

# SMART MONEY

## How Strategic Investments Are Helping Labs Grow



ANDREW KARP / GROUP EDITOR, LENSES & TECHNOLOGY AND BRIAN DUNLEAVY / CONTRIBUTING EDITOR

NEW YORK—The optical lab business, at its most elemental, has always been a numbers game.

Running a lab, though, is a complex undertaking that involves more than simply dollars and cents. It also about the number of prescription jobs per day it can produce, and the percentage of those jobs that are rejected because

they don't meet quality control standards. It's about maintaining a job average that's calculated based upon production yields and the average price per job. It's about the cost of capital equipment, consumables, overhead, labor and dozens of other budget line items.

Today those costs are escalating, as anyone

who runs a lab or plans to start one, will confirm. Automated production systems and digital lens processing equipment, a requirement in modern labs, is expensive, and the cost of attracting and maintaining a workforce, particularly one that includes workers with computer

Continued on page 48



## How Strategic Investments Are Helping Optical Labs Adapt and Grow

Continued from page 46

and engineering skills, is also high.

“Running an optical lab is capital intensive,” observed Tom Sloan, a veteran lab owner and executive who left the industry in 2002 for the finance sector and who is now returning as an investor in a new lab, Independent Optical Lab, in Greensboro, N.C. “Some of that comes from the fact the machinery is much more sophisticated, with all the automation and robotics, than when I left the business. That sophisticated equipment produces a higher level of quality and consistency in the product, and the market is demanding that now.

“With the sophisticated product and higher level of quality, the economics of the market have changed as well,” noted Sloan. “Today, both at the retail level, the optometric level, and at the wholesale level, there’s been an inflation in the prices. There’s more money being made at retail and is available to be made at wholesale today than there was in my previous era.”

Although the rewards of running a successful lab can be considerable, so too, are the risks. In addition to steep capital equipment and operating costs, labs face increasing demands by customers for rapid, personalized service, the ability to supply customers with an ever-growing range of sophisticated, high quality products and the need to offer those products at competitive prices.

These factors require labs to make significant

investments at all levels of their business. Miscalculations—failing to automate certain processes, relying on a vendor who can’t support their product, waiting too long to upgrade equipment—can result in costly downtime and lost revenue. The margin for errors is slim, and the pressure to succeed is higher than ever before.

Labs are, out of necessity, taking a critical look at the investments they are making in facilities as well as in human resources. In the following

profiles, we spoke to nine leading lab owners and operators about their own investment decisions, and how new technology has and/or will change the way they process lenses.

We also share the findings of a new Jobson Research/Vision Council survey that reveals which technologies require the most investment, which provide the best return on investment, when to automate production and how lab investments are being financed. ■

### 10 Key Findings From the Lab Investment Survey

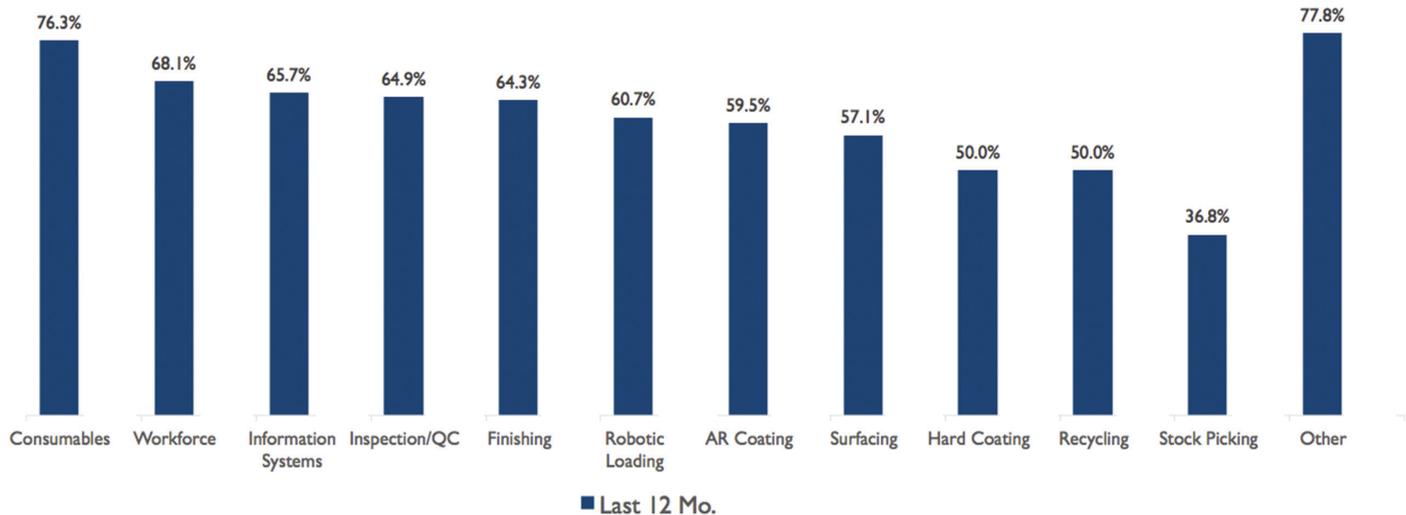
- **Over the past year a majority (80 percent) of labs have increased their investment in equipment/systems.**
- **For labs who stated they increased investments in equipment/systems, 30 percent have increased their investment by over 25 percent.**
- **AR Coating, finishing, and workforce were the most important purchases for labs in 2019.**
- **The driving factor for labs in their investment decisions is that equipment was too old and costly to maintain.**
- **Over the past 12 months, 40 percent of labs financed less than 25 percent of their investment in equipment/systems in cash.**
- **Only 18 percent of labs have invested over \$1 million dollars in workforce (salaries, training, cost benefits) in the last 12 months.**
- **AR coating, finishing and surfacing had the highest average ranking (4.5/5) on potential return on investment.**
- **About two-thirds (66 percent) of labs have increased the investment in their lab workforce over the past year.**
- **One third (32 percent) of labs believe the threshold for automating a lab is 500 jobs per day.**
- **When considering the future of the optical lab business, most (62 percent) say they are optimistic.**

