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#### LETTER FROM THE EDITOR

#### **Communicate for success**

**LISTENING IS MORE** than a social nicety. In today's world, leaders and companies that want to achieve great things must have keen listening skills in order to succeed. Certainly the winners in this year's Manufacturing Awards program have demonstrated their recognition of this fact.

For instance, Toray Industries (America) Inc. developed a new product when snack food makers noticed that pretzel and chip bags were exploding in airplane cargo holds thanks to the extreme pressure changes that occur with cross-country flights. In fact, the North Kingstown maker of precision-performance films says that at least 50 percent of new product ideas come from sales-team members, who are themselves in consistent and regular contact with customers.

Thanks to significant growth,
The Town Dock's leaders have
recognized the need to combat the
formation of organizational silos.
So regular meetings are held in order for employees from the various
disciplines to talk to one another,
especially when a new product line
is launched.

VIBCO Inc.'s dedication to lean manufacturing is built on communication. Daily meetings to identify "hidden factories" – processes that are obstacles to efficiency and improvement – depend on workers being forthright and incisive in their discussions. Only then can the company overcome them and maintain its path of continuous



improvement.

Communication is a cornerstone of collaboration, and many of this year's honorees are experts at collaborating, whether it's

about creating the latest innovation at Amtrol Inc. or the Manufacturing Center of Excellence's series of workplace learning programs, which is supported by The Brickle Group and The Phoenix Partnership of Providence.

Sure, progress is driven by expert execution on great ideas. But if no one communicates on either end of this equation, there can be no movement forward.

Without our sponsors, the Manufacturing Awards program would not exist, so thank you once again. Polaris MEP is the presenting sponsor once again, while our partner sponsors are Bryant University; Cox Business; Gallo/Thomas Insurance; and Goldman Sachs 10,000 Small Businesses.

Mark S. Murphy

Mark S. Murphy Editor

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# PBN PROVIDENCE BUSINESS NEWS MANUFACTURING AWARDS



#### **SPONSOR MESSAGE**

**Polaris MEP** is the proud Presenting Sponsor for the PBN Manufacturing Awards every year since its inception. We are amazed each year by the stories of winning companies and this year is no different.

The manufacturing industry is not for the faint of heart. We congratulate this year's award winners, who have demonstrated what can be accomplished when you are committed to excellence no matter the odds.

In the past year Polaris MEP has engaged with over 200 Rhode Island manufacturers. We have been listening to the successes and helping with the struggles. What we have noticed over the

past three years is that the tide is turning.

New programs and support are resulting from the persistent voice of manufacturers, which is being heard more now than in recent memory. The Rhode Island Manufacturing Initiative will feature programs to support business growth and pathways to employment. Keep your eyes open for more details and we hope to see you in the coming months.



# Sound strategy, shared values deliver strong results



#### **ASTRONOVA**

BY SUSAN SHALHOUB | Contributing Writer

WITH GREGORY A. WOODS' arrival came the start of big changes for a data-visualization technology company in West Warwick. Its name, for one

With Woods as president and CEO, Astro-Med became **AstroNova Inc.** And its rebranding and new strategic direction are proving their worth in the form of increased free cash flow. In 2013, gross revenue for AstroNova (then Astro-Med) was \$68.6 million. In 2014 it rose to \$88.3 million and hit \$94.7 million in 2015. The just-completed 2016 saw record revenue of \$98.4 million.

Woods' strategy involved, among other things, eliminating the company's medical business. It was a big step, and out of the comfort zone of existing team members.

"It's human nature. Most people don't like change. The key is empowering individuals to do it," said Woods, who served in other manufacturing leadership roles prior to joining Astro-Med in 2014.

This empowerment, said Woods, involves a fundamental set of core values to guide company decisions. But AstroNova didn't have these fundamental core values written down anywhere, so Woods and other team members set to work.

"As far as a company, what do we really believe?" Woods remembers asking employees. "I think there were about 200 different ideas. ... I knew we had to have a little session on this."

Some areas just needed solidifying. Values such as "customer first" didn't require a companywide transformation, he said. "It was ingrained in the culture anyway, from our customer-support effort," said Woods. "But we needed it established in writing to ensure that new people coming onboard would under-



**SPEAKING THE SAME LANGUAGE:** AstroNova CEO and President Gregory A. Woods, left, with press operator Thomas Frey, has transformed the company's product line and reinforced its values while embracing lean management. The result: record revenue in 2016.

PBN PHOTO/RUPERT WHITELEY

stand."

In addition to streamlining the search for new employees by attracting appropriate candidates, core values provide a framework for annual employee reviews, said Woods. They also guide decisions and reduce risk; no matter how great a deal may look. Core values keep everyone grounded.

"Where you run into more risk is when there is a business to acquire, let's say," said Woods. "They have great financials, but that's where strategy helps us stay focused." AstroNova builds a checklist off its core values, which Woods says keeps the company moving toward its goals. "If we start getting 'No's,' we have to say, 'Why are we doing that?"

Woods is a proponent of lean management, which he says can take a while to produce results. Going lean – finding and implementing more efficient ways of doing things – is a system that has been around for a while now, and one he is surprised more companies don't adopt.

At AstroNova, Woods brought in a consultant to introduce Kaizen, the Japanese business philosophy of continuous improvement and efficiency. Team members from different departments worked together to look at operational processes and practices. People from

the finance department, for example, came to the production floor and offered their unique input.

"Over time – with enough critical mass – we have more and more people speaking this new language. ... What is really exciting for me now is seeing people come up with ideas on their own," he said. "That's great; it means it has taken hold."

Beyond promoting a strong sense of a company's identity through its core values, Woods looks for solutions to industrywide manufacturing challenges. Such as finding folks to help implement growth, for example.

The problem of identifying qualified workers for advanced manufacturing positions is ongoing. Woods said it can take three to four months to make a hire. A strong partnership with New England Institute of Technology in East Greenwich helps from the education angle, says Woods, as does automation, which can remove some lower-level tasks in the manufacturing process and offer consistency to AstroNova. More internal trainings and promotions also help.

But with this challenge and others, resilience is key in Woods' playbook.

"Everything doesn't go perfectly all the time," he said. "It's how you readjust." ■

# 'If we start getting "No's," we have to say, "Why are we doing that?"'

GREGORY A. WOODS, AstroNova CEO and president



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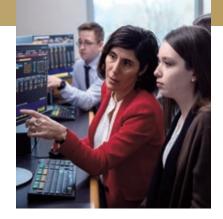
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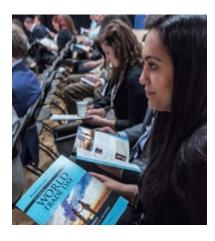
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# Listening to customers, caring for workers yield success



#### TORAY PLASTICS (AMERICA) INC.

BY MARY LHOWE | Contributing Writer

**IMAGINE THAT YOU ARE** a maker of snack foods. You want to extend your markets from coast to coast, but your snack bags tend to burst from changes in air pressure while they are jetting over the Rockies.

