

INSIDE



Utah is Outdoor Strong

Utah's outdoor recreation economy creates 110,000 jobs and \$3.9 billion in salaries — and much of that is in the manufacturing sector. The state is home to hundreds of outdoor product brands that design, manufacture and market equipment and products for just about every sport or recreational activity.

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Manufacturing List

Manufacturing by Counties

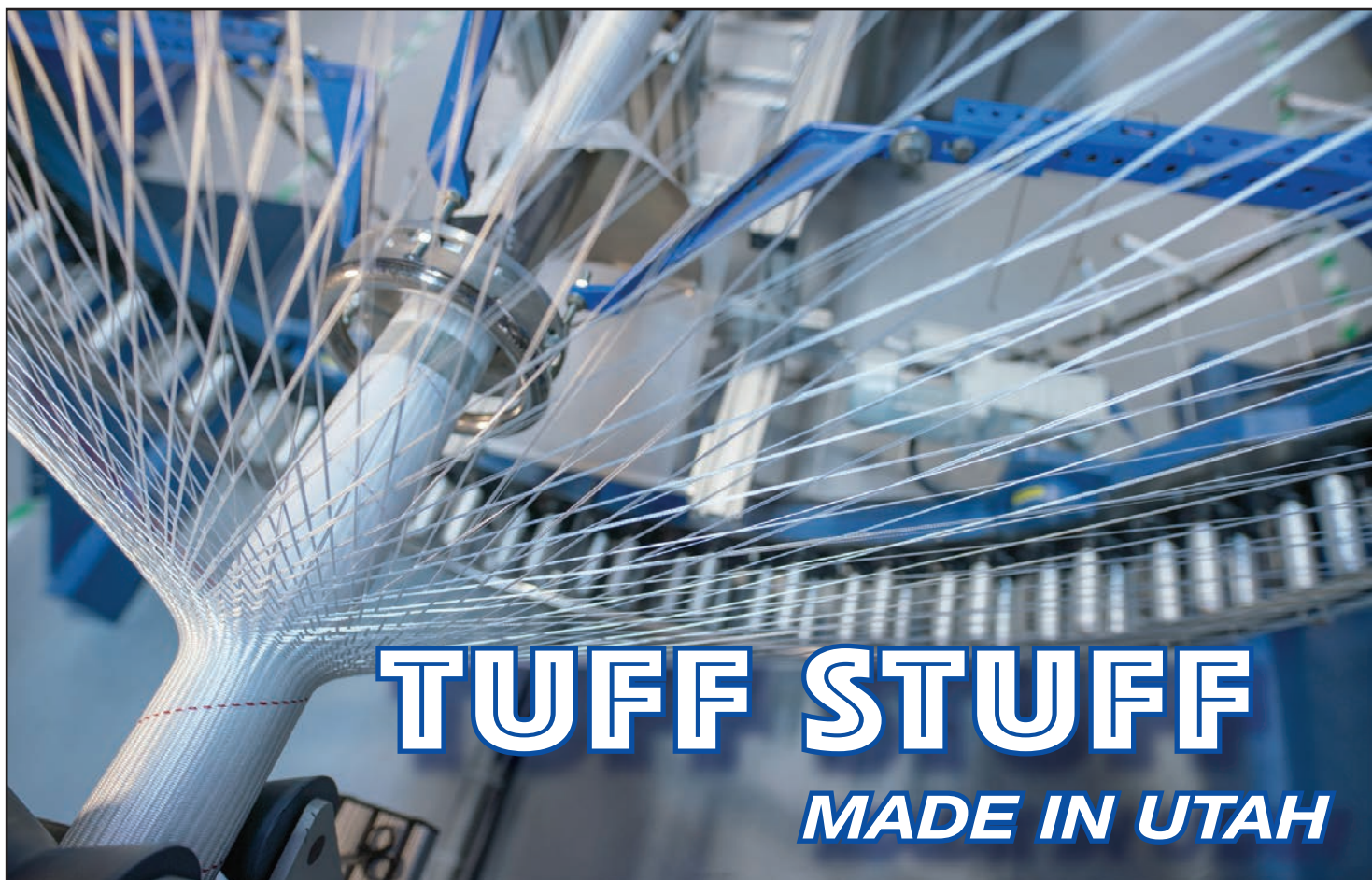
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Focus

MANUFACTURING



Carbon fiber tubing is being braided at 40-year old Nammo Composite Solutions in Salt Lake City. The tubes are lighter and stronger than metal and are used by the U.S. military for ammunition launch canisters.

Utah's advanced materials manufacturing for the aerospace and defense industries leads the nation

The Utah Advanced Materials and Manufacturing Initiative's (UAMMI) mission is to support Utah's small businesses in advanced materials manufacturing, which includes composites, fiberglass and carbon fiber; and advanced manufacturing, which includes 3D printing and additive manufacturing. Founded in 2015, UAMMI is a federal- and state-funded initiative to bring together public, private, community, industry and education partners to assure growth and sustainability of Utah's advanced materials and manufacturing industry.

Utah's rich history in aerospace and defense manufacturing began more than 50 years ago with the manufacture of high-performance, lightweight components for strategic missile programs. Today those composite materials, made of fiber and resin, are used to produce products that are stronger and lighter than metals at equivalent weight, and have become

integral to the state's supply chain.

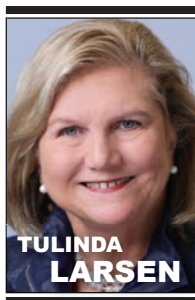
Defense manufacturing companies such as Albany Engineered Composites, BAE Systems, Boeing, L-3/Harris, Northrop Grumman and Lockheed Martin proudly call Utah home for key manufacturing facilities. Specialized Utah companies such as Hexcel, Borsight, Janicki Industries, ACT Aerospace, JBT AeroTech, Kihomac, Parker Hannifin, Conductive Composites, Petersen and Williams International are contributors to the growing labor market.

For example, in Salt Lake City, Northrop Grumman builds and tests navigation systems, gyroscopes and accelerometers for commercial and military aircraft from its new, 52,000-square-foot Navigation Systems Division. The facility is home to an engineering, manufacturing and support staff of about 750 workers. At its 19-acre West Jordan location, the composite horizontal stabilizer parts

are built for the 787-9 Dreamliner aircraft.

Hexcel, also based in Salt Lake City, is a leading supplier of carbon fiber, honeycomb and other composite materials for the commercial aerospace industry and for more than 100 space and defense programs.

Rockwell Collins, located in the University of Utah Research Park, has a long successful history of developing advanced simulation solutions for both military and commercial aerospace applications. By applying its expertise in simulation systems, the company has developed next generation CORE simulation architecture, which leverages advanced technologies and a modular design to maximize life cycle value and enhance training effectiveness. A highlight of the CORE simulation architecture is a highly configurable tool suite that provides the freedom to easily customize training for multiple situations.



TULINDA
LARSEN

The affects of COVID-19 vary by industry sector

“If I have to read another story about the impact of COVID-19 in Utah, I’m going to _____.”
(Reader: fill in the blank).

We cannot seem to get past a lot of bad news about this pandemic. Everyone is keeping fingers crossed that returning to school will not mean returning to an earlier phase of recovery. We are all impacted at home and at work. A look at the manufacturing industry sector may be informative.

The second quarter months of April-June focused on job losses and skyrocketing unemployment claims. A closer look at the employment impacts show that for some industry sectors the impact was catastrophic. The leisure/hospitality services sectors took a direct hit, for example. But other industries were less impacted, some barely scathed. And construction and two other sectors have actually grown.

See the graphic at the bottom of the page.

What the Statistics Say

The Department of Workforce Services released its Employment Summary for June, stating, “Utah’s nonfarm payroll employment for June 2020 contracted by an estimated 2.8 percent, with 43,100 jobs sidelined compared to the June 2019 employment.” In the same release,

Chief Economist Mark Knold said, “Businesses continue to bring back furloughed workers. Across the past two months, just under half of the COVID-idled workers have been returned to work. These gains, in turn, have cut the unemployment rate in half in two months.”