To access the complete results of the Modern Lab survey go to the September Cover Story on [VisionMonday.com](http://VisionMonday.com). 

# The Modern Lab Report: Where Labs Invest



## WHICH OF THE FOLLOWING CATEGORIES HAVE YOU INVESTED IN?



Jacobson  
**OPTICAL**  
RESEARCH

Modern Lab Survey 2019

5

## Streamlining the Production Process

**Bill Heffner III**  
**Bill Heffner IV**  
**FEA Industries**  
Morton, Pa.

Over the past year, Morton, Pa.-based FEA Industries has made significant investments in its surfacing department, adding new stackers and de-stackers and installing a robot arm for lens-picking. The lab has also implemented a RAX lens inventory management system and is working with a new laser-based device for lens marking that is not yet on the market.

These changes, coupled with the acquisition of two new edgers in the finishing department, an automated photochromic dip coater from Buehler, two Velocity hard coaters from Coburn Technologies plus the installation of DVI lab management software (LMS) were part of an overall investment of \$1.5 million in the facility. According to owner William H. “Bill” Heffner III, the lab spends that



Bill Heffner

amount annually in equipment upgrades.

“We try to stay ahead of the curve technology wise and bring in a lot of new toys,” he noted.

Heffner is particularly impressed with the Velocity coaters. “The machine has a steaming unit that cleans the lenses better than by hand. This improves the yields coming out of the machine,” he noted.

These investment decisions involve more than just having all the latest bells and whistles, how-



An A&R robotic system helps keep the workflow steady.

ever. Heffner and his son, Bill IV, said they only bring in new technology that promises a high rate of return on investment.

“Ideally, we want new equipment to essentially pay for itself within three years,” the elder Bill explained.

There are tax advantages to re-investment, of course, but the biggest returns are derived from reduced labor costs. Prior to making the afore-

**Continued on page 53**

## The Modern Lab Report: Where Labs Invest

### Continual Process Improvement

**Christophe Jacques**  
**Costa Rx Lab**  
 Daytona Beach, Fla.

**T**he Costa Rx lab in Daytona Beach, Florida is unique because it is dedicated to producing Costa Sun Rx. In fact, the lab offers prescription versions of Costa's entire plano sunglass line, including its signature 580 Lens Technology.

Although its output is relatively small—ranging between 250 to 450 jobs per day, the specialized nature of the jobs requires unique processes and procedures. Eighty-five percent of the lenses processed by the lab are made of either polycarbonate or Trivex lenses, with glass accounting for the remaining 15 percent. All of them feature a Costa colored mirror coating on the front side, and an AR coating on the back, and all are polarized lenses with a 6 or 8 base. The combination of these elements provides a unique set of challenges for the lab.

Adding to the challenge are the high expectations of Costa's customers. "Our customers are very discriminating, so Costa Rx sunglasses need to deliver the same performance and looks as the plano version, without being able to notice that it is an Rx pair of sunglasses," said lab manager Christophe Jacques, an optical industry veteran who has an extensive background in engineering and R&D for sunwear and lens coatings.

"We work very closely on the coating, finishing and edging processes, trying to optimize the fitting of the lenses into the frame," he continued. "We need to know everything about the lenses from the time they are conceived and generated in the surfacing department."

The Costa Mirror process is done in-house, using vacuum thin film deposition technology. Each mirror coating is designed to offer a perfect bond to the lenses and is composed of several layers of high-density materials applied to the lenses finished with an oleophobic coating designed to protect the glasses. "We are using standard equip-



Christophe Jacques



Costa's Rx production team works closely with its product development team to optimize the manufacturing process and ensure consistent quality.

ment, but the way we utilize them, the consumables, chemicals, the way we evaporate them is unique to Costa," Jacques noted.

To develop the Rx processes and coating recipes that each product and frame style requires, the lab's production team works upstream with Costa's product development team, taking into consideration all frame and product technical information. "This data is also used to calculate and design each order to ensure that it delivers the best performance, protection and look for the patient," explained Jacques. He added that creating the Rx processes and recipes involves a lot of prep and validation work, which requires employees to be specially trained in engineering and continual process improvement. Costa increased its investment in the lab workforce by 20 percent over the past year, mostly through training, according to Jacques.