One customer of **Toray Plastics (America) Inc.** in North Kingstown didn't need to resort to imagination: the bags really did burst, or at least sustained damage to their seals.

This type of need – and others somewhat less unusual – help to drive the dynamic R&D department at Toray, a maker of precision-performance polyester, polypropylene, metallized, and bio-based films used in food packaging and other industries, such as auto and flooring manufacturing.

Fortunately for the snack maker, Toray is continuously working to create new products, one of which, coyly named Over-The-Mountain, solved the problem of chips and pretzel parts peppering the interior of airplane cargo holds

Christopher Roy, vice president and general manager, said the company aims to continuously roll out new products, with the aim of making products less than 5 years old account for a significant percentage of annual sales.

The reason? Competition, some of it from overseas. "The product life cycle goes out and out," Roy said. "As the life cycle extends, competitors come out with similar products that will drive down prices."

The company employs 600 people in North Kingstown and 120 in Front Royal, Va. Its films enclose snack foods, candy, dairy products and frozen entrees, and control the passage of the sun's rays through windows. Its foams add comfort to nearly 60 percent of cars made in the United States.

In 2016, the company introduced Torayfan Over-the-Mountain polypropylene films to seal food bags at high altitudes. "This important technological breakthrough allows smaller, regional food companies to compete more effectively ... throughout the United States," a company document states.

Also in 2016, new Torayfan RS03 RipStop film improved the quality of reinforcement tapes with technology that reduces the amount of raw materials needed, thus reducing cost and weight. A third product from last year improves lids and packages for refrigerated dairy foods.

Where do ideas for new products come from? At least 50 percent of ideas come from the sales-team members, who talk to Toray customers' product-development people. In short, customers tell Toray what they need or what problems need solutions.

"We have a very robust R&D process," Roy said. "They are responsible to integrate their work with operations and sales."

Apart from its emphasis on continuous innovation, Toray Plastics is a healthy company because all its management decisions are carefully considered, said Lisa Ahart, vice president of U.S. corporate human resources. "Everything we do – product development, benefits, recruitment – is carefully thought out," she said. "There are no kneejerk reactions. When you do that, you get the right outcomes."

A big and continuous effort by



A CONSIDERED APPROACH: Toray Plastics (America) Senior Human Resources Manager Rhonda Arsenault, right, leads a class that includes Don Black, left, and Donna Malley, a senior HR generalist for the North Kingstown manufacturer of films.

PBN PHOTO/MICHAEL SALERNO

the company involves training. "This equipment is large, fast and dangerous," Ahart said.

The company's injury rate is well below the industry average. According to documents supplied by Toray, its OSHA rate is 0.4, compared with an industry average of 4.9.

With help from a Real Jobs Rhode Island grant, Toray has conducted trainings of existing employees to develop mentoring and leadership capabilities. Cooperating with Workforce Partnership of Rhode Island, Toray used an On The Job grant to train unemployed people and prepare them for a career with Toray.

Using an Internship Training grant, the company offered 19 internships in 2016, almost all of them to students in Rhode Island.

Ahart said everyone in the company was delighted to be chosen for the Providence Business News Manufacturing Awards. "We have 600 employees here, and we are all very proud of what we do." ■

### Everything we do

- product development, benefits, recruitment - is carefully thought out.

LISA AHART,

Toray Plastics (America) vice president of U.S. corporate human resources



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### Focus on communication, training is netting success



#### THE TOWN DOCK

BY MARY LHOWE | Contributing Writer

A MULTIYEAR, all-out effort to sharpen management skills and get all people and parts of the business working together has netted big results for The Town Dock in Narragansett, a market leader in sales of calamari in the United States.

The 37-year-old, family-owned business sells to wholesale fish markets, distributors, retailers, restaurants, caterers and supermarkets. It has seen strong growth recently, with gross revenue increasing from \$63.5 million in 2014 to \$79.1 million in 2016.

Ryan Clark, president, CEO, and son of the business' founder, said Town Dock lands employees with excellent management and sales talent because "we have made the company an attractive place to come and work." The company is guided by its core values, which include "continuous learning, a positive culture, doing the right thing and teamwork.

'Understanding and living the core values has helped propel the company," Clark said.

On the nuts-and-bolts side of things, Clark runs an 80-employee operation that aims at smart objectives. In recent years, Town Dock has been seeking more and better markets to help drive demand for calamari. Its sales staff reaches out to all of the United States and Europe. The company competes specifically as an alternative distributor to squid coming from

The company is the largest employer in the Port of Galilee, purchasing fish from 40-50 vessels. Town Dock processes 5 million pounds of calamari each year at its 35,000-square-foot plant in Narragansett and a 12,000-square-foot facility in Johnston. The company recently purchased a new 2,400-square-foot administration building to keep up with the recent business growth.

The number of boats unloading at Town Dock has doubled in the last 10 years, according to documents provided by the business.

Even though Town Dock primarily buys, processes and distributes calamari landed in the Port of Galilee, it has begun buying its own fishing boats – running a fleet of seven vessels. Operating its own boats, Clark said, gives the



INVESTMENT PAYOFF: Ryan Clark, left, the CEO and president of The Town Dock, says the company has made a concerted effort to invest in its staff and encourage communication across silos, which has resulted in growing revenue for the calamari-selling concern. Here, Clark inspects some product with Director of Sales Mark Fratiello. PBN PHOTO/MICHAEL SALERNO

business "a window into the harvesting [process] and a better understanding of what the fishermen are dealing with."

Town Dock digs deep for resources to improve employees' knowledge and professional abilities. In the last seven years, it has used state Incumbent Worker Training Grants to invest in training for employees. This year, Clark said, Town Dock will spend \$100,000 on employee training, with half that amount reimbursed by the state. This year's initiative is more sales training.

The company's sales staff also receives highquality sales training from Sales Coach International. The aim is to create a more-skilled sales force that moves the company toward its goal of doubling sales by 2020.

Clark is a member of the Vistage group, composed of Rhode Island CEOs who provide peer-to-peer leadership training and individual coaching to Clark and his senior managers. Through contacts at Vistage, Clark was personally referred to a marketing consulting firm at a time when he believed marketing expertise was needed.

Town Dock managers also work on implementing what Clark identified as the Gazelle Methodology and the Rockefeller Habits, which include a system of meetings that helps every part of the far-flung business keep in touch with all other entities and with the leadership.