Looking at the Utah manufacturing sector, a 1.4 percent decline was reported, which translates to 1,900 jobs. That would put manufacturing jobs under the 2019 mark of 136,893 but above the 2018 figure of 132,798. And with furloughed jobs returning as noted by economist Knold, the impact appears to be dissipating. However, we do not want to get too far ahead of ourselves; impacts may still be felt in the months ahead. Because of the lag in data availability, only a few indicators are available to measure the COVID-19 impact. More data will be released after this article goes to press. One potential factor is a disruption in the global manufacturing supply chain.

A study conducted in April by the Utah Advanced Materials & Manufacturing Initiative (UAMMI) reached out to 144 Utah advanced materials and manufacturing companies to learn about COVID-19 effects on this group of manufacturers. The findings were summarized in seven themes:

- 1. Companies with large government defense contracts have been mostly protected. For those companies, production is stable and in some cases is increasing. However, all reported that they had to make workplace adjustments.
- 2. Aerospace suppliers are continuing production; however, their future is uncertain.
- 3. Recreational manufacturers had to pivot.
- 4. Companies making PPEs cannot keep up with demand.
- 5. Accounts receivable impacted cash flow.
- 6. Projects have been delayed for nearly all companies.
- 7. Receiving supplies, except for PPEs, has not typically been a problem, but there have been delivery delays.

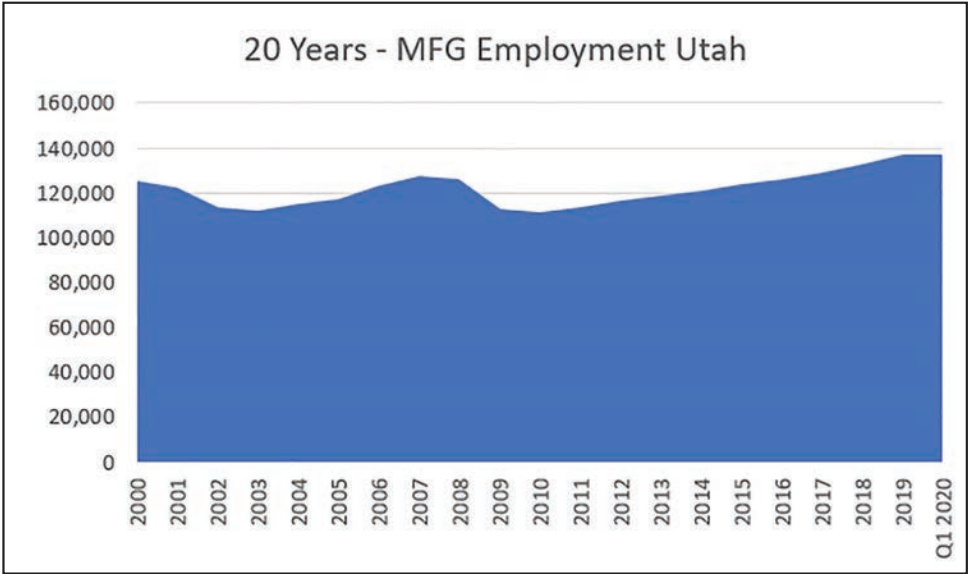
When asked about customer demand, the responses were nearly split between seeing no reduction in customer demand (47 percent) and seeing reduced customer demand (44 percent). Nearly 7 percent reported seeing an increase in customer demand.

Stay Strong, Utah

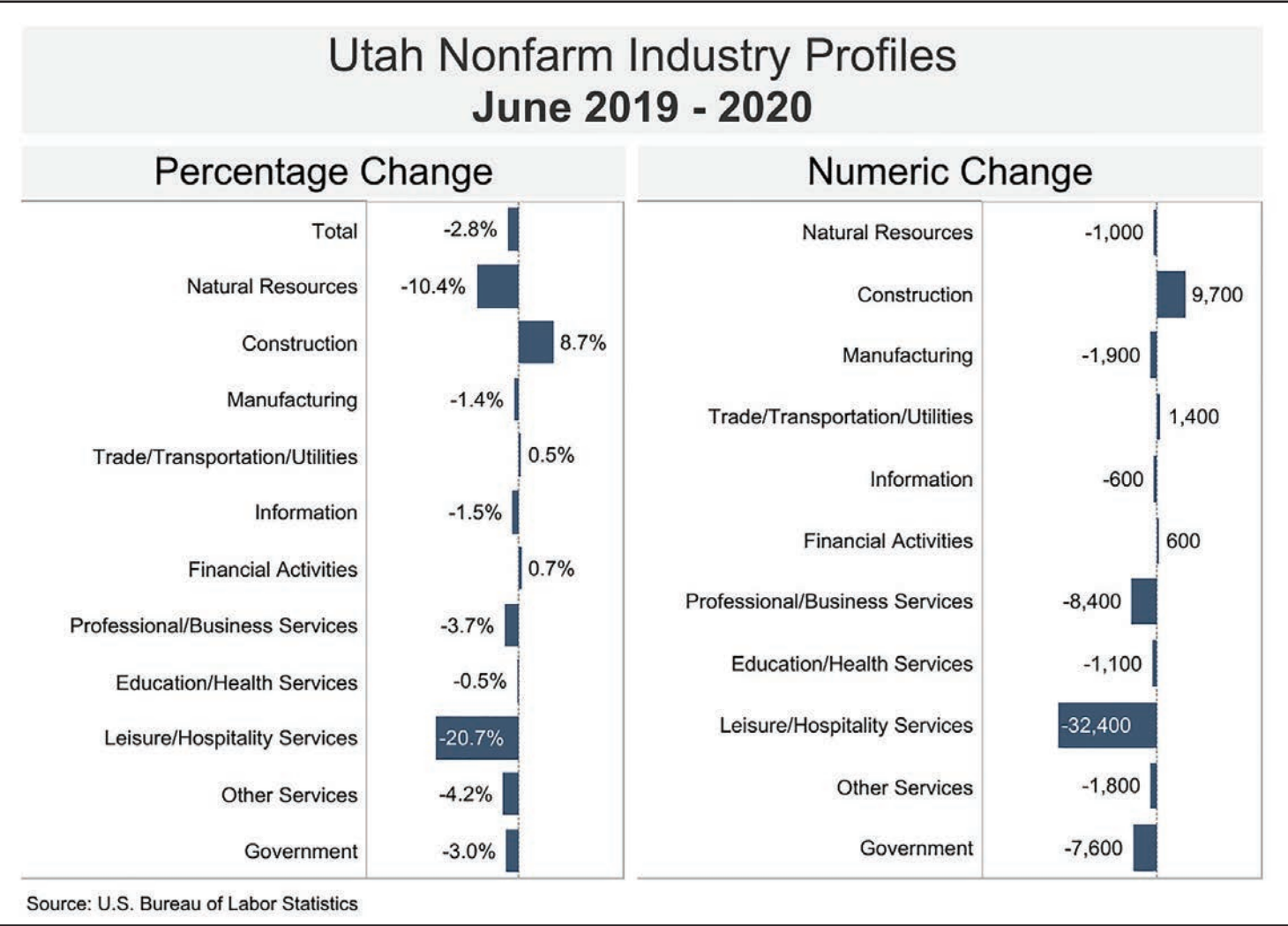
The state of Utah has made available to all Utahns some great resources and guidelines to help individuals, families, communities and businesses navigate through this pandemic. The anchor site for this information is www.coronavirus.utah.gov.

Of note for manufacturers and all businesses is the “COVID-19 Business Manual (updated).” This 55-page manual includes subjects such as testing, employees who are positive, protecting operations, and keeping the business open. Also included are guidelines on the FFCRA rules, cleaning, PPE and symptom checking. It contains many useful graphics. This manual can be downloaded from the state website: https://coronavirus-download.utah.gov/business/COVID-19_Business_Packet_8_6_2020.pdf.

Another good resource found on the website is called “Utah Leads Together 4.0,” which is Gov. Gary Herbert’s task force plan to mitigate the economic consequences of COVID-19. “Utah leaders remain confident that as the COVID-19 pandemic ends, Utah will emerge even



It does not appear the COVID-19 impact will be as great as the 2001-2002 and 2007-2008 recessions.



Source: U.S. Bureau of Labor Statistics

New Utah Industry Resource Alliance provides critical support and resources to help Utah manufacturers thrive

A coalition of organizations with a stake in Utah manufacturing has formed the Utah Industry Resource Alliance (UIRA) with the stated purpose of providing all Utah manufacturers with a single, expert resource to help them improve their bottom lines. In a recent release, UIRA said it will deliver service and outreach to the manufacturing industry in the form of industry-specific training, mentoring and coaching. The alliance hopes to be a trusted business advisor to its clients.