"We invested the time and resources to train our support team so they could gain the expertise we need, and also develop new ideas. It's a slow process at first, but once you start getting results, it's very exciting," said Jacques.

Costa has also invested heavily in technology. Within the past three years, the lab has installed Satisloh surfacing equipment. (Both Costa and Satisloh are owned by Essilor.) In just the past 12 months,

the lab has invested in finishing, anti-reflective coating, thin film processes, robotic loading, inspection and quality control, consumables and recycling. Some of these investments have already generated a significant return. For example, AR coating—which in Costa's case means mirror coatings—have generated a 15 percent increase in productivity while reducing spoilage by 2.5 percent, Jacques said.

The Costa lab has automated many production processes, most recently its glass edging operation. However, not all processes are automated. "Processing high curve lenses has limited options in automation," Jacques noted, adding that some prescriptions are out of range for certain frames styles.

Costa's focus on continual process improvement means that Jacques and his team are always exploring new ways to improve efficiency and quality. That requires a flexible approach to problem solving. For example, because of the relatively limited selection of glass lens processing machinery on the market, Costa converts some plastic lens processing equipment to produce glass Rx jobs. "We're talking to some vendors to see how we can overcome this technical constraint," said Jacques. "We're focusing first on edging glass lenses for high wrap frames. We're developing new tools for that. There's a lot of learning involved." ■



## Streamlining the Production Process

Continued from page 50

mentioned upgrades, FEA, which produces roughly 2,000 jobs per day with around 70 employees, was running essentially three production shifts. New equipment and accompanying changes to the lab's workflow over the past five years have enabled the Heffners to operate with a 12-hour staggered shift, in which some departments (surfacing) work from 6 a.m. to 2 p.m., while others (finishing and shipping) are on the clock from 12 p.m. to 8 p.m.

"New technology has allowed to reduce number of hours for our workforce but still get same throughput by streamlining the production process," Bill IV said.

Both Heffners emphasized that the changes haven't just reduced the workforce, but enhanced it. "We have kept our better employees and moved them to different areas and cross-trained them," Bill

III explained. To keep high-performing staff happy, the lab offers health benefits (of course), a competitive salary and a profit-sharing plan.

Another area that has been enhanced by the re-investment has been inventory control. With the new inventory management system, the lab has been able to reduce its lens inventory significantly. In the past, FEA maintained a lens inventory worth \$1.2 million. "The new system has allowed us to stock just what we need for real tight inventory control," Bill III noted. "Now, we inventory about \$500,000 in lenses. That reduces our overhead and improves our cash flow."

As big a role all of the new equipment has played in these improved efficiencies and cost-savings, though, it has been the new LMS from DVI, which was installed in April, that has affected the biggest change, according to the Heffners. The software connects all functions of the production process, from lens picking at the

start to surfacing, finishing and coating, allowing lab managers to better control for quality and efficiency.

With the LMS helping to monitor the process and robotics (from A&R) bringing jobs from department to department, FEA is essentially fully automated, except for its AR department, which is at present only partially automated. This transition has allowed the lab to shave one day, on average, off its turnaround, even with fewer workers on the floor.

"Unlike every other mass-production industry in the world, everything an optical lab makes is custom, and all our customers want it yesterday," Bill IV said. "Automation has essentially allowed us to standardize everything. Today, production is more predictable and better controlled. Ultimately, that means more efficiency and less human error, which means better products and service to our customers." ■



## The Modern Lab Report: Where Labs Invest

### Automating for Increased Productivity

**Matt Iovaldi**

**Midland Optical**

St. Louis and Chicago

**F**or a lab like Midland Optical, which operates through two locations in St. Louis and Chicago, the decision to automate may seem like an easy one, given that it processes more than 4,500 jobs per day combined through both locations (3,800 in St. Louis and 700 in Chicago). However, owner Matt Iovaldi emphasizes that automation isn't only about increasing—or maintaining—volume.

"All of the new equipment we've added to our labs allows us to produce better lenses," he said. "So, yes, while upgrading our production lines has allowed us to improve efficiency, both in terms of time and cost, which has helped our bottom line, it has also enabled us to service our customers better, through better-quality products."

For Midland, which is an Essilor Partner Lab, re-investment in laboratory infrastructure is a cyclical process. According to Iovaldi, the lab spends roughly \$500,000 to \$1 million every 12 to 18 months on new equipment. Over the course of the most recent 12-month cycle, Midland has purchased two 4RacerTBA edgers from MEI Systems to bolster its finishing department, which already included two Bisphera-XDDs from MEI. All four edgers are high-speed, high-throughput systems, Iovaldi noted, and are totally blockless. As a result, Midland's can finish as many as 180 jobs per hour.

"Obviously, that's changed the whole nature of our finishing department," Iovaldi said.