Fighting off "silo" habits that disconnect workers from each other is important, Clark said. "We have been promoting communication as we have gotten larger. It is crucial that sales, procurement, operations, finance and all other parts of the business work in harmony, particularly when a new line is launched," he said.

Clark does not worry that Rhode Island will overfish the waters that are home to its official state appetizer. He said the National Marine Fisheries Service closely watches the wellbeing of fish stocks, and that calamari stocks have been declared "safe and well-sustained."

'**It is crucial** that sales, procurement, operations, finance and all other parts of the business work in harmony."

RYAN CLARK, The Town Dock CEO and president



### Success worldwide with Rhode Island pride



#### **AVTECH SOFTWARE**

BY SARAH PARSONS | Contributing Writer

**AVTECH SOFTWARE INC.'S** business philosophy can be summed up in a common expression: Think global, but act local.

The company's environmental monitoring systems can be found in 184 countries in the world. Amazon.com warehouses, United Nations facilities, the Oval Office and even NASA spacecraft now house AVTECH's Room Alert sensors. But all of the devices and the software that supports them are manufactured in the United States, and mostly in New England.

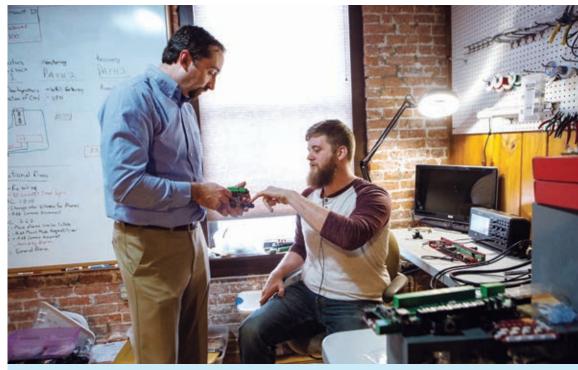
"We moved all our manufacturing to the United States to reduce transportation costs and contribute to the local economy," said Michael Sigourney, AVTECH's founder and CEO. "In some cases it costs us a little bit more, but we feel good about ourselves."

The company, located in Cutler Mill in Warren, also sees a strategic advantage to keeping its manufacturing stateside. Producing sensors in the United States allows AVTECH to better manage logistics and workflow, the company's leaders said.

It's an arrangement that's proven successful. AVTECH's revenue has grown by about 16 percent annually for the past five years.

Part of the reason for the growing demand is that AVTECH offers something its competitors don't - both hardware and software. The company's Room Alert sensors track environmental conditions that include temperature, humidity, power use, smoke and more. Its Device ManageR software and cloud-based services alert users when environmental conditions change, allowing them to take action before disasters occur. For companies storing assets in warehouses, data centers and more, prompt and easy-to-access notifications and monitoring are critical to running a successful business.

Even a minute of downtime that can be prevented saves quite a bit of money," said Richard Grundy, AVTECH's president. "We're trying to preach that there are ways to prevent these issues from happening in the first place."



THE LOCAL TOUCH: Moving all its manufacturing to the United States has allowed AVTECH Software to respond more quickly to the market and customers. Richard Grundy, left, president, and Bob Snow, a hardware engineer, discuss a device at the company's Warren headquarters.

Keeping up with demand for its products has meant changing the way the company manufactures them, AVTECH works with Polaris MEP to implement lean-manufacturing standards with a focus on automation. The company now automates the quality testing of its sensors. Whereas employees used to check each device individually for certain standards, they can now use machines to check 10 or 20 at once.

"It's allowed us to really scale our sales without having to scale our fulfillment and assembly teams at a similar scale," Grundy said.

AVTECH now has more than 150,000 users around the world. It's established a network of resellers in Europe, South Africa, Australia and the Middle East, among other locations.

'The need for environmental monitoring is global – for every business, in every climate, on every continent," Grundy said.

And it's an area where AVTECH expects to grow. International exports account for 20 percent of the company's annual revenue; the company projects this will rise to 35 percent in the future.

Here too though, AVTECH relies on local resources. The company has worked with the R.I. Commerce Corp. to expand its business internationally, arranging trade missions to Canada, the United Kingdom and Israel. AVTECH is planning trade missions in Ireland and the United Kingdom later this year, and is investigating the possibility of visiting New Zealand and Australia in the fall.

AVTECH also collaborates with the John H. Chafee Center for International Business at Bryant University. The university's State Trade Expansion Program is a national export initiative that helps small businesses such as AVTECH enter and expand into international markets.

Yet despite its growing reach internationally, AVTECH plans to keep its roots right where

"We're proud to be here in Rhode Island," Sigourney said. "We love being in the East

'In some cases [**moving** manufacturing to the U.S. costs us a little bit more, but we feel good about ourselves."

**MICHAEL SIGOURNEY AVTECH founder and CEO** 











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### The Beck Cos. organizes, strategizes its forward motion



#### THE BECK COMPANIES

BY JOHN A. LAHTINEN | Contributing Writer

TRACEY BECK LOVES to build things – especially busi-

"I get to see so many projects come from concept to reality," said Beck, co-owner of construction and manufacturing business, The Beck Companies. "I get to work with cutting-edge technology, and new and exciting products every day. I then get to see what our companies created in a real-world environment."

Family-owned and operated, The Beck Companies serves as one of the largest wholesale fabricators of granite, marble, soapstone, engineered stone, and solid surface and case goods in New England. It's worked on projects at Foxwoods, Patriot Place and Fenway Park. Beck's husband, Brian Beck, and Brian's brother, Ken Beck, are the company's co-owners.

The company - comprised of wholesale residential and commercial custom-stone fabrication shop KB Surfaces, custom closet company Closettec, and commercial case work manufacturer CAS America – rebranded as The Beck Companies last year. The creation of the parent-company structure allows the family to continue its growth under a consistent brand message.

The business began a decade ago when the Becks purchased KB Surfaces out of receivership, adding Closettec in 2012 and CAS America in 2015. Since that beginning, the company has shown 15-20 percent growth every year. And they are looking for more, including through continuing acquisi-

The new structure also makes way for more streamlining, as well as more earth-friendly, forwardthinking methods of lighting, heating and cooling, Tracey Beck said.

"This [rebranding] allowed us to coordinate all the company manuals, update all the websites and re-letter all the vehicles and really take advantage of all the synergies of the companies being in one building," a new North

Smithfield manufacturing facility and showroom that she hopes to have done by October.

The Beck Companies has renovated the new 85,000-square-foot facility to include state-of-the-art, energy-efficient lighting, heat and air conditioning. A covered storage expansion is being built on the side of the building to house additional stone inventory.