"The manufacturing industry is critical to Utah's economy. UIRA is a vital economic development organization, chartered specifically to help Utah manufacturers," the UIRA statement said.

The alliance pools the expertise of the University of Utah Manufacturing Extension Partnership (UUMEP), Utah State University's Manufacturing Extension Service and its Manufac-

turing and Outdoor Products Support Hub, iImpact Utah, Utah Manufacturers Association, World Trade Center Utah and the Utah Advanced Materi-

als and Manufacturing Initiative. The team provides access to manufacturing specialists, application engineers and research professionals from organizations and universities throughout the state.

UIRA delivers industry-centric resources such as process improvement and operational efficiencies, supply chain optimization, revenue growth,

leadership development, quality systems and certifications. Available programs through UIRA include cyber security, organizational excellence,

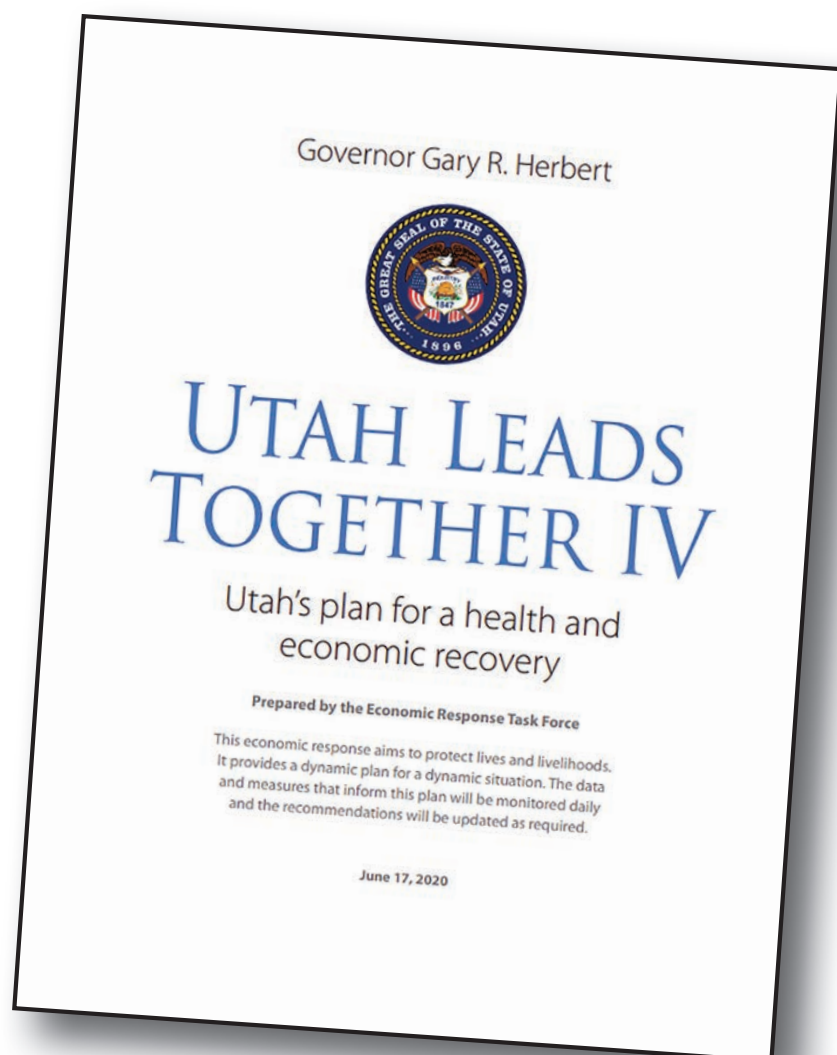
continuous improvement, sustainable practices, technology acceleration, international business development, workforce development, supplier development and top-line and bottom-line growth resources, among others. As part of the national Hollings Manufacturing Extension Partnership, UIRA leverages federal and state resources to support manufacturers even further.

The alliance is especially critical to the manufacturing industry as it navigates the COVID-19 pandemic. Many manufacturers are seeking out methods to streamline and improve their processes as they face increasing demands, UIRA said.

"Manufacturing is a vital part of the state's economy," said Stephen Reed, director of USU's Utah Manufacturing Extension Service. "It is essential that manufacturers have access to every tool they need to succeed, grow and thrive. Utah Industry Resource Alliance was founded to provide a unified resource for these tools."

UIRA serves all 29 Utah counties, ensuring manufacturers throughout the state of Utah are supported. Many of their programs can be accessed online and at 29 locations statewide.

More information about UIRA is available at utahira.org, 801-587-0713, or by email at info@utahira.org.



OLSEN

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stronger. The Utah Leads Together plans provide clarity, confidence and context for that recovery," the governor said. This fourth volume presents Utah's economic recovery and revitalization plan. It, too, can be downloaded from the state site.

What's Next

Many years ago a local musical play was written to commemorate the founding of a Sunday school in the Salt Lake Valley by Richard Ballantyne, an early Utah pioneer. One of the songs in the play contained the line, "...willingly, because we have to." Maybe we can adopt

the same attitude now in our present circumstances. We may not want to do the things we are asked to do; we may not personally agree with all the measures being taken. We are still learning what it takes to see us through this pandemic — so let us do it willingly — because we have to.

At present, the impact of COVID-19 on the manufacturers of Utah appears to be low. No major shutdowns or layoffs have occurred. Further impact is still possible as time and economic indicators will reveal. Staying the course with precautions and best practices learned during the past months will see us through the pandemic.

Author's Note: The author wishes to acknowledge the loss of lives and private tragedies brought about by this pandemic. No economic outlook or analysis can ease the pain of human loss suffered by many. Our condolences to all of you.

Gov. Gary Herbert's task force's plan for the future following the COVID-19 pandemic, titled "Utah Leads Together," is available from the state's pandemic website.

Paul Olsen has been involved with manufacturing in Utah for four decades. He finds himself in the higher-risk category of COVID-19 susceptibility.

WHAT EVERY MANUFACTURER SHOULD KNOW ABOUT THE Main Street Lending Program

As a result of the Coronavirus Aid, Relief & Economic Security (CARES) Act enacted on March 27, the Federal Reserve has created the Main Street Lending Program to provide a total of \$600 billion in financing for eligible small and medium-sized businesses. The Federal Reserve announced the Main Street Lending Program on April 9.

The \$600 billion in loan facilities to employers is for those who have been in good standing prior to the onset of the COVID-19 crisis. All loans are made by private financial institutions but backed by the Federal Reserve. To encourage banks to lend, the Federal Reserve will buy 95 percent of new or existing loans to qualified employers, while the issuing bank will retain 5 percent to discourage irresponsible lending. In exchange for the loan, employers must make reasonable efforts to maintain payroll and retain workers.

Am I Eligible?

- To be eligible, a business must meet the following requirements:
- It must be a U.S. company established before March 13, 2020.
 - It must have fewer than 15,000 employees or less than \$5 billion in 2019 revenue. (The SBA's affiliation rules apply in determining the employee and revenue count.)
 - It must have significant operations in and a majority of its employees based in the United States.
 - It did not receive support pursuant to the CARES Act Subtitle A of Title IV (for air carriers, air cargo and businesses critical to national security).
 - It did not participate in one of the other Main Street loan facilities or the Primary Market corporate Credit Facility.
 - It is not an ineligible business under the Paycheck Protection Program (PPP).



RICK PAPWORTH

Companies that participated in the PPP program may also apply for Main Street loans. Employers taking loans must follow restrictions on compensation, stock buybacks and dividend payments that apply to loan programs under the CARES Act.

How much can I borrow under this program?

The program consists of three parts that would impact for-profit manufacturing businesses. A business can only participate in one of the programs. The eligibility criteria are the same for each program and the eligible lenders are the same. The three parts or programs are the Main Street New Loan Facility (MSNLF), the Main Street Priority Loan Facility (MSPLF) and the Main Street Expanded Loan Facility (MSELF).