Within the past 18 months, Midland has also purchased two Satisloh VFT-orbit 2 generators and three Satisloh Duo-FLEX automated polishers, and added a Schneider Modulo de-taper and a Modulo deblocker as well as a 44R backside coater from Ultra Optics. Now, the lab has



Matt Iovaldi



Lens inspection, an essential part of quality control, is still done by hand at Midland Optical.



Edging equipment from MEI Systems helps increase throughput and speed production.

fully digital, fully automated, robotic production lines in which all of the machines are fed via conveyor systems. The whole processing department is run through a lab management software platform developed by DVI.

"Once the job is blocked in the surfacing room and goes down the line, it's not touched again until it's generated, polished, backside coated and engraved," Iovaldi explained.

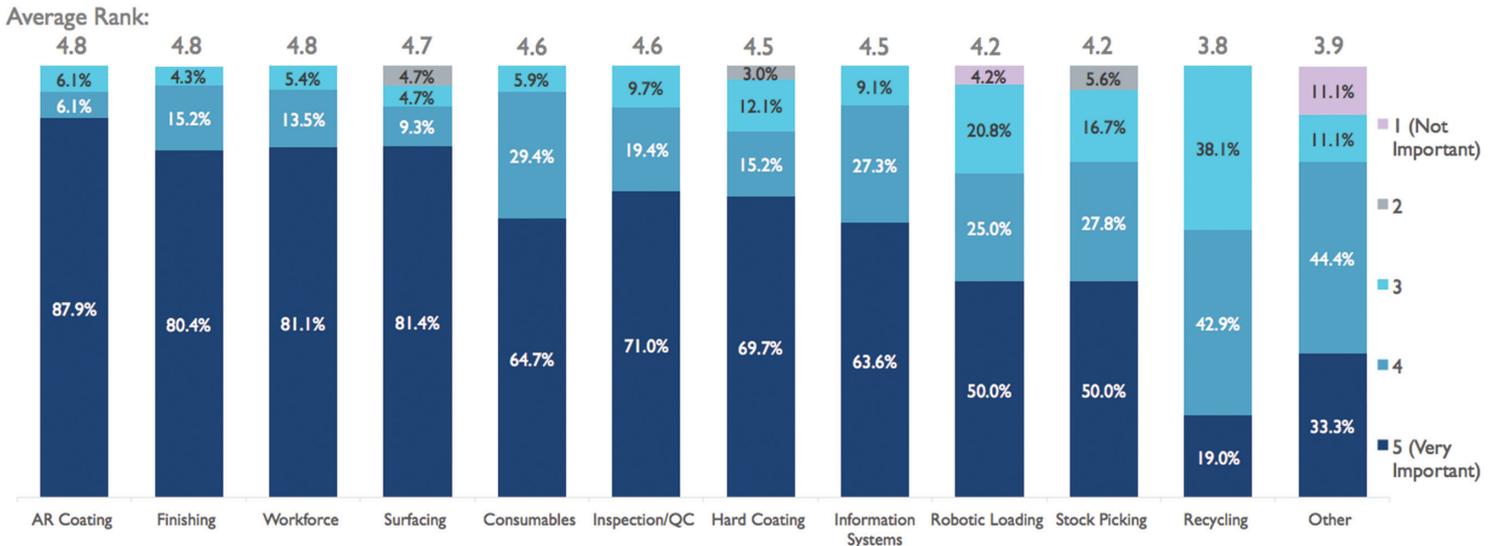
All of this automation has enabled Midland to save significantly on labor, which Iovaldi describes as the "biggest cost in the lab." However, instead of "laying off" staff, the lab has simply kept staffing levels flat, and repur-

posed workers away from newly automated functions to those that are still performed by hand—namely, inspection and mounting of finished jobs.

"Basically, we can produce more work than we've been able to in the past with the same amount of people," said Iovaldi, adding that the improvements have allowed the lab to maintain nearly 10 percent growth in revenues annually over each of the past five years. "Today, our employees are almost machine operators as opposed to optical technicians, and they are producing work faster and more accurately." ■



## HOW IMPORTANT WERE EACH OF THESE PURCHASES TO YOUR BUSINESS?



Modern Lab Survey 2019

## Re-Engineering for a Competitive Edge

**John Art**  
**Interstate Lab Group**  
 Ontario, Ohio and Indianapolis, Ind.

The Interstate Lab Group re-engineered one of its two locations—in Indianapolis—over the past year, transitioning the facility from conventional to digital processing, with two surfacing lines and automated edgers from Satisloh and Santinelli as well as a fully automated hardcoater. According to co-owner John Art, all of the new equipment is connected via a system of conveyors, which is also new, and a new Crizal AR coating facility has been integrated as well.

“It was probably the biggest challenge of my career,” Art said. “It was like rebuilding an airplane while you’re still flying, because it’s not as if customers stopped sending orders in. They still wanted quality eyewear on a timely basis.”



John Art



Satisloh’s high-performance VFT-orbit 2 generator has increased Interstate’s volume, allowing the lab to produce up to 100 lenses per hour.

