge processing for lenses—is significantly

Continued on page 58

EXCLUSIVE LAB RESEARCH

New Study Provides SWOT Analysis for Labs

NEW YORK—Jobson Optical Research and the Vision Council's Lab Division conducted an on-line survey in August, 2018 to gain an understanding of how optical laboratory executives view the current business climate for labs, and how well they think their company is prepared to meet the challenges and opportunities they encounter in today's optical market.

A total of 87 active optical laboratory employees responded. Of the survey respondents,

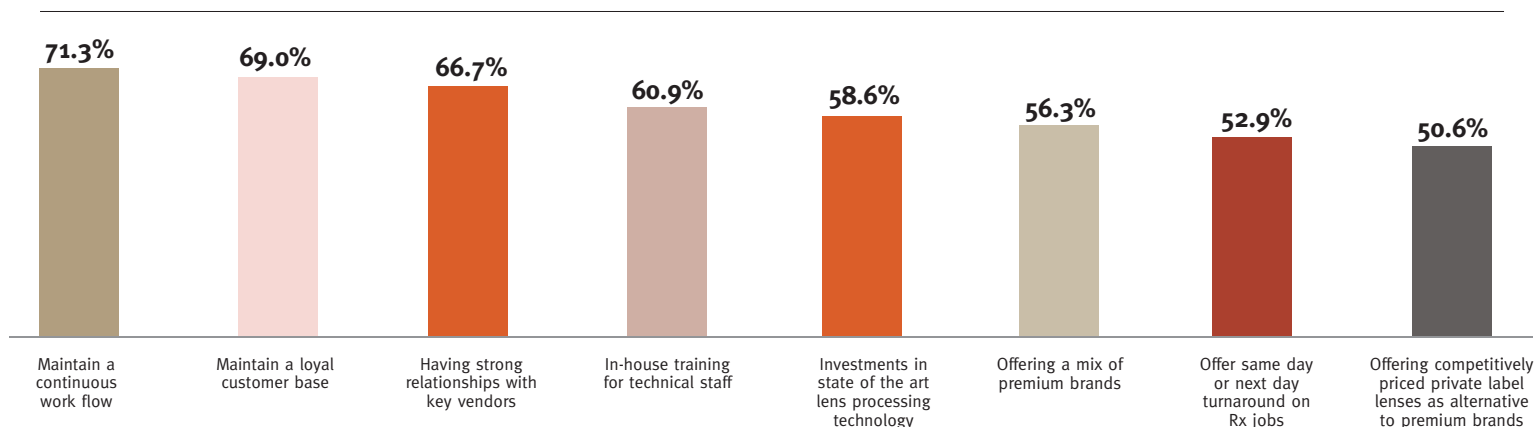
65 percent work in an independently owned lab; 17 percent work in a lab owned by a lens manufacturer; 12 percent work in a lab part of a retail chain. A little more than half of lab employees responding, (53 percent) are owners and/or lab managers.

These charts illustrate some of the survey's highlights. For the complete survey results, including more details about the perceived strengths, weaknesses, opportunities and

threats facing optical labs today, go to VisionMonday.com's Labs category, or attend VM's special event, The Modern Lab – Propelling Optical's Smart Tech Era. The event will take place at Vision Expo in Las Vegas in the Sands Convention Center, Level 1, on Thursday, September 27, from 5:00 to 6:00 p.m. The cocktail reception will follow from 6:00 to 7:30 p.m.