The MSLP offers loans to eligible employers with a five-year repayment term. The interest rate is LIBOR (1 or 3-month) plus 3 percent (300 basis points). Currently the one-month LIBOR is 0.17 percent and 3-month LIBOR is 0.25 percent. One year ago, these rates were 2.17 and 2.15, respectively. Interest payments on these loans are deferred for one year and the principal repayments are deferred for the first two years. The borrower must repay 15 percent of the principal in each of the third and fourth years. The remaining 70 percent is due in the final year. Depending on the specific Main Street lending program, a business can borrow from \$250,000 to \$300 million.

Unlike PPP loans, Main Street loans are full-recourse and are not forgivable. The chart at right shows details of each of the three MSLP loan options.

Other features of the loans extended in connection with each facility differ. The loan types also differ in how they interact with the borrower's existing outstanding debt, including with respect to the level of pre-COV-

ID indebtedness a borrower may have incurred.

MSNLF: The loan must not be, at the time of origination or any time during the term of the loan, subordinated in terms of priority to any of the borrower's other loans or debt instruments.

MSPLF: At the time of origination and at all times thereafter, the loan must be senior to the borrower's other loans or debt instruments, other than mortgage debt.

MSELF: With this program, lenders increase a borrower's existing term loan or revolving credit facility. At the time of upsizing and at all times thereafter, the upsized tranche must be senior to the borrower's other loans or debt instruments, other than mortgage debt.

How long will the MSLP be in effect?

The program was established to respond to the uncertainty related to the COVID-19 pandemic and will

continue until Dec. 31, 2020 unless it is extended by the Federal Reserve Board and the Treasury Department.

How do I apply for a program loan?

To obtain a loan under the program, an eligible borrower must submit an application and any other documentation required by an eligible lender to such eligible lender. Eligible borrowers should contact an eligible lender for more information on whether the lender plans to participate in the program and to request more information on the application process. Contact your lender to see if they are an eligible lender participating in the Main Street Lending Program.

Rick Papworth is the president of Impact Utah and has spent most of his career as CFO, leading both public and private companies in strategy and capital management. Impact Utah, a premier resource and advisor for Utah manufacturers, is a member of the Utah Industry Resource Alliance.

MAIN STREET LENDING PROGRAM LOAN OPTIONS			
	Main Street New Loans	Main Street Priority Loans	Main Street Expanded Loans
Term	5 years	5 years	5 years
Minimum Loan Size	\$250,000	\$250,000	\$10,000,000
Maximum Loan Size	Lesser of \$35M or 4x 2019 adjusted EBITDA	Lesser of \$35M or 6x 2019 adjusted EBITDA	Lesser of \$300M, 35% of outstanding and undrawn available debt, or 6x 2019 adjusted EBITDA
Risk Retention by Lender	5%	5%	5%
Payment (year one deferred for all)	Years 3-5: 15%, 15%, 70%	Years 3-5: 15%, 15%, 70%	Years 3-5: 15%, 15%, 70%
Rate	LIBOR + 3%	LIBOR + 3%	LIBOR + 3%
Lender Transaction Fee (May be paid by Borrower)	100 basis points of principal loan amount	100 basis points of principal loan amount	75 basis points of principal loan amount
Borrower Origination Fee	100 basis points of principal loan amount	100 basis points of principal loan amount	75 basis points of principal loan amount

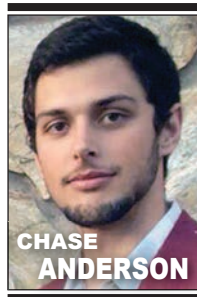


Members of the Outdoor Product Design & Development program team at Utah State University work on the design for a new backpack.

THRIVING

Utah's outdoor products manufacturing sector is going strong

Utah's economic industries are as diverse as its natural beauty and landscapes. One of the state's primary economic drivers is outdoor recreation and the design, manufacture and sale of sporting goods and outdoor products. Within the state of Utah alone, over 110,000 direct jobs exist within the outdoor economy, with over \$3.9 billion in wages and salaries and \$737 million in tax revenue generated for the state.



CHASE ANDERSON

While the direct jobs related to outdoor recreation are significant, major employers in the state, including Goldman Sachs and Lucid Software, have cited access to outdoor opportunities as a major draw for their expansion in the state.

With over 72 percent of Utahns participating in outdoor recreation opportunities each year, it's clear that the outdoor industry is here to stay.

Utah was the first state in the nation to recognize and double down on investing in this growing industry by creating the first Office of Outdoor Recreation in 2013 to invest in outdoor infrastructure, local workforce development and outdoor business recruitment.

The state is home to hundreds of outdoor brands, including many that not only design but manufacture products in Utah. Lifetime Products is a home-grown company that started from humble beginnings manufacturing adjustable basketball hoops, to expanding its manufacturing and shipping footprint to sell outdoor furniture, gardening equipment and coolers and is one of the largest domestic manufacturers of kayaks in the nation.

Known for the "Greatest Snow On

Earth," Utah's ski brands are leading in manufacturing great products, including DPS Skis in Salt Lake City. DPS prides itself on manufacturing high-

quality performance skis. In the age of COVID, not only did the company continue to manufacture its core product, but it banded together with other Utah brands (Goal Zero and Petzl) in order to create face shields and other pieces of personal protective equipment for clients. The adaptability of these companies in uncertain times shows their resilience and ability to design and deliver great products whether for the slopes or for safety.

Utah's cycling industry during the warmer months has solidified itself as a key player with major bike brands moving to the state and local bike manufacturers like ENVE Composites and Fezzari thriving.

ENVE Composites, part of the Amer Sports portfolio (both with headquarters in Ogden), prides itself on manufacturing carbon fiber bike parts in Utah. The appeal of building quality product in the U.S. was the turning point that helped lead the company out of troubled waters in 2010 and has helped solidify ENVE as a core industry leader. ENVE employs over 100 employees and has been a catalyst for the composites and manufacturing industry, particularly in Northern Utah.

Stories of great outdoor products manufacturers are not reserved for companies along the Wasatch Front. Chums is a long-standing outdoor accessories brand starting in 1983 and manufacturers many of its products surrounded by the red rock of Hurricane. Chums has built a substantial business designing

and producing better outdoor accessories, including its famous "Chums," a solution for keeping sunglasses secure on any adventure.

Returning to the northern slopes, Utah's ski manufacturing has a long-standing history beginning with Mike Dalebout and the launch of Daleboot, one of the leaders in custom ski boot fitting and manufacturing. Beginning in 1969, Mike Dalebout started Daleboot and began manufacturing custom ski boots, realizing that unique feet and skiing styles deserved more than the limited sizes and fits being offered by larger mass ski boot manufacturers. Daleboot currently employs a manufacturing team in Salt Lake, producing high-quality, custom-fit ski boots for clients all over the world.

Recognizing the growth and significance of the outdoor economy in Utah, Utah State University collaborated with industry partners to create the Outdoor Product Design & Development (OPDD) program in 2015 to better meet the workforce development needs of this growing industry. Students in the OPDD learn design process as well as tools and techniques to visualize and create the sports and outdoor products of tomorrow.

Starting in 2020, emphasis areas were added to the program to expand program capacity and capabilities in order to meet industry needs for highly skilled workers in product development and product line management. Within the program, students can focus their degree in one of three emphasis areas, allowing them to complete a specialization in product design, product development or product line management. Recent graduates from the OPDD program have already gone on to work

for and significantly contribute to Utah companies like ICON Fitness, Kuhl, Black Diamond, Cotopaxi, Lifetime Products, Klymit and many more.

In an effort to further support industry partners across the state, Outdoor Product Design & Development and the Utah Manufacturing Extension Service (UMES) came together to form the Manufacturing and Outdoor Products Support Hub in order to take on industry-related projects, provide opportunity for faculty and students to engage with industry partners and drive value for Utah manufacturers. Since its inception, the Support Hub has or is in the process of completing multiple projects primarily focused on new product development. Students are tasked with designing new products, technologies and processes that solve real challenges for Utah brands. Projects have varied from designing and developing new technologies for footwear, better backpacking sleep products and helping stand up a repairs and warranty program for a local brand run by students.

In summary, the future of the outdoor economy is bright. Utah's outdoor story is one of pioneering spirit, entrepreneurship and innovation and a willingness to collaborate. Support from state and local governments, private industry, and education of the outdoor industry is clear and the benefits to Utahns, north and south, are significant.