In all, the project cost Interstate more than \$5 million, and it meant that both of its locations—the other is in Ontario, Ohio—are fully digital, fully automated and offer in-house Crizal AR coating (Interstate is an Essilor Partner Lab). The Ohio location also added a third fully digital production line as part of the work, and a 4Racer

TBA edger from MEI Systems helped bolster the finishing department. Many of the functions of final inspection and quality control at both facilities are automated, using the Control Unit from Automation & Robotics.

Together, the two facilities process more than

**Continued on page 59**



## The Modern Lab Report: How Labs Benefit from Their Investments

### Banking on Talent and Technology

**Ben Collier**  
**Independent Optical Lab**  
 Greensboro, N.C.

As the pace of consolidation in the wholesale lab sector has slowed, a new crop of independent labs have emerged to fill the void left by wholesalers that have been acquired by suppliers. Sensing an opportunity to serve independent eyecare professionals who would prefer to support other independents, these startups are aiming to offer high quality products at competitive prices—not an easy balance to achieve.

One of the newest entries into the market is Independent Optical Lab (IOL) in Greensboro, N.C. In fact, the lab hasn't yet opened for business, although a soft launch is planned for this fall.

Financial backing for the new venture is being provided by a team headed by Tom Sloan, a veteran wholesale lab owner and executive whose family started Southern Optical and operated it for many years.

Asked what the three most important investments he has made in IOL, lab founder Ben Collier said replied, "Talent, technology and time."

"As a new lab, investing heavily into talent was a non-negotiable for us," said Collier. "As more and more large corporations pull resources from the front lines of their labs, in the form of understaffing and lower wages, we wanted to buck that trend."

"Our investment in talent at IOL will take the form of above-market pay for experienced lab technicians and managers, a minimum of a local living wage for entry level talent, and highly competitive benefits."

"IOL will invest further into talent by staffing critical lab processes, such as quality control, to a higher degree than a comparable automated lab might," said Collier.

Regarding technology, Collier was quick to point to that freeform process and lab automation have brought new and impressive levels of production to



Ben Collier (l) and Greg Pittman, with a Schneider EBC 900 AR unit.

the industry. He stressed that he and the management team at IOL want to ensure that their investment in technology is both up to date and forward-looking.

"By investing heavily in the most advanced technology up-front we can immediately meet and exceed the demands of our accounts for high quality work, top service and fast production. Perhaps the best example of this is the question of whether a lab invests in manual freeform technology with a plan to upgrade when the incoming jobs can justify the expense, or instead invests in automation up-front and hopes they can pay for it with incoming work. For IOL, the larger risk was in having to upgrade to automation mid-stream and work with new lab processes amid current demand from accounts. We chose to invest heavily into the best equipment and automation at the start so we could provide our customers with top quality and service now and on an ongoing basis."

Collier chose the Schneider Modulo line to automate most key lab processes. "As a newer lab the automation that the Modulo line provides is critical to our growth plans and the Schneider Control Cen-



Ben Collier (l) with Tom Sloan.

ter will be installed in the early stages to allow for enhanced monitoring of our automated processes," he explained. "As IOL grows and gains business the Schneider Control Center will play an important role in monitoring our machines to ensure we catch any process errors before they affect our growing customer base. In addition to the Modulo line and Schneider Control Center we have partnered with DVI to provide an LMS experience that will give us a winning combination of automation, control and monitoring software and lab management."

Collier admitted that the process of getting a new lab off the ground has taken longer than he originally planned. However, he sees an upside to this, since it has allowed IOL to position itself for long-term success.

"When there is plenty of time to think, there is plenty of time to plan ahead, ask questions of other lab managers and owners, and gain perspectives outside of one's own experience. Having had the time now to plan a new lab with the future in mind has positioned IOL to produce top quality work right away and handle sustained growth for years to come." ■



## Re-engineering for a Competitive Edge

Continued from page 56

3,000 jobs per day.

“We really did a full reconfiguration of the lab in both locations,” Art explained. “The goal was to improve workflow, and I think we’ve done that.”

Still, the long-time lab owner said the decision to upgrade both labs was driven by a number of factors, including staying ahead of regional competition and the need to replace aging equipment that was becoming too costly to maintain. Ultimately, though, Art noted that the changes will provide the biggest return by allowing the company to reduce “staff headcount by attrition.”

He explained, “We’re not cutting staff, but we are re-assigning employees who perform tasks that have now been automated, like layout and blocking, to non-automated jobs. And we’re eliminating positions as people leave. Being able to do more with less people is a significant factor. The biggest factor with automation in my opinion, is that it improves the speed of the operation. People can be erratic. Automated systems run the same every day, and that allows us to adjust personnel accordingly. The technology allows us to balance our most important resource, which is still our people, with the market demand for speed.”

Another advantage of the automated systems, Art said, is the data they can collect. Although his labs run on systems from a number of vendors, all of the production lines and sections are integrated into the company’s lab management software (from DVI). State-of-the-art software collects data on production and quality that allows the lab to “tweak” as needed throughout the day, correcting for any workflow disruptions and Rx accuracy problems that arise.

“Newer equipment captures so much data, and if you’re not using that data beyond that one job you’re missing the boat,” Art said. “You can and should use it to refine the process down the line.”