Despite the robust growth numbers, Beck says the business takes a quality-versus-quantity approach, focusing on retaining and growing specific key customers and cross-selling to them from all three subdivisions.

"We don't want a lot of one-time customers," Beck said. "We want a few customers who partner with us for mutual long-term profit and success. It enables us to control our growth, be flexible and not overpromise so we can hit deadlines and ensure quality while not exceeding our current capacity.'

Having worked for a large company for most of his career, Operations Manager Bobby Guadagnoli agrees, saying it has been a nice change to work for a smaller, family-owned business.

"We are very customer-driven," Guadagnoli said. "We always try to meet the expectations and needs of our customers. They are continually working on growing and expanding the companies and will invest in them for continued growth."

To that end, Guadagnoli says the company is always looking at new ways to help maximize and streamline processes.



PARTNERING FOR THE LONG RUN: The Beck Companies looks to create long-term customer relationships across its business lines. Here, Tracey Beck, co-owner, right, meets with customers Jo Polis, left, and Annalyn Bauer, back to camera, from Lebanon, Conn., while in the background employees Jon Mitchell, left, and Eric Backstrom move stone slabs at the company's North Smithfield facility. PBN PHOTO/MICHAEL SALERNO

"We recently added a new robot to add capacity to our stone cutting," he said. "We have invested heavily in digital technology and are 100 percent digital, from template to fabrication.'

Recently, the company successfully completed three stores for the Wayback Burgers chain, finished a Metro Honda showroom renovation in North Smithfield, and is halfway through a large stone work build-out project for Yale University. Upcoming jobs include

lockers for W.B. Mason and a large command center project for Lackland Air Force Base in Texas.

"We have our eye on a couple of new acquisitions that will round out our current manufacturing platforms," Beck said. "We are anxious to finish up construction on our building. We hope in the next three months to have the exterior of the building clad, signage up, landscaping done and, of course, finish up the showrooms."

### 'We don't want a lot of one-time customers.

TRACEY BECK. The Beck Companies co-owner

### WE ARE TORAY PLASTICS (AMERICA)

"The Toray team works hard every day to help Toray's customers succeed and grow their business while maintaining the company's position as the industry's leading innovator in its core markets. We believe strongly that it is important to be an active part of the Rhode Island community by collaborating with state and local government, supporting essential educational institutions such as URI, and providing ongoing support to a number of nonprofit organizations, all of this while being a good environmental steward."

- Mike Brandmeier, President & CEO



### Toray Plastics is the proud recipient of PBN's 2017 Overall Excellence Award AT A LARGE MANUFACTURER







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### Marine technology a vessel to make the world's ships safe



#### FARSOUNDER INC.

BY NANCY KIRSCH | Contributing Writer

**FARSOUNDER INC.**, a Warwick-based manufacturer of real-time 3-D sonar systems for the marine-transportation sector, is achieving its global ambitions. Its high-tech acoustic sensors keep superyachts, cruise ships, government ships, and exploration, survey and research vessels operating safely in all of the world's oceans. Customers include the Royal Australian Navy, Ponant – a high-end French cruise line – and many of the world's largest superyachts.

"FarSounder has always focused on exporting ... [that's] where our customers are and expect to be in the future," said CEO Cheryl Zimmerman. Though its products are used globally, the company's Ocean State location has unique advantages due to where it's sited.

"Narragansett Bay is part of our laboratory. We use it for all sorts of ... testing for new and current products ... and for marketing purposes. It's such a positive experience to be on the bay," said Zimmerman.

Zimmerman said that Far-Sounder's reputation was established first in Europe, where some of the world's largest yachts and commercial ships are built. But export issues - such as sanctions on Russia and climate change in the Arctic – are always evolving. She credited the John H. Chafee Center for International Business at Bryant University for providing key export information to her and FarSounder's dozen or so employ-

Exports represent 85 percent of company product sales, a marked increase from approximately six years ago, when exports were approximately 45 percent of the company's revenue, said Zimmerman, crediting the remarkable growth in the European market and beyond.

Citing the company's consistent growth, she added, "Our customers know that they can depend on our team to work with them from the Antarctic to the Arctic, and all waters in between, to avoid underwater dangers.'

FarSounder's flagship product is its navigation product line: a viable 3-D, forward-looking sonar that can see 1.000 meters ahead of a vessel with a wide field of view nearly in real time. In contrast, other companies' navigation aids are mainly charts and radar, with less-sophisticated sonar systems.

Also, FarSounder offers its customers threat-detection systems, which identify underwater divers and other potential dangers approaching ships and/or other assets, such as oil rigs and sensitive waterfront military and industrial locations, said Zimmerman.

For its underwater threat-detection systems, FarSounder earned a 2015 Tibbetts Award from the U.S. Small Business Administration, which recognizes excellence in developing and successfully commercializing technology through a Small Business Innovation Research grant.

"Our pending software update, including local history mapping using a real-time chart that will build a 3-D map of the ocean floor where the ship has just been – is getting enormous attention from many customers," said Zimmerman.

With four patents and several patents pending, FarSounder continues to push the envelope.



MARKETS BEYOND THE BAY: While FarSounder uses Narragansett Bay for most of its testing, CEO Cheryl Zimmerman, above with senior electrical engineer Matthew Coolidge, says that exports represent 85 percent of product sales

PBN PHOTO/MICHAEL SALERNO

Though navigation has been the company's primary focus, Far-Sounder is now working to develop systems that will lower bycatch which commercial fishermen must throw back into the ocean - and help support ocean sustainability.

Committed to offering its customers the best possible technology, FarSounder engineers the entire system, from sonar characteristics to electronics to processing and user-interface software. Products are tested in FarSounder's test-tank facility or its mobile test lab, to ensure that the products are able to operate in real-life, harsh conditions.

Although Zimmerman declined

to reveal revenue information for the privately held company, she reported that it experienced a 30 percent increase in 2016 revenue over 2015. 2016 was FarSounder's best year for revenue and profitability, and Zimmerman anticipates a continued upward trend.

FarSounder's hardware and software systems are designed to work, even when internet, satellite information and/or directional buoys are absent or inadequate.

"I see our technology becoming as popular as radar and GPS have become. I see us as the 21st-century marine technology, one that many classes of vessels will have automatically," said Zimmerman.

'I see our technology becoming as **popular as** radar and GPS have become.

CHERYL ZIMMERMAN, FarSounder CEO

### Doing more with less, and leaving a clean trail



#### **VACUUM PROCESSING** SYSTEMS LLC

BY MICHAEL J. DECICCO | Contributing Writer

MANY OF THE toxic chemical solvents that industries tossed into landfills years ago - creating the need for expensive federal cleanup efforts by the end of the 20th century - were used to clean industrial parts.