Chase Anderson is the program coordinator for the Outdoor Product Design & Development program at Utah State University. His efforts focus on building collaborations between Utah's outdoor industry and education. USU's Utah Manufacturing Extension Service is a member of the Utah Industry Resource Alliance.

UAMMI

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In Ogden, Williams International, a jet engine manufacturer, operates one of the most modern and efficient gas turbine design-to-production operations in the world. The company produces jet engines for corporate aircraft manufacturers, including Cessna, SyberJet, Pilatus and Beechcraft, as well as military missile systems. In Clearfield, the Northrop Grumman Innovation Aerospace Structures division has grown its contract with Airbus to manufacture and supply composite stringers and frames for the Airbus A350 XWB-1000 variant aircraft. Northrop Grumman has already delivered more than 10,000 parts to Airbus.

In Park City, Triumph Gear Systems manufactures and supports power drive and actuation systems for commercial aviation and military applications. In Provo, Duncan Aviation operates a full-service maintenance facility that provides avionics, accessory, engine and airframe technical support for government, business and other service providers.

In Layton, Kihomac manufacturing is at the forefront of the aerospace and commercial industries through metals, composites and rapid prototyping capabilities. Kihomac pivoted quickly to respond to the need for COVID-19 PPEs and within a few short weeks, stood up a fully functioning and registered medical manufacturing facility known as Kihomed, manufacturing nasal swabs, face masks and face shields.

In Cedar City, SyberJet Aircraft has a 30,000-square-foot completion and delivery center. Situated at the Cedar City Regional Airport and adjacent to the headquarters of SyberJet's parent company, MSC Aerospace, the completion center will serve as SyberJet's primary focal point for customer interface, including marketing, sales, customer service, pilot training and aircraft delivery. Together with Metalcraft Technologies, another MSC Aerospace subsidiary, this family of aerospace companies is producing the world's fastest and longest-range light business jet, the SyberJet SJ30. The company also supports the manufacture and assembly of aircraft components for many leading commercial and military customers and expects to grow its Utah workforce to approximately 1,200 people over the next decade.

Utah's strong commitment to the aerospace and defense manufacturers recently earned our state the designation as a Department of Defense (DoD) Manufacturing Community, which results in federal funding that will further accelerate the work of manufacturers. The Governor's Office of Economic Development and UAMMI led an impressive team of industry,



A squadron of U.S. Air Force F35 Lightning II fighter jets roar over the Great Salt Lake along the Wasatch Front. Many components of America's fighting airplanes — particularly carbon fiber frame and fuselage elements — are manufactured in Utah. U.S. Air Force photo by Staff Sgt. Cory D. Payne.

military, academic, legislative and academic supporters to receive the designation of a Defense Manufacturing Community. Utah is one of only six states to receive that designation. Our state now becomes part of the DoD Defense Manufacturing Community, which supports long-term investments that strengthen national security innovation and expands the capabilities of the defense industrial ecosystem.

Over the next five years, three areas will be targeted to prepare for the future of defense manufacturing.

The first area, workforce development, is the core of the Utah Defense Manufacturing Community. Workforce development and training initiatives are designed to strengthen the collaboration between industry and education in response to current and future talent demands of the defense manufacturing industrial base. Current estimates show that as many as 6,000 workers will be required to support the Ground Based Strategic Deterrent program, a land-based intercontinental ballistic missile system that replaces the ICBM program.

To meet the ongoing workforce demand, Utah is starting as young as kindergarten to inspire our students to work in the field of defense manufacturing. Utah leverages success with the Utah Aerospace Pathways Program, where high school students are trained in advanced manufacturing, including working with composites, to be hired by our aerospace and defense manufacturing industry.

The second area of focus is supply chain development. CONNEX, an online supply chain tool, was designed five years ago to make Utah's advanced materials industry more globally competitive. CONNEX

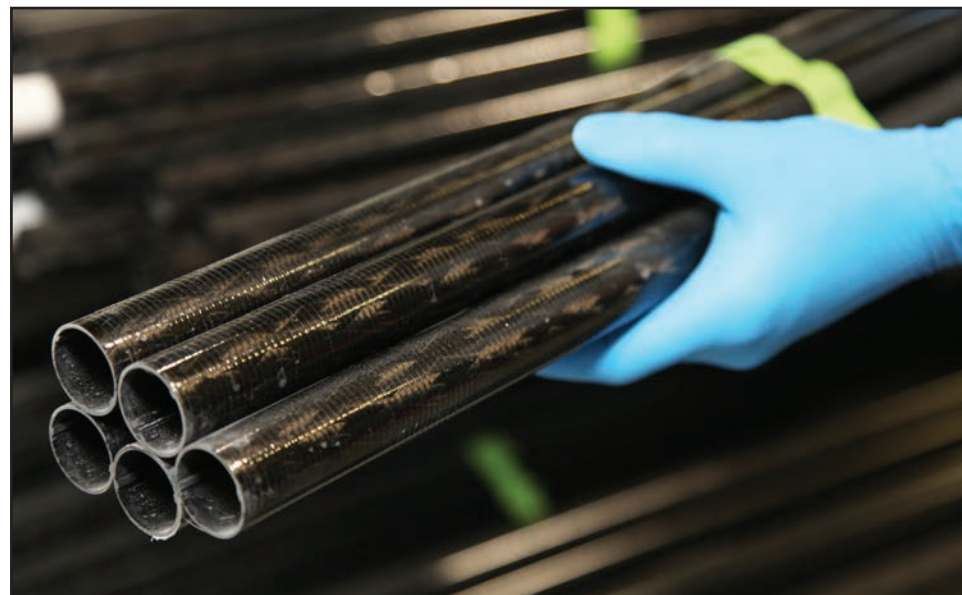
has the capability to diversify and connect Utah companies into new markets, allowing Utah manufacturing companies to share their capabilities, certifications, machinery, materials and workforce expertise. This online database tool assists manufacturers across the state of Utah to visualize and shorten supply chains, identify risks and threats in the supply chain, and find alternate suppliers. CONNEX is being expanded to an estimated 4,000 Utah suppliers in its database with direct connection to the national Manufacturers Marketplace, which includes more than 135,000 companies. Other states across the nation are adopting the CONNEX platform, including Florida.

The last area of focus will be working closely with our smaller businesses and incubators to provide mentorship and accelerate their growth by increased awareness of resources. Among programs offering excellent

resources are the Utah Industry and Innovation Center, which assists small businesses statewide to apply for federal Small Business Innovation Research and Small Business Technology Transfer, which grants funding for defense manufacturing companies. Another great resource is the Small Business Administration Regional Innovation Cluster program, which works closely with small businesses to increase their capabilities in defense manufacturing.

Utah's advanced materials and manufacturing companies will continue to grow and support aerospace and defense manufacturing, especially as world events require an increase in national defense preparedness.

Tulinda Larsen is the executive director of the Utah Advanced Materials and Manufacturing Initiative, whose objective is to elevate Utah's advanced materials manufacturing industry. UAMMI is a member of the Utah Industry Resource Alliance (UIRA).



Carbon fiber tubes are prepared for shipping at Nammo Composite Solutions in Salt Lake City. Tubes like these have a variety of applications, especially in the aerospace and defense industries.

CYBERSECURE your manufacturing business

As businesses embrace technology to deliver their goods and services and achieve their goals, cybersecurity cannot be overlooked in order to succeed. In many cases, security is overlooked due to the lack of understanding and thinking that it is an expensive aspect of information technology.

Cybersecurity is the organization's capability to safeguard and protect the use

of virtual and physical presence from different cyberattacks. This can be achieved by implementing processes to protect data and information using a security framework that can help to prevent, detect and respond to attacks. Implementing these processes will be less expensive than the cost of a data breach.

The future of the cybersecurity market is expected to keep growing. Cybersecurity Ventures predicted global spending on cybersecurity products and services will exceed \$1 trillion cumulatively over the five-year period from 2017 to 2021. The cybersecurity industry is driven by the number of cybercrimes. As cybercrimes rise, there is more need for cybersecurity measurements. Cybercriminals are eager to get a hold of your intellectual property (IP), personal identifiable information, customer records, any financial information and your network. The harm created by cybercrimes is estimated to reach \$6 trillion annually by the next year. By 2022, human attacks surface is expected to reach about 77 percent of the world population. The term "human attack surface" refers to all the exploitable security vulnerabilities or holes generated by human activities like errors, insider threat, vulnerability to social engineering and carelessness.