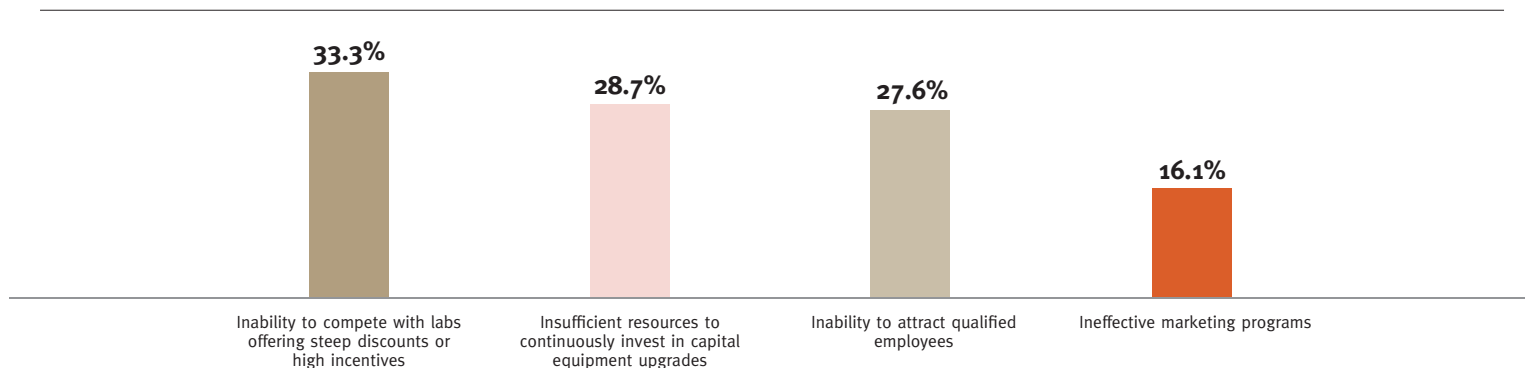
The event and reception are sponsored by Schneider, Filtertech and Ultra Optics. ■

PRIMARY STRENGTHS OF YOUR LAB



Source: Jobson Optical Research; The Vision Council's Lab Division

PRIMARY WEAKNESSES OF YOUR LAB



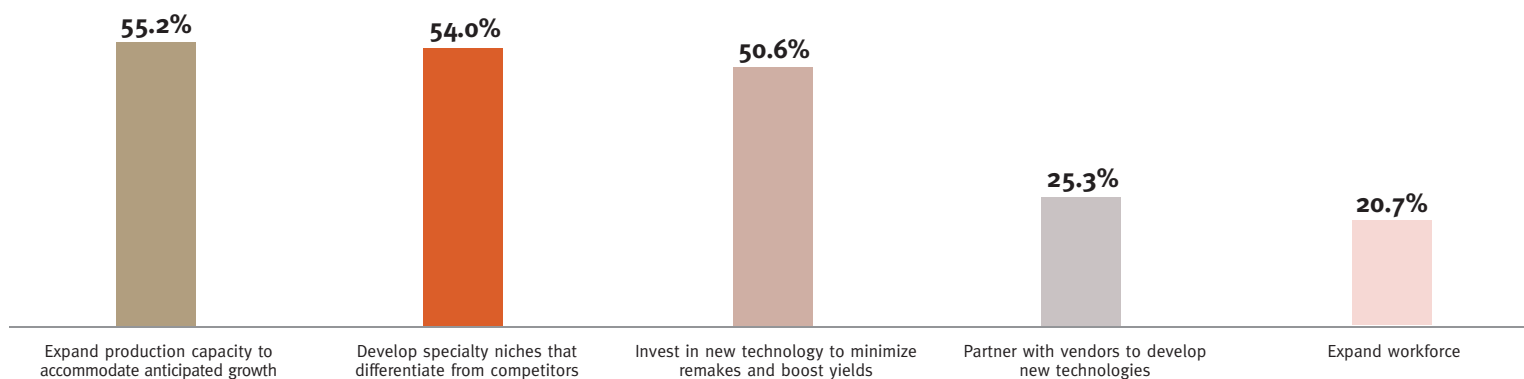
Source: Jobson Optical Research; The Vision Council's Lab Division