A cleaning system for these parts that uses fewer chemicals and is easier on the environment is just what Vacuum Processing Systems **LLC** of East Greenwich has created.

The company's Vacuum Cycle Nucleation system cleans industrial components in a controlled vacuum chamber with either water or solvents. It bubbles and scrubs foreign bodies into oblivion from even hard-to-reach crevices and imperfections, doing so with little or no chemical residue.

The system needs only a low concentration of chemicals to lift the foreign material from the surface of what's being cleaned, company principal Joseph Schuttert explained, and the system encloses the chemicals within the chamber. This, he said, lowers the amount of chemistry that remains. "Most other cleaning processes will use as much as a 10 percent concentration while our process uses only 1 percent or less," he said. Plus, the chamber recovers 97 percent of the chemistry for reuse.

The system reduces the amount of soap or acids necessary for the cleaning, company principal and system inventor Don Gray said, meaning less waste, another benefit to the environment. "Disposable material is reduced by a total of 80 percent," he said.

The system thoroughly cleans and sterilizes a wide range of products and equipment that include medical devices, sensitive industrial instrumentation, 3-D printed parts, industrial fittings, internal bearings, pharmaceutical equipment, heart and other medical implants, dental implants, hypodermic needles and even iewelry.

'We cover a lot of areas," Gray said simply. The cleaning of 3-D printed parts is a big example of what the VCN system does better and faster, Schuttert said. Small distributors will clean these parts for customers, but a lot of residue or fillers still remain. "They may typi-



A LEAP FORWARD: From left, Don Gray and Joseph Schuttert, company principals, and Jessica Weimar, operations manager, look over schematics at Vaccum Processing Systems' East Greenwich

PBN PHOTO/RUPERT WHITELEY

cally take hours or days to clean 3-D parts," he said. "We get it done in a matter of minutes."

And the future looks bright for VCN and Vacuum Processing Systems.

Schuttert noted that the VCN process is the first significant development in industrial component cleaning and surface preparation in about 40 years, "which is about how long ago ultrasonic cavitations began seeing use in manufacturing. In fact, we recently began talks with the leading supplier of ultrasonic cleaning equipment to add our process to their equip-

The company is constructing a system for a Fortune 100 company's 3-D printed parts.

"We are told that without our process, the multimillion dollar project would have had great difficulty going forward. The project will have a significant effect on aviation and power generation. That is about all I can say about it," said Schuttert.

Water Corp.'s Milford, Mass., micro-machining department is glad it adopted the VCN system. After using it to remove sub-micron particles and debris from the metal components used to assemble its life-science instrumentation, the company, in a recent press release, concluded that the system "has reduced processing times, rejection rates ... and has reduced chemistry consumption by 200 percent."

Gray and Schuttert started a company designing and building cleaning systems in 1994, but split because Grav was busy as a chemicalengineering professor at the University of Rhode Island. The two became a team again five years ago, when Gray, who had just invented the VCN system, retired from teaching.

Now, Gray is proudest of the fact that the system he invented and patented is good for the environment.

Schuttert, who holds a degree in biology and recently retired from the pharmaceutical industry, is proudest of the company's ability to perform thorough cleaning of industrial components to a level that hasn't been achieved before, showing VCN as a true green leader. ■

## '[Older systems] may typically take hours or days to clean 3-D parts. We get it done in a matter of minutes.

JOSEPH SCHUTTERT, Vacuum Processing Systems principal

#### LEAN MANUFACTURING EXCELLENCE

### **Understanding that every** action produces a reaction



#### VIBCO INC.

BY JAIME LOWE | Contributing Writer

**VIBCO INC.** isn't a Rhode Island native – having been founded in 1962 in New Jersey. But the Richmond manufacturer has put the Ocean State on the map, especially when it comes to lean-management practices.

Known for its Big Bertha Dump body vibrators (used on the bottom of dump trucks), its Pothole Patchers, which repair holes and aid in construction, custom vibrating tables, industrial vibrators, mounting brackets and air cannons, VIBCO sells to more than 360,000 customer accounts across the globe, including the likes of NASA, Kellogg's and the R.I. Department of Trans-

Fifteen years of embracing lean management has been instrumental in the company's success.

When [you're] committed to operational excellence, there is really no stopping point," said P.J. Dougherty Jr., company spokesman. "When improvements are being made at one point in your supply chain, slack grows in another. Being inversely related, it is crucial to identify the stakeholders affected by each change being made ... and how it will affect their

Practicing lean manufacturing has helped VIBCO grow substantially. In the past three years, it has grown its customer base from 210,000 to 320,000. Its export business has grown more than 25 percent. Its dealer network has increased by 2,000 and the company has held its pricing steady for the past three years.

A typical day at VIBCO involves the employment of both Kaizen (continuous improvements) and 5S (a workplace organizational method).

"Everything has a home, and everything can be found with no hassle or added stress when proper 5S is practiced," said Dougherty. "Understanding the processes that bug you, paired with an easy-to-understand organizational method, brings forth education of not only VIBCO's daily operations, but how

every action within VIBCO's four walls causes a reaction, which affects ... employees and end users of our products.'

Around 8 a.m. or so brings the most important part of the work-day – VIBCO's "Daily Stretch Huddle," during which employees join together to stretch as a group and discuss improvement efforts, safety concerns and any issues Dougherty says the conversations are strategically important.

"We are mining to expose 'hidden factories'... processes that have evolved due to lack of accountability or awareness. When a hidden factory is found, we look toward a process known as PDCA. which stands for plan, do, check, adjust, he said.

He said that solutions can be more accurately tracked for efficiency if team members are trained in pairing metrics with problems. If metrics get worse, the solutions can be tweaked accordingly. If they work, the company can keep the status quo or improve, he said.

After the daily stretch huddle, VIBCO workers do their various jobs in the method of Hoshin Kari also known as policy development.

"Each employee is constantly working to achieve goals and objectives set by senior management," said Dougherty. "It is a



PROCESS ORIENTED: A mechanical-engineering class from Roger Williams University tours VIBCO in Richmond, with spokesman P.J. Dougherty Jr., right, explaining the process the company uses to produce its many product lines.

PBN PHOTO/MICHAEL SALERNO

powerful way for senior management to set direction and allow every employee to understand their role in pursuit of our weekly, monthly, quarterly and yearly

In addition to growing as a company, practicing lean manufacturing has helped VIBCO improve vendor relations, vendor effectiveness, develop its workforce and earn the company national recognition. "Most importantly, we've learned that we're in the people business," said Dougherty. "Our job is to build people, not widgets."