Cybersecurity should be an important component for *all* businesses, including the manufacturing industry, as part of their daily operations. According to the National Institute of Standards and Technologies (NIST), manufacturers are a significant target of cyberattacks.

"Manufacturers are often seen as an easy entry point into larger businesses and government agencies." Financial (73 percent of attacks) and cyber espionage (27 percent of attacks)

are the top reasons why hackers target manufacturers.

The main cyber threats to manufacturers are password dumper malware, stolen credentials, careless users and malicious users.

These threats put systems and data at risk. However, good cybersecurity control can help to manage the risk. The most important element about cybersecurity is how well you adapt to the changes in the industry. The best you can do to reduce your risk is to have a plan. In a lot of situations, those affected by cyberattacks were not prepared due to the lack of having a good security plan. In other situations, some had a plan, but unfortunately the plan was not up to date. It is important to remember that technology changes rapidly and consequently, so do the vulnerabilities. Therefore, good cybersecurity programs are an ongoing process. They need to be reviewed and updated regularly.

Some might be wondering what can be done to lower the chances to become a cyberattack victim. You can become educated about what is required to be protected. You must obtain and improve your cybersecurity and avoid the most common cyberthreat vectors in the manufacturing industry. In order to do this, you can start to implement the following security controls:

Access Control

- Limit IT administrators to use administrator accounts on systems and devices to perform non-administrator tasks.

- Limit regular user accounts to be local administrator accounts or have administrator rights.

- Implement the principle of "least privilege" to only allow employees to have enough access to perform their jobs. They should not have more access than what they need.



BRYANT
VASQUEZ

- Set up policies to implement segregation of duties.
- Implementing mandatory vacation policies require employees to take time away from their job and responsibilities. These types of policies help to decrease fraud and detect malicious activities by personnel because co-workers take over that individual's responsibilities for that time. This works as a way to audit their responsibilities.

System and

Information Integrity

- Use a good antivirus with regular scans to protect against malicious code.

Security Awareness

- Train your workforce regularly on basic cybersecurity principles.
- Make sure your employees know your company security policies and procedures. Also, make sure they are aware

of any changes or updates in your policies.

- Train personnel to identify phishing and social engineering attacks. This helps workforce to identify attackers when trying to steal data, credentials and personal information pretending to be a trusted individual through emails, instant messages, social media or text messages.

- Avoid downloading attachments from unknown sources.

Identification and authentication

- Enforce rigorous password policies. NIST recommends that all passwords use at least 12 characters and require a mix of upper- and lower-case letters, numbers and special characters. Also, to take your security to the next level, start thinking about increasing the number of characters to 16.

• Encourage users to use a good password manager where they can safely save all passwords. This will diminish the likelihood of re-using passwords in different systems and platforms.

- Start using multi-factor authentication (MFA).

Implement cryptographic mechanisms

- Encrypt data in transit and at rest.

How Can I Start a Plan?

Cybersecurity does not necessarily need to be expensive. A good starting point for manufacturers (or *any* type of business) is to understand their business goals and how technology can help them to achieve those goals. With that information in place, you can proceed to analyze your current

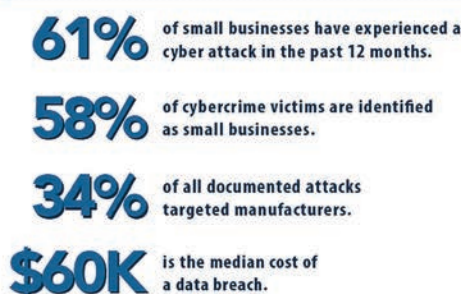
see CYBERSECURE page F10

CYBERSECURITY STRENGTHENS U.S. MANUFACTURERS

Cybersecurity protects the confidentiality, integrity and availability of your information. A cybersecurity program provides advantages for small and mid-sized manufacturers:



Reality of Cyber Attacks and Breaches



5 Steps to Reduce Cyber Risks

Protecting the information of your company, employees, and customers is an ongoing process. Manufacturers will benefit from a program that:



Common Types of Attacks and Breaches



Defense Suppliers: Compliance

Manufacturers in the DoD supply chain had until **December 31, 2017** to be in compliance with new DFAR cybersecurity requirements.

Learn more at

nist.gov/mep/cybersecurity-resources-manufacturers/dfars800-171-compliance

Enhance Your Cybersecurity

Whether you're a manufacturer implementing a cybersecurity program, or a DoD supplier looking to achieve compliance, the MEP National Network can help you with your cybersecurity needs.

Contact your local MEP Center or learn more at

nist.gov/mep/cybersecurity-resources-manufacturers



www.nist.gov/mep/mep-national-network

1-800-MEP-4MFG

Sources: Ponemon Institute's 2017 State of Cybersecurity in Small & Medium-Sized Businesses, 2019 Verizon Data Breach Report, Global Threat Intelligence Center 2017 Q3 Threat Intelligence Report, NIST Security, 2016 Intelligence Cyber Claims Study

NIST National Institute of Standards and Technology U.S. Department of Commerce

MANUFACTURING REGIONS

Ranked by Number of Manufacturing Establishments



County	Manufacturing Establishments	Private Non-Manufacturing Establishments	Manufacturing Employment	Private Non-Manufacturing Employment	Average Monthly Manufacturing Wage	Average Private Non-Manufacturing Monthly Wage	Top Manufacturing Establishments
1 Salt Lake	2,123	47,121	57,848	629,327	\$5,426	\$4,762	L3 Technolgies Inc.; Varex Imaging Corp.; Hexcel Corp.; Becton, Dickinson and Co.; Edwards LifeSciences LLC; Merit Medical Systems Inc.; Ultradent Products Inc.
2 Utah	707	17,192	19,694	234,594	\$4,661	\$3,967	Nestle Prepared Foods Co., Micron Technology LLC, IM Flash Technologies LLC, US Synthetic Corp.
3 Davis	342	8,618	13,996	104,123	\$5,107	\$3,709	ATK Space Systems Inc., Lifetime Products Inc., Alliant, Utility Trailer Manufacturing Co., Ralcorp Frozen Bakery Products Inc.
4 Weber	300	6,110	14,754	89,778	\$4,826	\$3,555	Autoliv, Parker Berteau, Kimberly Clark Worldwide Inc., Fresenius USA Mfg. Inc., Williams International Co. LLC
5 Cache	246	3,571	11,994	46,832	\$4,083	\$3,184	E.A. Miller, Gossner Foods Inc., Schreiber Foods Inc., Pierce Biotechnology Inc., Icon
6 Washington	241	6,097	3,482	61,289	\$3,550	\$3,107	Litehouse Inc., Deseret Laboratories Inc., Ram Manufacturing Co. Inc., Wilson Electronics LLC
7 Iron	96	1,594	1,863	15,091	\$3,943	\$2,722	Ampac Corp., Genpak LLC, Metalcraft Technologies Inc., Nucor
8 Box Elder	95	1,254	6,366	18,531	\$4,517	\$3,413	Autoliv, West Liberty Foods LLC, Thiokol Corp.– Propulsion, Nucor Steel, Nucor Building Systems Utah LLC, Vulcraft
9 Summit	75	28,45	863	25,101	\$5,937	\$4,028	Skullcandy Inc., Triumph Gear Systems Inc.
10 Wasatch	46	1,149	412	8,331	\$4,210	\$3,763	Redmond Minerals Inc., Rooftop Anchor Inc., Candyco LLC, Probst Preserves Inc., B&B Custom Design LLC, Mountain Cabinetry Inc.
11 Tooele	40	1,077	1,496	12,399	\$5,037	\$3,245	U.S. Magnesium LLC, Cargill Inc., Morton Salt, Inc., Carlisle Construction Materials LLC, Detroit Diesel Remanufacturing LLC
12 Sanpete	36	511	1,197	5,142	\$3,159	\$2,686	Pitman Farms Inc., ACT Aerospace, Christensen Arms
13 Uintah	28	1,142	183	9,749	\$3,104	\$3,799	Coyote Tanks Inc., Liquid Nutra Group, Country Cabinet, Udells Cabinets Inc.
14 Sevier	27	601	471	7,130	\$3,375	\$3,167	Pitman Farms Inc., Dogberry Collections Inc., US Gypsum Co.
15 Morgan	24	335	208	1,987	\$5,492	\$3,847	Holcim (US) Inc.
16 Duchesne	23	719	149	5,534	\$3,490	\$4,243	Cedar Bear Naturales, Uintah Machine and Manufacturing Co.
17 Carbon	22	513	399	6,732	\$4,650	\$3,803	Intermountain Electronics Inc., Peczuh Printing Co., Intermark Steel LLC, Morgantown Machine & Hydraulics, Love-Less Ash Company
18 Grand	13	536	103	5,011	\$2,718	\$2,913	The Synergy Company of Utah LLC
19 Millard	11	295	204	3,295	\$4,854	\$3,715	LiquaDry Inc., Graymont Western US Inc.
19 Beaver	11	182	157	1,573	\$3,102	\$2,649	Dairy Farmers of America Inc., Atkore Plastic Pipe Corp.
21 Garfield	7	199	53	1,893	\$2,476	\$2,598	K&D Forest Products Inc.
22 Kane	6	300	96	2,926	\$2,852	\$3,696	Stampin' Up Inc.
23 Wayne	5	113	7	807	\$1,326	\$2,588	
23 San Juan	5	262	83	2,729	\$2,360	\$2,975	Blue Mountain Meats Inc.
25 Emery	4	182	21	2,389	\$4,265	\$4,101	
STATEWIDE	4,553	102,761	136,926	1,305.096	\$4,934	\$4,175	