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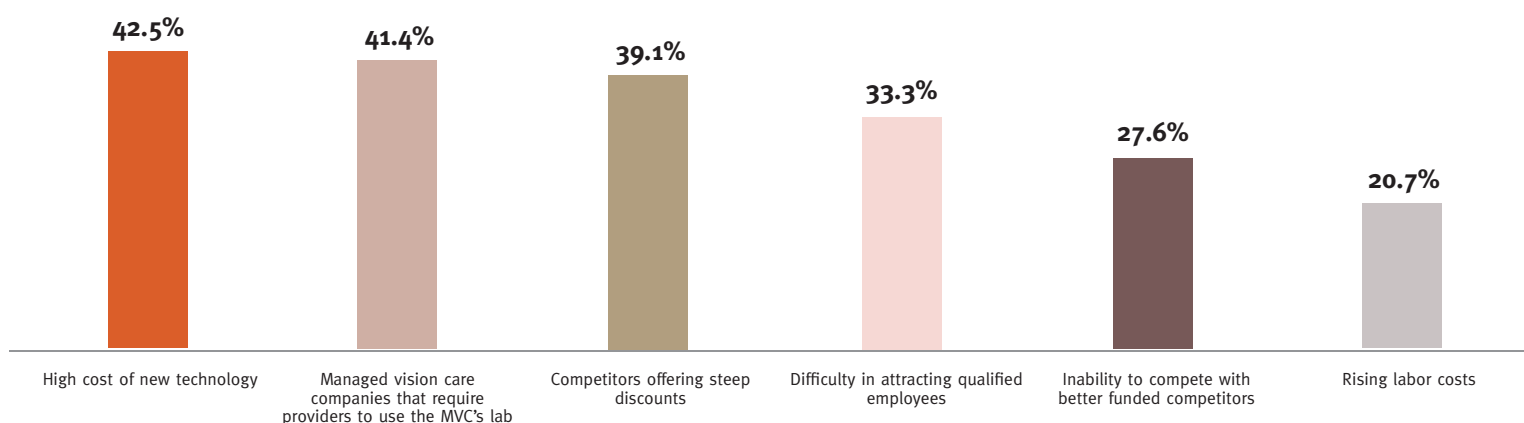
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BIGGEST OPPORTUNITIES FOR YOUR LAB



Source: Jobson Optical Research; The Vision Council's Lab Division

BIGGEST THREATS TO YOUR LAB



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Independents Differentiate Themselves With Specialties

A common strategy for labs seeking to differentiate themselves from competitors is offering specialized products and services. The advent of new technologies and the creation of new product categories has created opportunities for labs to distinguish themselves while developing profitable niches. Two labs that have successfully pursued this approach are Rochester Optical in Rochester, N.Y., which produces prescription inserts for smart glasses, and Vision Dynamics in Louisville, Ky., which specializes in glass lenses.

VM asked executives from both labs to explain why they selected their particular niche, what was required to make it a viable business, and how it has enabled the lab to grow.

Greg Novak, Chief Operating Officer Patrick Ho, President

Rochester Optical

Niche: Ophthalmic inserts for smart glasses



“By engaging in difficult engineering efforts, we sharpen our skills for our core businesses. Sometimes these R&D efforts lead to ongoing business opportunities, sometimes they do not. In the case of wearables technology, our team of optometrists, opticians, frame and lens designers wanted to solve the visual challenges for the users, improving the experience and usability of the technology and ultimately leading to a new line of business in both OEM lenses and aftermarket accessories to enhance the user experience. The goal was to develop solutions for binocular and monocular vision correction for smart glasses. That effort ultimately led to our “Smart GOLD” technology patents and to a distinct competency in engineering all types of prescription solutions for wearable devices.



Although we made significant investments in

an on-going R&D effort and the technology and equipment to support it, we think it is more important to consider the investment in terms of activities and outcomes, rather than counting the dollars. We invested in:

- The ideation and engineering teams
- Prototyping, specialized machine and design technology
- Fundamental R&D expertise and experience
- Freeform design and software development
- Business development and partnership efforts
- And obviously substantial Human Capital outside of those teams

We believe Rochester Optical is the leading provider of OEM and aftermarket solutions for the wearables industry. Our efforts have led to the development of a number of spin-off technologies for:

- The production of ultra-thin lenses
- Tools, fixtures and specialized machines to produce complex products often associated with the wearables segment
- 3D printing capabilities including design inserts and lens carriers

Rochester Optical now has customers in more than 50 countries due to these efforts.