Thus, while VIBCO is looking to further distinguish itself as a global leader in lean manufacturing, it also is looking to create a teaching organization in the future.

"Not just on manufacturing, but how all types of organizations can come and learn about systems thinking," said Dougherty. "We are all process-driven at the end of the day. Now imagine if everyone's processes - personal and workrelated - could come together and flourish in a well-functioning system, serving individuals, organizations and the world as a whole."

# 'When [you're] committed to operational excellence, there is really no stopping point.

P.J. DOUGHERTY JR., VIBCO Inc. spokesman



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### With teamwork, the well of innovation runs deep



#### AMTROL INC.

BY JOHN A. LAHTINEN | Contributing Writer

AT AMTROL INC., innovation and success go hand in hand.

In fact, the West Warwick-based water-system solutions company was founded 71 years ago with the belief that innovation, quality and service would be rewarded with customer loyalty and support.

"Innovation at Amtrol means teamwork," said Chris Van Haaren, senior vice president of engineering. "It is not enough to have an idea. You must rely on others in the organization and outside to focus on taking the idea to commercialization.'

Partnerships are invaluable to innovation, Van Haaren believes. Amtrol has developed strong relationships with institutions such as the University of Rhode Island, Brown University and the New England Institute of Technol-

"Innovation is not one person or department," he said. "It is not predictable; it is not a means to an end or a foregone conclusion. Therefore, it depends critically on teamwork. Innovation defines a company's success. By managing innovation, a company ensures success in the future."

Amtrol – with nearly 500,000 square feet of manufacturing and distribution space in Rhode Island – designs, manufactures, markets and sells products in the commercial and residential well-water, plumbing, heating and air conditioning markets. The company employs 1,700 people, with about 500 of those based in the United States – 425 in Rhode Island. In the past year, sales growth has led to about 35 new

Van Haaren is proud of the fact that while there may be cheaper manufacturing options offshore, Amtrol's products are made in the

"If you are chasing the low-cost option too heavily," Van Haaren said, "you're heading down the path of becoming a commodity. Which is the opposite direction from product innovation."

U.S. manufacturing, he believes, offers a balance in product innovation with better control over quality, procurement, vendors and

"The work we do at Amtrol serves a critical role in water systems and hydronic systems because we are bringing water to homes and



MAKING PROGRESS TOGETHER: Amtrol believes that collaboration yields successful product innovation. Examining one of the company's hydrology products are, from left: Chris Kampf, director of product innovation; Joe Jeannotte, product engineer; Michael Cogliati, R&D engineering; and Chris Van Haaren, senior vice president of engineering. PBN PHOTO/RUPERT WHITELEY

other buildings for potable use and heating," Van Haaren said. "Designing product at Amtrol is satisfying on its own, but it is even more so because we manufacture right here. ... Our business supports the Rhode Island economy and everything we do directly supports the U.S. economy.

Chris Kampf, director of product innovation, says innovation permeates every area at

"It's not only the cool, new products, but the system on how these new products are commercialized," Kampf said. "I like working for the company that invented the products that we make. The competition came later, which has motivated Amtrol to continue to move forward with innovative products and maintain its reputation as a leader in the industry."

The company's redesign using plastic for the Minitrol, a small, steel pressure vessel used as a shock suppressor in plumbing and heating systems, is an example.

With appliances becoming more efficient, Van Haaren explained, water valves are fasteracting to save water. This often introduces water hammer in the plumbing, a potentially serious problem for the integrity of the piping and components.

Through a comprehensive design process, "we were able to lower the part count from 17 down to four and the number of processes to assemble from 12 to two," he said. "This provided a simpler assembly, which directly improves quality.

The new design was the first all-plastic pressure vessel of its kind for Amtrol.

Results from this project, Van Haaren said, include a higher-quality product, new designs with IP, new core competencies, a platform

strategy opportunity to extend the design to other applications and vessel sizes, and partnerships in technology in both material and processes to build upon.

In addition, Amtrol recently commercialized a new line of products that leverage the process of deep-drawing steel, a method in which the steel is cold-worked as it is being formed to make it stronger. The new products, Van Haaren said, are smaller and lighter, both important attributes in commercial installations.

## Innovation is not one person or

department.
... It depends
critically on teamwork.'

CHRIS VAN HAAREN, Amtrol senior vice president of engineering

### Workplace injury not part of the plan at Taco



#### TACO COMFORT SOLUTIONS

BY JOHN A. LAHTINEN | Contributing Writer

AT TACO COMFORT SOLUTIONS, safety isn't something that's assumed or taken lightly.

The Cranston-based, third-generation, family-owned, high-efficiency heating, cooling and air-quality comfort systems manufacturer takes great pride in its impressive safety record, placing the well-being of its workers front and center.

Want proof?

Taco's two local manufacturing facilities - on Cranston Street in Cranston and in Fall River - have each earned Occupational Safety and Health Administration Consultation Safety & Health Achievement Recognition Program certifications since 2008 and 2010, respectively. Further, the Cranston location is a SHARP award recipient boasting an OSHA Total Case Incidences Rate of 1.57 for the year 2015 – considerably less than the industry average of 4.60.

As a heavy-metal fabrication shop processing more than 4 million pounds of steel yearly, the crew in Fall River encounters potentially dangerous work situations every day. Despite those daily risks, the facility has gone more than nine years without losing a single day to work-related injury that's nearly 1.5 million hours. The facility, which maintains a safety committee comprised of both supervisors and hourly workers, encourages everyone to be aware of and involved in ongoing safety efforts.

Since implementing a safety program for its employees 10 years ago, Taco's sales and warehousing facility in Ontario, Canada, has a zero incident rate.

The program includes monthly meetings focused on topics related to workplace and at-home safety. Team members are awarded gift cards for attendance. The program has been so successful that the company receives an annual refund check from the Canadian government's workplace insur-

"I know that what I do can have

a positive impact on a co-worker's life and thus their family," said David Grof, safety and environmental director. "If I can change the way people think about safety in the workplace. I can change the way they act, enabling them to perform their job without taking shortcuts or putting their safety at

Taco has been steadily expanding its reach globally over its nearly 100-year history. Today, in addition to the Ontario facility, the company has sales and manufacturing locations in Italy, Amsterdam, Vietnam, China, South Korea, Hong Kong and Dubai.

'We are no longer an American company based in Rhode Island, but have become a global company based in America," said Wil VandeWiel, Taco's CEO.

In addition to its safety focus. the company is dedicated to training and professional development for its employees via its web-based FloPro University, as well as on-site training at its \$20 million Innovation and Development Center. The IDC, which contains multiple classrooms, labs, meeting rooms, office areas and a library, was designed to serve as a living laboratory for Taco's products.