Helping Utah Manufacturers Grow and Thrive

Don't just float through COVID-19. Flourish.

The Utah Industry Resource Alliance (UIRA) is the Manufacturing Extension Partnership (MEP) for Utah and part of the MEP's national network. We provide services and outreach to Manufacturers in all 29 Utah counties and focus on improving the bottom line while growing the entire business.

For a limited time, we have received both State and Federal funds to help your company address the needs created by the COVID-19 pandemic. Most are free while others are need-based scholarships for services. This program ends June 30, 2021. Please act now and indicate what services would be most helpful for your business. When your selections and information are submitted, the website will immediately forward you more details and connect you with members of the Alliance who can help you.

→ [UTAHIRA.ORG/COVID-19](https://utahira.org/covid-19)

Our Partners



TRANSFORMING UTAH MANUFACTURERS



Website : <https://utahira.org>
Phone : (801) 587-0713
Email : info@utahira.org

Adapting to disruption through international engagement

COVID-19's effects on international business

With a sudden and colossal jerk, weak links in supply chains were stressed early in the pandemic, exposing a lack of diversity in manufacturing, distribution, and business strategies.

Starting at home with consumers, social distancing and stay-at-home orders dramatically altered spending patterns and shopping habits. Concerns with leaving the home led to an increase in online shopping and at-home delivery, placing pressure on shipping companies and hurting brick-and-mortar stores.

In an effort to cut costs, employees were furloughed, hours were cut and non-essential projects were pushed. Additionally, safety measures which required employees to stay at home stalled production. For manufacturers and distributors, slowing down or halting altogether was the only way to keep from closing their doors permanently.

As a result of decreased production, manufacturers canceled orders from suppliers and, in turn, suppliers canceled orders from their raw material suppliers. The transportation of products and raw materials has slowed and international freight companies are limiting their shipments. With fewer shipping options, much-needed supplies are sitting unused in warehouses around the world.

This international issue of reduced capability is felt by many companies and consumers in Utah. Regarding the disruptions they are facing, Chase Wagstaff, co-founder of Utah-based company Sno-Go said that “lead times have been affected significantly, and in some cases, it takes three times the pre-COVID rate to receive the supplies we need.” Sno-Go, the No. 1 selling ski bike in the world, is acting quickly to pivot its operations through improved forecasting and diversifying its supplier pool. “This means exploring new markets and improving back-end efficiencies.”

More than just adapting to cur-

rent challenges, Sno-Go is taking a proactive approach to innovating and increasing their digital presence. “We plan to leverage technology to minimize the amount of travel we are required to do and supporting our partners with digital assets rather than in-person touchpoints.”

Pursue International Opportunities

To catalyze Utah's economic recovery in 2009, Gov. Gary Herbert made international trade and investment one of his top priorities. That same year, the United States International Trade Commission reported

that small and medium-sized businesses that exported had more than twice the total revenue of their non-exporting counterparts. By 2012, Utah's exports nearly doubled, providing critical growth to businesses as Utah emerged as one of the best economies

in the nation with nearly one in four jobs supported by international trade and investment.

nesses identify and utilize federal, state and local resources in their time of need.

Pursue New Customers Through E-Commerce

Adaptive businesses will increase their online presence to reach new customers at home and abroad. Marking the biggest quarterly growth in over two decades, e-commerce grew by 44 percent in the second quarter as consumers flocked to online shopping sites. For comparison, *Marketplace Pulse* states that e-commerce in the United States usually grows at a rate of 15 percent year-over-year.

Enhanced e-commerce platforms provide a gateway into new markets. With 95 percent of the world's consumers living outside of the United States, now is the time to diversify your sales and pursue new customers while offsetting revenue losses from in-person sales.

Utah-based Walker Edison

designs, manufactures, warehouses and ships furniture via e-commerce marketplaces throughout North America and Europe.

“COVID-19 has opened opportunities in some aspects and compounded problems in others,” said Bonham. “Due to the massive increase in e-commerce volume, both UPS and FedEx have been overwhelmed, causing a delay in outbound shipments to end consumers — sometimes for up to two weeks. We are seeing volumes that FedEx expected in 2023.”

An increase in online shopping is currently undermined by a worldwide decrease in production and shipping. With supply and demand at odds on a global scale, companies are prompted to adapt — and quick. Shifts in how consumers live require significant operational and strategic changes for companies that wish to meet the new needs of this current climate. However, Bonham believes that “supply chains and operations will eventually catch up” to the current growth of e-commerce sales.

Act Now to Position Your Company for Success

International trade and investment are some of the most powerful ways to immunize Utah businesses from the economic effects of COVID-19. It may seem counterintuitive, but now is the time to pursue international customers and invest in online sales platforms. Utilize the abundant government and state resources available to identify markets that would be a good fit for your product or service, learn how to diversify your supply chain and receive grant funding to translate and optimize your website. By adapting now, your company will be positioned to endure current challenges and emerge stronger than before.

Julia Breinholt-Pappas is the marketing-communications director for World Trade Center Utah, a member of the Utah Industry Resource Alliance. Specializing in the outdoor and life sciences industries, she has organized and led various business delegations abroad to generate more than \$10 million in new trade opportunities for the state.



in the nation with nearly one in four jobs supported by international trade and investment.

The state's previous success demonstrates that international engagement should once again be utilized in economic recovery efforts. Fortunately, a decade of dedication to global business outreach has prepared the state and its partners to help Utah busi-

Furniture Co. is one of the leading partners for the biggest names in e-commerce. Brad Bonham, CEO of Walker Edison, shared “When COVID hit and all brick-and-mortar stores shut down, they cancelled all orders with their suppliers, providing us with an incredible increase in capacity that we were able to take advantage of since e-commerce sales skyrocketed.”

CYBERSECURE

from page F7

implemented technologies and utilize them first from the security perspective. This is called “gap analysis.” A security gap analysis can help to identify what security controls you have and your gaps. Once you know your gaps,

you can start looking how to fill those gaps with your existing technologies. If you discover that you don't have a technology to fill those gaps, you can start looking for a new solution. But remember, always try first to utilize your existing technologies.