John Dippold, President

Vision Dynamics

Niche: Glass lenses



strategic intention. A large retail client of ours wanted to outsource their glass work and asked if we would be interested in doing it. As we had

skilled glass people on our team, we agreed and created a glass lab. The niche chose us.

Because glass is a mature technology, machine manufacturers haven't designed new machines in decades. Older technology requires experienced repair and maintenance people. Some parts don't exist anymore, so you need to be creative to keep everything running properly. Glass also requires a skilled person to touch every lens. Forget computerized mass production. Traditional glass processing needs adept people, heavy training, and an artistic touch. Our lab people make it happen.

The capital investment to start the glass lab was significant. We had to create the lab infrastructure; electrical, plumbing, compressed air, chem hardening rooms, etc. The equipment was not as expensive as an automated plastic line today. However, a lot of equipment was necessary to start a high volume glass business. As the proper equipment is becoming rare and difficult to find, recruiting the right people and our investment in training on the front end has been a critical key to our success. The equipment is rare, the right people even rarer.

Entering this niche opened new doors for our company. What started off as an opportunity for some incremental revenue became a core expertise. We figured if one retailer wanted to exit glass because it's only 1 percent of their product mix, hard to do, and not a product open to automation, there were probably others. We were right. Retailers were open to our outsource proposition. We also found most labs were eager to outsource the hard stuff and free up lab space for expansion into automated digital plastic which is typically 99 percent of their product mix.

Today, our lab remains committed to glass and is 99 percent B2B. Our customers are other labs and retailers. This is a business model that didn't really exist before Vision Dynamics and now we are the largest independent glass lens processor in the country.” ■

The New Generation of Lab Start-Ups: Technology Meets Tradition

Just a few years ago, when all lab news seemed to be about expanding corporate networks and consolidation, the idea of new independent startup labs might have seemed like a pipe dream. But it was a dream shared by a number of industry veterans, and for some, it has become a reality. And while innovation and technology are a key to their business model, they are creating a future for the independent optical lab through an appreciation of—and even a nostalgia for—its past.

The dominance of large labs has created an opportunity for small lab owners, who believe their labs can deliver the kind of personalized service and attention to detail they say is missing from supplier-owned lab networks.

“It is a good time to open a new lab because the independent eyecare professionals still want an independent lab choice, and those options were dwindling with the many acquisitions and closures,” said Ronald Cooke, president of R&D Optical in Cincinnati, Ohio. “In addition, there are some larger consolidations that have opened opportunities to service customers who might not be excited to be doing business with huge, controlling, establishments.”

Keith Grossman, president of Simplify Optics, a Valencia, Calif.-based start-up, also saw a gap in the market. “A lot of the labs are moving more to an outsourcing model, more of a call center-edging model, rather than a full-service model. And we think that if you make the right investments in people and equipment, you can address a portion of the industry that has not been addressed in the right way in the last 10 years.”

Start-up lab owners see a strong customer focus as a key differentiator in today’s optical market. Said Brandon Butler, co-founder and president of lab operations for Pacific Artisan Lab in Portland, Ore., “I think a lot of the labs have similar technology. You only have so many available options, so everyone’s kind of on the same



Ronald Cooke, R&D Optical.



Kevin Lewandowski and Brandon Butler, Pacific Artisan Lab.



Keith Grossman of Simplify Optics, left, with partners Javan Diaz, second from right, Noel Diaz, right.

plane—it’s the same thing with lens designs. But I saw a lack of customer-centric focus from bigger labs, and that’s what really drove me to start my own lab.”