'Our top priority is to provide our customers with high-efficiency comfort and Taco family support,' said Ken Watson, vice president, corporate marketing. "This means not only providing high-efficiency products and controls, but also providing the tools and education to increase the efficiency and productivity of our customers through our design software, selection apps, training and technical



GETTING IT RIGHT: Taco Comfort Solutions burn-table operator Paul Pavao checks connections at the company's Fall River facility. Safety procedures in place have allowed the plant to go more than nine years without losing a day to work-related injury. PBN PHOTO/RUPERT WHITELEY

support."

The care Taco shows for its own carries beyond the company in its commitment to the community. The Taco/White Family Foundation, the company's charitable arm, assists Rhode Island and southeastern Massachusetts-based community nonprofits dedicated

to the arts, education, health care and the environment.

"Taco's destiny has never been just to make things," said John Hazen White Jr., Taco's chairman. "This is a place where our employees and customers can grow, succeed and prosper together." ■

### 'I know that what I do can have a **positive impact** on a co-worker's life and thus their family.'

**DAVID GROF, Taco Comfort Solutions safety and** environmental director

### **COLLABORATION IN MANUFACTURING**

### Power partnerships fuel industry training resource



#### THE BRICKLE GROUP THE PHOENIX PARTNERSHIP

BY TARYN PLUMB | Contributing Writer

A talented, highly qualified and dutiful workforce: Seems simple, right?

Unfortunately, that's not always the case. But **The Brickle Group** – which has spent 80 years dedicated to continually developing inventive ways to keep the country warm may just have cracked the code.

The Woonsocket-based company is a leading partner in the newly launched Manufacturing Center of Excellence's "Manufacturing Essentials Series." The initiative is a strategic partnership with Brickle, The Phoenix Partnership (which includes other manufacturers besides Brickle), Polaris MEP, the Rhode Island Manufacturers Association and the New England Institute of Technology.

The program, which began its third cohort on March 1, trains employees in several crucial facets of the manufacturing process. And it is just one of the many ways Brickle is giving back to the community.

"It benefits the state, but it also benefits the employers," said Lindsey Brickle, development and management consultant for the company. "It really has been a collaboration of trainers, employers and supervisors who recognize the needs of Rhode Island manufacturers.

Brickle, which is one of the largest woolblanket manufacturers in the United States, is a conglomerate of several companies, including Hyman Brickle and Son Inc., Bouckaert Industrial Textiles, Metcalf Brothers, Northwest Woolen Mills and The Brickle Realty Group. Its manufacturing side specializes in blankets - starting with the raw fiber and culminating with the finished product – as well as uniforms and felt for industrial use (and even yarn for major league baseball teams). It does both inhouse designs and commission projects, and works with a variety of fabric, including new endeavors with raw and recycled fibers.



TEACHABLE MOMENTS: Brickle Group employees Roddy Rodriguez, left, and Belanie Medina, right, take part in a Manufacturing Center of Excellence class being taught at the New England Institute of Technology by mechanical-engineering instructor Annie Unger. PBN PHOTO/MICHAEL SALERNO

The Manufacturing Center of Excellence is offered through Real Jobs Rhode Island, which is funded through the state Department of Labor and Training.

As Lindsey Brickle outlined, employees are trained on standard operating procedures and productivity; the basics of safety practices; the reduction of errors; the crucial elements of health and organization; and the general standards of lean manufacturing. She noted that it dovetails nicely with Brickle's values and standards of excellence: performance, quality, customer service, learning and training, continuous improvement, safety and integrity.

The Manufacturing Essentials Series has been designed to meet once a week for two hours over a 10-week period for a total of five classes, Brickle said.

As Brickle explained, the program is specifically tailored to the needs of manufacturers in Rhode Island – and is also intended to highlight the state as a viable and attractive location for doing business of all kinds.

"It will showcase Rhode Island as a great place to manufacture," said Brickle.

The goal is to not only attract new business from both in and out of state, she said, but to

retain new and current workers. For participating in the program, workers receive college credit, as well as an accreditation through the Occupational Safety and Health Administration related to safety practices and procedures, quality, and standard operation procedures and productivity. They also receive reimbursements for child care costs and are paid mileage for travel to classes, said Brickle.

Meanwhile, employers are reimbursed for wages that would normally be paid to employees while they are in training.

Currently, the project involves several partners, including Aspen Dental of Warwick. About 14 employers have participated in the first three cohorts of the program – and that number is only expected to grow as it expands, Brickle said. The series will soon be launching a second-level supplemental course.

"It provides a resource for companies and workers for innovative training solutions that support industry growth and best practices,' she said. "It will help to ensure that recent hires and existing employees are equipped to meet the needs of Rhode Island's manufacturers in order to fill more jobs, sustain employment and increase career advancement."

### 'It benefits the state, but it also benefits the employers."

LINDSEY BRICKLE, The Brickle Group development and management consultant

### **WORKFORCE DEVELOPMENT & PRODUCTIVITY EXCELLENCE**

### With an eye to the future, Tanury educates, empowers



#### TANURY INDUSTRIES

**BY SARAH PARSONS** Contributing Writer

**TANURY INDUSTRIES** has a rich history in Rhode Island. The familyowned electroplating business has been around for more than 70 years. Still, company leaders have their eyes firmly on the future.

"There's going to be some change in leadership in five to 10 years, and of course we want the company to continue to grow and prosper," said President and CEO Michael Akkaoui. "One of the best ways we could assure ourselves of a real good transfer of leadership was to start developing some folks who are currently in the organization."

To that end, the Lincoln-based company – which applies precious metal and other coatings to items that include jewelry, eyewear, automobiles, aircraft and more - is investing heavily in workforce development.

The company launched its Leadership Mentor program last year in an effort to bridge the gap between middle management and the executive team. It selected 28 employees for the leadership training, providing weekly meetings, off-site workshops and external speakers to build skills in areas such as presenting and team-building.

"We said we're not going to solve hypothetical issues," Akkaoui said. "We were going to expose the group to real-life improvement projects associated with production and lean manufacturing."

Executives incorporated all 10 solutions developed as part of the Leadership Mentor program into the company's 2017 operations

One such solution involved mapping the entire product flow of all departments in the company's production facility, and identifying where it was most strategic for critical qualitycontrol inspections to take place.

'We could ensure that as the product moved from location to location that it was good to move on to the next stage," Akkaoui said.