That said, Art would like to think all of these changes haven’t changed the quality of eyewear his labs produce—because it was high to begin with. “We did a good job the old way and we’ll do a good job the new way,” he said. “Customers expect you to keep up with the times when it comes to making glasses but, at the end of the day, they want a quality job in a timely fashion. They don’t care how you deliver it.” ■



## Good Data Equals Good Results

**Mike Tamerius**

**P.O.G. Optical Group, Inc.**

Creston, Iowa; Franklin Park, Ill.  
and San Angelo, Texas

**P**recision Optical Group, or P.O.G. Labs for short, is a full-service lab headquartered in Creston, Iowa. The company also operates a branch in San Angelo, Texas and has a partnership with Opticote in Franklin Park, Ill.

Founded by high school friends Mike Tamerius and Matt Somers in 1992, it has grown into one of the largest independent lab companies in the U.S.

The cost of running a lab has steadily increased over the past 27 years, said Tamerius, who is now P.O.G.'s sole owner and CEO.

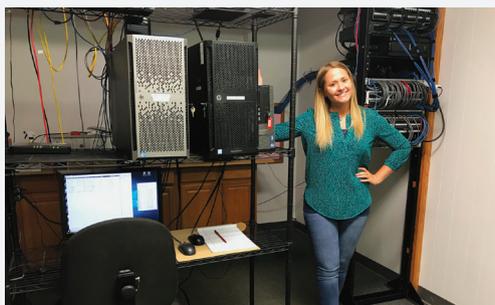
"Everything has increased, from property taxes on up. On the supply side, the raw materials and consumables, and the raw material cost with the onset of freeform lenses, has decreased. But the cost of tools for generators, polishing pads, even lens polish, has continued to increase in cost. We've tried to offset those increases by getting better at the process, finding ways to produce more lenses."

To accomplish that, P.O.G. has invested heavily in surfacing, finishing and information systems. "Our primary goal is to invest in technology that will provide efficiencies in the production process and allow more throughput," said Tamerius, who is now the company's sole owner. "There are times we make a decision based purely on the economic advantages of a particular automation, but many times there is an ROI of additional throughput that is more important to us."

Tamerius stressed the importance of investing in information systems that can process data quickly, accurately and reliably. "I want an order to go from the ECP to my surface room within a matter of minutes. Creating that link is critically important, and most of the LMS systems are way behind in this area, so we are working with third party vendors to make this happen." He added that P.O.G. is spend-



Mike Tamerius



Administrative assistant Brenna Howarth handles the IT coordination. The lab's computer systems are housed in a climate controlled room. The maintenance crew does all the hardwiring and terminations.



Gabbi Tercero, finish room supervisor (front) and Tina Wilson, production manager operate Satisloh ES4 industrial edgers.

ing 30 percent more each year on information technology, and has contracted with multiple internet providers to insure continuous service in the event of an outage. "If one provider in the local area has problems with their service, it rolls over to the next one," Tamerius explained.

Yet even the best hardware and software doesn't guarantee that Rx jobs will be processed correctly. "With today's automated systems, it's important for customers to input data accurately when they place an order," said Tamerius. "Customers have got to put in accurate data if they want us to make a good product. With the old school lab of 20 years ago, customers assumed that some technician along the line with calipers was making decisions about how thick or thin to make a lens. That's really not the way anymore. The data you put in is the result you get out. So not only do we have to train the customers and help them with optics, but we almost have to train them to be a data entry clerk. We've spent a lot of time, effort and money to trying to simplify that process for the customer."

Attracting and retaining employees is another priority that requires a considerable expenditure of both time and energy. "The workforce demand has increased to a ridiculous level, particularly the amount of time we spend dealing with employees and their issues and try to adapt our business to them. Trying to incentivize workers and grow them with the business while keeping an eye on the cost per unit is critical.

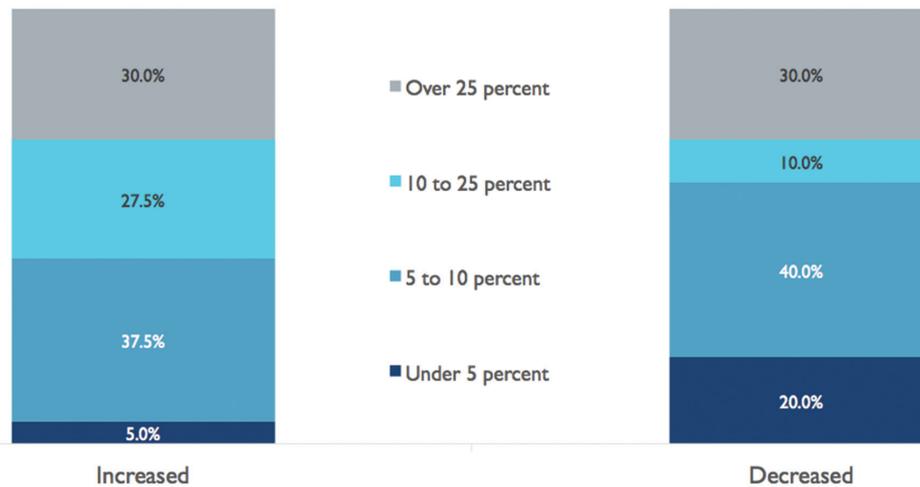
"Having the greatest workforce in the industry doesn't always allow you to stay competitive in the market place," he noted. "I think you have to be realistic with what we have for a current workforce and build your business around what you have to work with."