Automation: Not Just for Big Labs Anymore

Sometimes thought of as a competitive advantage primarily for large, centralized labs, automation can also be an enabler for startups. Said Warren Meyer, a lab industry veteran

who is in the process of opening Sierra Optical Laboratory, in Reno, Nev., “The new technologies have put advanced optical solutions in the hands of local operators.”

Butler sees this new level of precision available today as part-and-parcel to serving ECPs, and above all, patients: “(The latest equipment is) so pinpoint and accurate that we’re delivering a product to the consumer that is 10 times

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better than it was 15 years ago, before the advent of not only automation and robotics, but freeform technology.”

Grossman views freeform technology as a key to succeeding while staying small: “Because our lab is focused on producing 100 percent digital freeform backside progressives, you don’t have to keep the same size of inventory and you keep nearly everything you need on the shelf to produce every day.” The freeform-only approach also keeps manpower requirements low compared to traditional surfacing: “You had more human error, more manpower needed—it’s just a longer process.”

For Butler, human skill is crucial to the lab’s mission, and it is focused in the finish department. “Surface is more pushing buttons, and AR requires a lot of time and care and patience, but there’s not a lot of artistry; it’s more chemistry and attention to detail. But the finish side of the business, it’s just like somebody painting a picture. You have to create some artistry with it.”

Ryan Markey, president and CEO of My Friend’s Lab in Farmers Branch, Texas, took a somewhat different view of automation: “To me, automating and putting in digital ... just because it’s available isn’t always the best idea.” He emphasizes the importance of skill and optical knowledge in every aspect of the lab. At My Friend’s Lab, this includes digital surfacing. “Everything is manually loaded and unloaded. I’ll spend a little more on labor dollars in order to make sure that I’m not wasting time and/or resources on putting a bunch of stuff through that’s inaccurate.”

Small Is Beautiful—and Personal

These labs view their relatively small scale as an opportunity to be closer to their ECP customers and provide a more personalized level of service. According to Mike Karlsrud, an industry consultant and president of the Karlsrud Company, “They’re not really worried about (doing) 6,000 jobs a day; they just want 200



Mike Karlsrud, The Karlsrud Company.



Ryan Markey, My Friend’s Lab.

really great jobs a day.”

Butler emphasized his lab’s desire to partner with practices who share their vision of providing premium product and premium quality to patients. “The vision is to give that consumer exactly what they paid for. They go out and spend \$600 to \$700 on progressive lenses, and in my opinion that’s the Lamborghini of the industry. I think the lab industry has lost touch with delivering that Lamborghini. That’s our focus.”

Markey stressed the importance of a highly versatile staff at My Friend’s Lab. “To me, the more our staff knows, the more they’re able to do. We spend a lot of time and effort on training our staff. Pretty much everybody who comes to work here has to be able to run everything.” This includes the customer service and even accounting personnel, who work in the production area when they are caught up on their other work. In this way, the entire staff stays close to the product and the customer.

Traditionally, the relationship between the ECP and the lab has been a close one, and some fear that this element has gotten lost through round after round of consolidation and automation. Today’s start-up labs want to restore that relationship and deliver a tailored service experience to their customer. Karlsrud noted that start-ups are “...beginning to be highly customized and highly relational. It’s

a little bit of a throwback to the old school, where customer service and relationship-building were really in the forefront. It’s really a much more intimate experience than working with a large lab.”

Markey, for whom the relationships with ECPs are so important that “Friend” is part of his lab’s name, fears that the industry “has become so corporate in its mentality that the desire to help each other has disappeared. It was more about ‘Doctor, this is what I’ve got for you for your practice.’ It wasn’t, ‘Doctor, what do you need for your practice, and how can I assist you?’”