This year, Leadership Mentor participants will receive facilitation training. Once staff complete the program, they'll take on facilita-



AN ENGAGING WORKPLACE: A significant investment in workforce development yields improved quality and lower costs at Tanury Industries. Examining a newly copper-plated hand rail for a private jet are, from left: George Morse, quality-control manager; Dwight Annese, sales representative; Tracey Silva, aviation project manager; and Joe Accaoui, executive vice president of operations. PRN PHOTO/MICHAFI SALFRNO

tor roles in Tanury's eight lean-manufacturing teams.

Efficiency isn't limited to the lean manufacturing, though. Tanury aims to get all employees invested in curbing waste, streamlining processes and saving costs.

Tanury processes more than 400 orders daily. Every time there's a mistake made on the production floor – be it a need for strip plating, to refurbish a base material, or start the plating process over again – the company absorbs that

So two years ago, Tanury executives created a Cost of Quality initiative tied to a profit-sharing 401(k) program. Company leadership set a goal to decrease mistakes made on the production floor, tracking progress on a weekly and monthly basis. Employees beat the goal two years in a row, and Tanury passed on the cost savings to staff's 401(k) accounts.

"[Employees] know that if they can save [the product], they can participate in that savings dollar for dollar," Akkaoui said. "Whatever pot of money we save is divided equally across the

The company also takes a creative approach to boosting efficiency and productivity. One of Tanury's lean-manufacturing teams focuses specifically on boosting workplace morale. The committee organizes monthly birthday parties for staff members, as well as an annual summer outing, among other initiatives. As a familyowned business. Akkaoui said it's important that Tanury feels like a welcome place for all of its 210 employees.

"We're a family business," Akkaoui said. "We promote family, we treat our employees like family, and we keep the culture of the company positive.'

The investment in workforce development has paid off big. The company has grown 10-15 percent annually for the last five years, Akka-

"We're geared toward making sure we're serving the customer from the quality and delivery standpoint," he said. "The harder we work at improving our process and training our folks, that has a direct dividend to our

## 'The harder we work at improving our process and training our folks, that has a direct dividend to our customer.

MICHAEL AKKAOUI, Tanury Industries CEO and president

### Keeping supply system strong for those in medical need



#### AMGEN RHODE ISLAND

BY MICHAEL J. DECICCO | Contributing Writer

PEOPLE WITH CANCER, cardiovascular disease or other serious illnesses should not have to wait for their medications just because there are flaws and delays in the manufacturing plant-to-patient supply chain, at least that is what Amgen Rhode Island believes.

The company manufactures medical protein therapies that focus on serious unmet medical needs with limited treatment options in the areas of oncology/hematology, cardiovascular disease, inflammation conditions, bone health, nephrology and neuroscience. It also creates products for clinical investigations to find better ways to treat serious illnesses. Its 75-acre campus in West Greenwich produces and efficiently distributes 1.7 metric tons of active pharmaceuticals annually, worldwide.

Tara Urban, senior manager of corporate affairs, has seen the impact of Amgen's success in a very direct way. "Prior to working here, my sister, now a breast-cancer survivor, used one of Amgen's medicines," she said. "You can imagine how I felt when I began to work for the very company whose medicine helped my sister beat cancer."

Urban had worked in the health care field in the insurance industry for 20 years before joining Amgen three months ago. She is glad she made the career change. "I feel a part of something that makes a difference in people's lives every day," she said.

Amgen Rhode Island has developed myriad ways to deliver medicines to those who need them when they need them.

One example, said Mike Thomas, supplychain director, is the use of modeling and simulation, which is the practice of using mathematical models to simulate conditions as a quick



MEETING TIME-CRITICAL NEEDS: Joe Aguiar, left, senior associate, supply chain, and Kacey Fetcho, senior manager, supply chain, inspect inventory at Amgen Rhode Island's West Greenwich manufacturing facility. PBN PHOTO/RUPERT WHITELEY

way to develop data for technical or managerial decision-making. Over the years, the practice has shortened the timeline between development trial and error, and delivery to the patient in need. Also, the company works closely with its key suppliers to ensure a reliable supply of raw materials. And the warehouse staff has found creative ways to streamline operations.

The result of all this has been a 13 percent increase in overall output with only a 3 percent staff increase over the last three years, Thomas

"We operate across a wide segment of medicines end to end, making sure the raw materials are available, handing it over to manufacturing, shipping the product," he said. "We are able to schedule multiple products at the same time. We have a great ability to move a medicine efficiently through our plant. It's our sequencing of the manufacturing process that gets the most products that our patients need most."

Thomas said that over the last three years alone, the Rhode Island plant's productivity has been remarkable. Its product mix has increased from three to nine, leading to a 52 percent output increase in one product in 2016 with only two months' notice. Its development-to-delivery process typically takes only about a month, and there are up to 15 batches in progress at different stages of the process. Plus, Amgen's reach is worldwide, delivering its pharmaceuticals to 100 countries

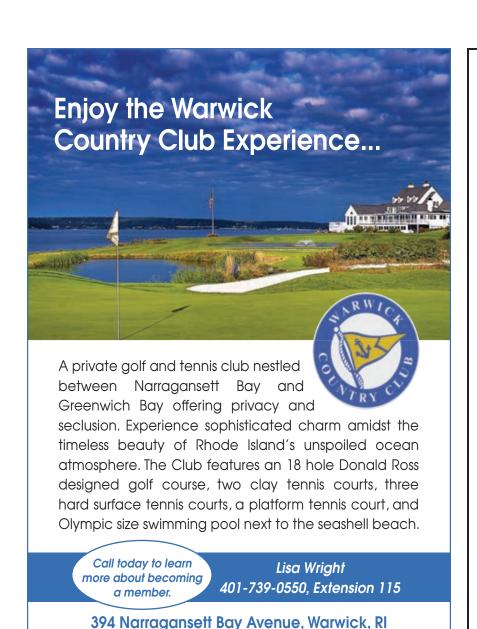
"From Rhode Island, we export to Puerto Rico, Ireland, Germany, Japan and Italy,' Thomas said.

It's no wonder, then, that Amgen has invested \$1.5 billion in Rhode Island, adding a total of more than 500,000 square feet of space to its campus since it opened. In 2012, the plant completed a \$65 million upgrade to accommodate future products. The facility earned Amgen's Best Plant Award in 2007, 2012 and 2014 and has been recognized as one of Rhode Island's Best Places to Work by Providence Business News on multiple occasions.

Thomas said he is proud of the company's ability to react to changes in a particular demand, but he is prouder of the fact the company's focus has always been on the patient. "We are improving their quality of life," he said. "That, to me, is very meaningful work."

### 'I feel a part of something that makes a difference in people's lives every day.'

TARA URBAN, Amgen Rhode Island senior manager of corporate affairs



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