Like most lab owners, Tamerius has automated many aspects of lens production. Yet he was quick to point out that automation brings with it a new set of workforce issues. "Automation requires more technical maintenance, production supervision and information systems administration. Automation doesn't mean you are going to cut your labor costs. In fact, the average wage is likely to go up, but the number of employees will likely be lower." ■

# The Modern Lab Report: Investment Trends



## INVESTMENT IN EQUIPMENT/SYSTEMS HAS INCREASED/DECREASED BY HOW MUCH?



Johnson OPTICAL  
RESEARCH

Modern Lab Survey 2019

13

## Top to Bottom Automation

**Paul Ponder**  
Maui Jim Rx Lab  
Peoria, Ill.

**A**utomation drives the Maui Jim Rx lab. In fact, the entire surfacing and finishing process at the Peoria, Illinois facility is automated.

This significant investment in technology has resulted in faster throughput, less employee handling, reduced breakage and redo's and improved service and quality, according to Paul Ponder, who serves as vice president, global Rx manufacturing for the Hawaiian-themed sunglass brand.

"Once we pull the Visionstar order ticket, we can literally put trays at the front of the line, and they don't need to be touched by an employee, all the way through surfacing and finishing, until they come out of the MEI edgers," said Ponder, adding that the surfacing lens waste removal is also automated.



Paul Ponder, with Coburn Technologies' Velocity Spin Coater.



Schneider's DBA Modulo deblocker is an essential component in Maui Jim's automated Rx production line.

"The rule of thumb in the Maui Jim lab is I don't have people carrying stacks of trays," he continued. "The tray goes on the conveyor belt on the front of the line. Once they put the lenses in the trays it's first in, first out, no matter what material is or what type of prescription it is or what coating application it is. Everything goes on the line as it's received. The only place we batch and have stacks of trays is in our AR facility. That's because we're doing so many different types of coatings. We're doing bi-

gradients in different colors, we doing solid mirrors in different colors, we're doing AR, so we have to batch accordingly for these different requirements."

The Maui Jim Peoria lab went through extensive re-engineering over the past years to become fully automated. The current facility was built in 2006 and 2007 and was a conventional lab at that time. Once it transitioned to a fully digital processing lab, the layout of the lab changed completely, as new

**Continued on page 66**



## Making Automation a Priority

**Chuck Bohler**  
**Robertson Optical Laboratories**  
 Atlanta, Ga. and Columbia, S.C.

Optical labs have always been a capital-intensive businesses, but never more so than today. The cost of digital systems and equipment, much of it automated, requires substantial investments by labs that need to have the latest technology in order to remain competitive.

A case in point is Robertson Optical, which over the past year has increased its investment in technology by at least 75 percent, according to general manager Chuck Bohler. “We put in a whole digital surfacing line, with conveyors,” he noted. After looking at surfacing equipment from several vendors, Bohler settled on Optotech because the company offered “more automation for similar amounts of money” and an 18-month warranty.

“One of the things we really like is their IQ-Star, which is an octagonal shaped tower that stacks as many as 106 jobs waiting for cooling, then sorts them and sends them out on the conveyor line. Then the IQ server software, which is part of the package we purchased, sends them out to either the Optotech Flash or Schneider generators that are waiting to run lenses.

Over the past three years, Robertson also acquired other big ticket items, including a new hard coating system, AR coaters, inspection and quality control equipment, and an air compressor. Bohler said the investments that have generated the best return so far are the digital surfacing equipment and the AR coaters, which included an ion source.

Bohler cited several main factors that drove Robertson’s investment decisions: 1) old technology needed replacing; 2) accuracy of the Rx; 3) tremendous growth of backside lab brand progressive lenses; 4) the need to produce high-



Chuck Bohler of Robertson Optical with Optotech’s IQ-Server and IQ-Star stacker/destacker.



Robertson Optical uses a robotic loading system to speed production.

er quality AR coatings; 5) increased labor costs.

Robertson’s investment in its workforce grew 15 over the past year, “because of the technical/mechanical knowledge needed for new lab employees and customer service people that are better trained in IT,” Bohler said.

Like most labs today, Robertson has made automation a priority. The lab has automated a number of key functions, including digital generating, stacking/destacking, digital polishing and laser engraving. A smart conveyor joins all the automated equipment and a lab server direct trays to the proper equipment.

“Automation has enabled us to continue production when employees are out sick or on vacation,” Bohler noted.

He observed that big labs aren’t the only ones that can benefit from automation. “Automation makes sense at nearly every level of volume, he said. Even a 200 job-a-day lab could benefit from a basic level of automation. Edging systems have automated a number of processes in a small footprint. Any new lab should be considering digital surfacing and possibly some level of automation from the start.”