At Simplify Optics, the customer relationship permeates the entire organization, from the owners on down. “We think customers like to feel that connection to the lab, and understand that their immediate concerns are being addressed by hands-on people in the lab,” said Grossman. “It’s one phone call, and it gets you to somebody in the lab that can effectively expedite a job, or offer a quick solution or an answer.” He explained that the service is not just a matter of quality and turnaround time—there is an emotional element, too: “We think customers like to feel that connection to the lab, and understand that their immediate concerns are being addressed by hands-on people in the lab.” ■

Automation and Innovation

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for Santinelli International, also underscored the increasingly important role that preventive maintenance plays in controlling quality. “It used to be whereas the operators of the equipment were the critical factor in getting it right. Now it’s the maintenance people. You have less people involved in the actual operation, especially when it comes to industrial automation, and the more critical area is routine maintenance, daily, weekly or monthly.

Ultimately, it’s consumers who benefit from smart lens making technology. “Using all the data available from the machines and the systems allows owner-operators to be able to produce a higher quality product, which means the patient actually gets what was ordered,” said OptoTech Technologies’ Jeff Grumbling.

“Industry 4.0 will transform production: isolated, optimized cells will come together as a fully integrated, automated and optimized production flow, leading to greater efficiencies and changing traditional production relationships among suppliers, producers and customers—as well as between human and machine.”

The Boston Consulting Group, Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries.

The recent emergence of 3D printing technology for spectacle lenses, pioneered by Luxexcel, gives labs and ECPs a powerful new tool for create personalized lenses that satisfy individual patient needs.

“3D printing affords us unlimited options with regard to putting add power in the lens wherever

it might be needed depending on the wearer,” said Ronald Cooke, Jr., a longtime lab executive who just launched a new lab, R&D Optical in Cincinnati, Ohio. For instance, a pilot would need intermediate above and below for the instrumentation and distance in the middle. This will be possible with Luxexcel’s lens design software.” ■

Supply Chains Strengthening and Creating New Business Models

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higher than it’s ever been. The way we’ve figured out to do it cost-effectively, and that’s getting the most productivity out of it, and the 24-hour utilization of capital equipment out of it that we require, hub-and-spoke was the best way to go. Even if we were to split out of it something like surfacing, it doesn’t make sense that we don’t surface where we’re doing AR. The spokes have full edging capabilities and customer service centers, and are really our local touch-point for the practices we serve.

“We really find that our customers, independent optometrists with no more than two or three locations, or even a single location, really appreciate the local touch,” added Schueler.

Another large independent wholesaler, The Digital Eye Lab Network, a division of ABB Optical Group, operates four facilities located in Hawthorne, New York, Cincinnati, Milwaukee and Nashville, two of which are “super labs.”

“We have successfully extended a very similar fabrication footprint in our two super labs in New York and Ohio, while consistently optimizing our proprietary LMS system to functionally link our lab facilities,” said managing director Scott Pearl. He added, “Our lab teams benefit from a group of process engineers that provide data insights that guide our efforts around continuous improvements in speed, communication and quality.”

Digital Eye Lab’s business model focuses on offering the benefits of an efficient lab network to our customers, Pearl explained. “A single sales, customer service, web portal and product portfolio is our objective. Our customers benefit from the simplicity of working with a single facility combined with the service and product portfolio benefits found in a lab network.”

GSRx, a two year-old independent located in Scottsdale, Arizona, has developed a unique business model. Founder and CEO David Jochims saw an opening in the market for a lab that could

offer independent optometrists many of the same advantages as the big, vertically integrated labs but at a lower price point and with a competitive service level. GSRx accomplishes this by sourcing surfaced and finished lenses from various labs around the world, including some in the U.S. The lenses are shipped to Scottsdale, where most are finished and shipped to customers throughout the U.S., often mounted in frames that are also supplied by GSRx.

“We knew lenses were coming from near-shore or globally sourced laboratories and being sold to ECPs in the U.S. for well over \$100,” said Jochims, a lab veteran who had previously worked for a supplier-owned lab network. “So our goal was to take that same process and at least cut costs in half. I knew we could lower costs by leveraging mass manufacturing, state-of-the-art facilities throughout the world. We want to give doctors access to the most premium quality products we can at the most competitive price point.” ■