Select a Security Framework

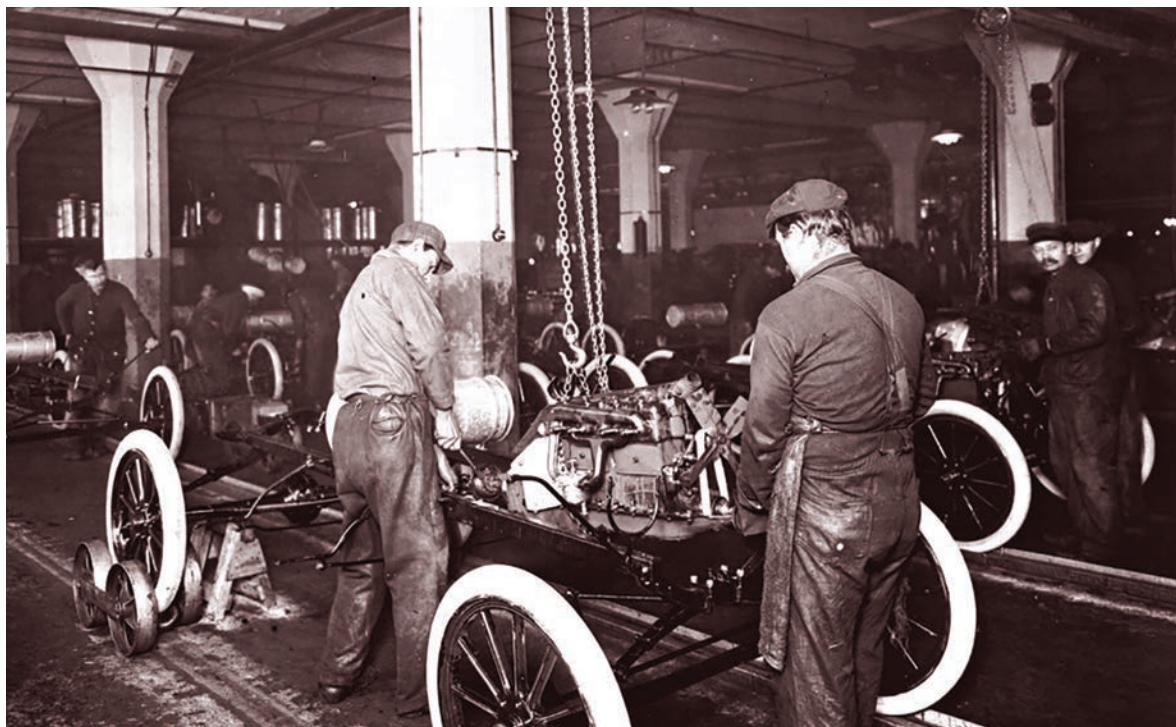
Once you better understand your internal technologies, you will need a

good security framework to follow. The framework will provide you guidance to organize your cybersecurity plan and program. It will provide you direction on the best security practices. NIST Cybersecurity framework has been created specifically for manufacturers, allowing the industry to implement security standards. The framework will help you to identify, protect, detect,

respond and recover from cybersecurity events.

Bryant Vásquez is a cybersecurity consultant for the University of Utah Manufacturing Extension Partnership (UUMEP) Center and is the official representative of the MEP National Network in Utah. His focus is to help manufacturers to respond to cyber-threats, perform cybersecurity gap-analysis by understanding their business processes and educating about best practices.

THE CLOUD IS TO COMPUTING WHAT THE INDUSTRIAL REVOLUTION WAS TO MANUFACTURING



On a recent trip to Morocco, as we wandered the souks in hopes of finding fantastic, one-of-a-kind, handmade items to bring home, our tour guide pointed out a sad fact: Most all the items sold had been ordered in from China. While great for the travel budget, it was disappointing.

The world has come a long way from the days when artisans crafted the manufactured goods that carried with it the history of the artisan who had crafted it. Masters taught apprentices and people would journey from far and wide to houses of learning specifically dedicated to a craft. Everything from barrels and cartwheels to the whirling gears of clocktowers were handmade and fashioned for use by experts in their respective trades. While many products now lack such character and history, our demand for instant gratification and competitive pricing has shifted how we perceive items and what we will pay for what we want.

It was in the Industrial Revolution and in the years following it, we introduced things like replaceable parts and assembly line manufacturing — Using machines to create the product instead of a single person to create the product. This helped simplify the process of creation into a simple process which would then expedite work that a single artisan could do on their own. This revolutionized manufacturing and brought about a golden age of new goods and services to the world that we are still feeling today.

If a simple product that was passed from person to person, each adding a single piece, revolutionized the process of manufacturing, allowing the collective to create wondrous works of machine and metal, why wouldn't that same process be applied to the computer workstations in the manufacturing line? Surely the process can be applied as much with the

magic ones and zeroes as much as that physical product we make, right?

There are simple ways that we can begin the process of applying the same principles of replaceable parts to the data that we work with daily. One of the simplest ways is to utilize what is known as “cloud computing” or storing data in “the cloud.” These are pretty common terms that are thrown around, but what is it that they mean when they talk about these terms and how is it that these are able to assist you in streamlining the process like handing things off on an assembly line?

When technology professionals throw around terms like “the cloud,” it is a fancy term that really means “someone else’s computer.” Don’t let that scare you though. Trustworthy companies take special care to make sure that you are the only person who ever gets to look at your data. You can still allow other people of your choosing to view and even edit the data, assuming they have the right software to access it. The process involves sending the file across the Internet to their server farms across the world which are encrypted so that only you can see what you put in there.

Some of the most popular options specifically allow someone to create a document and then pass it along the chain to the next person to add information and data without the hassle of needing to physically pass the file from computer to computer like you would with a flash drive or even like you would pass it along attached to an email. In most cases, you can send them a single link, either by email or whatever instant messaging service you prefer (Teams, Slack, etc.), to save time and energy. Then, when the user is finished, both of you can see the changes made or even with some services you can see the changes made in real time and then the file is again passed along the chain until eventually

it is given a final copy which is able to accomplish whatever you need.

This is effectively the same process of replaceable parts that revolutionized the firearms industry before the U.S. Civil War, only instead of musket parts, you are passing along that Excel spreadsheet with last quarter’s expenses or gross income. The effectiveness is hard to ignore as it can help reduce the effort needed to get those important documents filled out. This will increase efficiency and help show off the effectiveness of your company as tasks that previously took days now take hours.

There is another advantage of this process which can’t be understated in a world in turmoil. Especially with natural disasters, there is a risk of data loss within a business. The exposure factor of individual computers can range anywhere along the spectrum, depending on the location of the computer, the type of exposure and all the different threats that exist to a machine. That being said, what would happen if your computer suddenly stopped working? What if a hacktivist group decided they didn’t like your work, so they encrypted or deleted the files that relate to that amazing prototype device you were going to start manufacturing on your machine?

By having items in the cloud, you can mitigate some of the risks of the environment as the version of the file is now stored outside of the computer, down the street and around the block two states over. No matter what Mother Nature throws at your machine or who decides to attack the computers, your data is safe and secure. Or if a flood comes in and turns your computers into a tech soup, bubbling and hissing from the exposed electrical ends still connected to the wall, you can still recover the data stored on it.

This is like having one of the cars made by Henry Ford, the pioneer of the automated assembly line, which is suddenly (and very dramatically) pulled off the assembly line. Since we

know where the blueprint is and where the incomplete item went missing, we can easily go back and find the exact point where it needs to be re-inserted into the line.

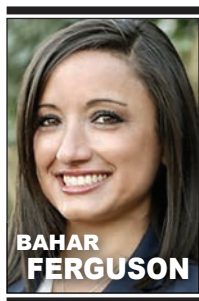
With all these advantages and productivity boons, what would stop anyone from such an amazing resource?

Back in the day, when servers took up a floor in the university, it was the cost of trying to afford a server that could handle the data ebbs and flows. Now, thanks to manufacturing specialists and an abundance of resources available, servers are becoming cheaper than ever. Now, small and medium businesses can afford to house their data on an internal server just like a big business. This has a lot of the same advantages of cloud storage, allowing you to send a link or path to a file without needing to email the entire file, although instead of being two states over in a server farm it is down the hall.

Still worried about the upkeep and maintenance of a server? Microsoft has started introducing virtual servers. That means that you can leave all the maintenance and hassle of replacement parts to Microsoft while you can focus on manufacturing your cool new device that will change the world for just a simple monthly payment that feels like you are just paying for a couple of monthly streaming subscriptions but with a lot more productive results.

Always remember to contact your IT team if you have questions about how to implement some of these unique technologies and processes in your business. They help handle the data that goes between computers, so it is worth talking to them in order to make sure that things will work the way you want.

Bahar Ferguson is president of Wasatch I.T., a Utah provider of outsourced IT services for small and medium-sized businesses.



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