Bohler said automation is also appropriate for the skill set that many lab workers bring to the job today. “The current labor force is more in tune to the computerized, less hands-on surfacing methods that automation brings to the lab.”

Bohler believes that even at highly automated labs, the human touch is still important in some aspects of lens processing. “Blocking is still manual. We’re still using a taper from PSI, but we don’t have it automated with conveyor belts. We still have a person there.

“After generating, the swarf management is still manual,” said Bohler, adding, “I’d love to automate that with a briquette machine.”

Although there are plenty of automated lensmeters on the market, Robertson Optical still relies primarily on a manual model. “I grew up on a model 70 B&L vertometer,” Bohler said. “As far as I’m concerned, that’s still tops. With the automated equipment, the level of trust just isn’t there right now. So we actually have humans that are actually inspecting the lenses for power, axis, pits, bubbles, scratches and alignment.” ■



## Adding Capacity for New Business

### John McManus

Black Lab Optical  
Phoenix, Ariz.

Having just opened in 2016, Black Lab Optical, an independently owned facility in Phoenix, isn't fully automated yet—but is considering installing a fully automated production line later this year or early next, according to COO John McManus. Indeed, McManus sees the potential move to full automation as a natural continuation of the young lab's growth. Black Lab recently added a second shift and with one full production line—with the addition of a second EZ Fit No Block robotic edger from MEI Systems in the spring—it's producing roughly 190 jobs per day. In fact, that second edger has fueled some of that growth.

"Adding robotic edgers has opened up new businesses for us," said McManus, whose lab also already has an in-house AR coating system. "We have a safety contract now because we can process those jobs with this equipment. We have group practices coming to us and in order to service them you have to have the capacity."

This return on investment is particularly important for smaller labs such as Black Lab, given that



Ed Sowers, Kelley Gundersen and John McManus



Automating the finishing process has contributed to Black Lab Optical's growth.

today's newer, robotic edgers can cost as much as \$100,000, with all of the extra features and accessories. Older-line systems are available at roughly one-third of that price.

"The technology has changed dramatically over my time in the industry," said McManus. "I use the analogy of moving from an old V8 Cadillac to a Ferrari. Compared to today's technology, the edgers we have used for years are simplistic and you have to do the blocking by hand. And then there are consumables you have to purchase to use them. Newer finishing systems are far superior to what we had before, and what we've seen is that, with them, we can increase production time, improve accuracy and reduce breakage."

For McManus, upgrading production technology has been a constant process since the lab opened

three years ago. Black Lab shifted from older, manually operated generators to automated systems from Opto-Tech 18 months after it opened, and McManus is already looking at going fully automated, once the lab reaches what he calls the "sweet spot" of 350 to 500 jobs per day. One

area he said labs often overlook as they make this transition is infrastructure.

"You need space to install a fully automated production line, and you need to have the power"—as in electricity—"to run the equipment," he added. "That means, the capacity to go three-phase, 440-volt, and the ability to go up or down on transformers."

In addition, as most new systems run on compressed air, having the capability to produce it is obviously vital as well.

"We're already working with some of the most sophisticated equipment in the world, and that will only continue," McManus noted. "I opened and started with older technology and then upgraded all of the lab equipment after 18 months. And I'm not done." ■

## Top to Bottom Automation

Continued from page 62

equipment, conveyor systems and new processes were incorporated.

Not surprisingly, automation has enabled Maui Jim to maintain a slim workforce for the amount of daily production, even though the volume of jobs has grown exponentially. "When I came here in 2006, were doing about 150 jobs a day, and now we're doing 2,000 jobs a day," said Ponder. "We have added very little staff to accommodate that."

Maintaining a high level of automation means continually updating and upgrading technology. Among the systems and equipment the Maui Jim lab has installed recently is an Satisloh HC6 filter system; Schneider autoblockers, auto deblockers

and auto detapers; Satisloh DLX 1200 AR coaters with automated fan masks; a Flexlink conveyor system; a Kardveyor inventory and stock picking system, a recycling system; Velocity Spin Optical Lens Coaters and Duality lens cleaners, both from Coburn Technologies. Ponder said the Coburn equipment in particular has made a difference in production.

"We purchased two Velocity machines and put them in our automated line, and they work great," he said. Within the last 18 months we integrated a couple of Duality machines into the automation, and it eliminates all handling from employees. We are deblocking automatically and tape stripping through Schneider, then going right into the Duality Lens cleaning machines, then to the Velocity hard

coaters and right over to the edgers. It's flawless. For the investment and real estate it takes up, it worked out very well for us."

Maui Jim has also invested in lab management systems that produce the data necessary to feed production information to the lab's managers throughout the work day. "There are monitors on all four walls in the lab where breakage and redo information is posted in real time. All the supervisors and team leads as well as the manager and director can see exactly how many jobs are being shipped and how many jobs are in-house."

Ponder said turn time in the Maui Jim lab has consistently improved over the years, and with the automation the lab can surface, finish, AR and mirror coat and shipped all orders the same day. ■