

Going above and beyond to create innovative,  
customized, full lifecycle solutions.

We make the world safer and more productive.



ANNUAL REPORT

July 1, 2018 – June 30, 2019

# Dear Colleagues and Friends,

*“If everyone is moving forward together, then success takes care of itself.” – Henry Ford*

Words that resonated with industrial pioneer Henry Ford ring true today for Concurrent Technologies Corporation (CTC). CTC and its affiliates, Enterprise Ventures Corporation (EVC) and the CTC Foundation, collaborate to ensure the best possible outcomes for our clients.

The family of organizations can trace its origins back to 1987 with the creation of Metalworking Technology Inc. (MTI), a company that operated the U.S. Navy’s National Center for Excellence in Metalworking Technology. In 1992 MTI became **Concurrent Technologies Corporation** to more accurately reflect the company’s growing capabilities. CTC is currently an independent, nonprofit, applied scientific research and development professional services organization with experience and expertise in a variety of technologies.

- In 1998, **CTC Foundation** was created as CTC’s philanthropic affiliate to improve the quality of life for the public through unique economic development initiatives.
- In 2000, **Enterprise Ventures Corporation** was incorporated as CTC’s for-profit affiliate to transition advanced technologies designed and created by others to the marketplace.

Each entity contributes its own unique strengths, and by working together, we ensure our overall vision to develop comprehensive solutions that make the world safer and more productive. This Annual Report highlights some of our current individual and combined successes.



*Front cover, clockwise from upper left:* CTC is producing an industry-leading approach to ammunition manufacturing (p. 6). The next two photos represent CTC’s capabilities in additive manufacturing (p. 5). CTC plays a key role in the U.S. military’s energy goals (p. 13). CTC’s work with friction stir welding (p. 6) is shown in the next two photos. CTC supports the nation’s critical readiness efforts (p. 13). EVC is commercializing AGIS software to protect against cyber threats (p. 16).

Thank you for taking the time to read our annual report, which highlights recent activities from Concurrent Technologies Corporation (CTC) and our affiliates, Enterprise Ventures Corporation (EVC) and CTC Foundation. We have included accomplishments achieved both individually and collaboratively, making the most of each other’s strengths. Outside of our organizations, we have renewed existing alliances with long-time partners and clients and we’ve formed ties with new ones, expanding our opportunities for growth.

For instance, CTC has renewed and expanded its work with the Assistant Secretary of the Air Force for Installations, Environment & Energy by supporting their efforts to integrate the best environmental, safety, occupational health, and installation practices into all Air Force activities. CTC will also continue to provide program management, technical solutions, and policy expertise in the emerging field of Operational Technology cybersecurity for the U.S. Marine Corps Installations Command. These are just a few examples of how we are serving our clients as trusted technology and service providers, assuring them of our ability to effectively solve their challenges.

Collaboration between CTC and EVC has been the key to many accomplishments across our portfolio of technologies, including engineering and manufacturing, information technology, readiness and training, and professional services. Our cross domain solution for protection against cyber threats, known as Advanced Guard for Information Security (AGIS), began more than a decade ago with innovations CTC developed for U.S. federal agencies. Today, EVC is increasing sales of AGIS to new and existing clients, including those in the highest levels of the government. EVC is also actively adding to the number of organizations using our specialized helicopter maintenance tools, which were developed by CTC and refined and commercialized by EVC. Details on these joint CTC/EVC initiatives and others are in this report.

Not only are CTC and EVC delivering customized solutions to address specific client needs, our technical experts are in demand to share their expertise throughout their industries at conferences and in trade publications. Our safety and occupational health professionals are actively engaging others in their field at national events and through published articles. In fact, a peer-reviewed article



Howard M. Picking, III  
Chairman, CTC Board of Directors



Edward J. Sheehan, Jr.  
Vice Chairman, CTC Board of Directors  
President & Chief Executive Officer



“Collaboration between CTC and EVC has been the key to many accomplishments across our portfolio of technologies in engineering and manufacturing, information technology, readiness and training, and professional services.”

on medical marijuana impairment in the workplace received the Professional Safety Article of the Year Award (Third Place). Our information systems leaders organized and sponsored information security events, and other subject matter experts presented on advanced manufacturing in the U.S. nuclear industry, military welding applications, and more. Our employees also wrote and published articles about additive manufacturing, friction stir welding, sustainability design, water recycling, and other topics.

We appreciate all of our employees and their extremely high level of work and dedication. More than ever, CTC, EVC, and CTC Foundation are committed to working together to deliver robust, technical, and innovative solutions that safeguard our national security, retain U.S. technological advantage, and ensure the primacy of American manufacturing. We also offer a sincere thanks to our partners and clients who are integral to our accomplishments. All of us are excited to build on our successes moving forward with the opportunities that lie ahead.



**Howard M. Picking, III**  
Chairman, CTC Board of Directors



**Edward J. Sheehan, Jr.**  
Vice Chairman, CTC Board of Directors  
President & Chief Executive Officer

## CTC Board of Directors



### Seated (left to right)

Robert J. Eyer  
E. Jeanne Gleason  
Howard M. Picking III, Chairman  
Retired U.S. Army Maj. Gen. Camille M. Nichols



### Standing (left to right)

Mark E. Pasquerilla  
Retired U.S. Army Lt. Gen. Joseph Yakovac  
Dale M. Mosier  
Retired U.S. Air Force Maj. Gen. John F. Phillips  
Edward J. Sheehan, Jr., Vice Chairman  
Retired U.S. Air Force Col. Conway B. Jones, Jr.

*Absent:* the Honorable Dr. Reginald Brothers and the Honorable Jeffrey K. Harris



# Advanced Engineering and Manufacturing



## CTC Capabilities:

- Additive Manufacturing
- Coatings
- Corrosion Services
- Custom Fabrication
- Environmental Engineering
- Friction Stir Welding
- Hypersonic Technologies
- Infrastructure Energy
- Mechanical Testing and Materials Characterization
- Next Generation Ammunition
- Nuclear Manufacturing

While CTC's technical expertise spans a variety of disciplines, our roots are in advanced engineering and manufacturing. For more than 30 years, we have delivered customized solutions covering the entire lifecycle—including design, analysis, rapid prototyping, testing, materials, and manufacturing.

## A Full Range of Engineering and Manufacturing Solutions

CTC's engineers and scientific experts offer high-level capability for the entire product development lifecycle. Our team combines deep knowledge of traditional fundamentals as well as cutting-edge technologies to offer innovative, customized solutions.

Additive manufacturing (or 3D printing) provides significant benefits in a wide variety of industries. CTC offers several 3D printing processes, including laser powder bed fusion, hybrid manufacturing, and cold spray. We provide a comprehensive suite of services, including reverse engineering, process development, characterization of powder and substrate, surface profile preparation, material application, post processing, final machining, and inspection. CTC also offers services to evaluate, validate, and qualify parts through mechanical and physical property characterization.

## Reducing Demand on Natural Resources

CTC contributed to the Army's Fort Huachuca energy and water conservation program that was recognized as being at the forefront of energy



*CTC focuses its additive manufacturing activities mainly on metal parts, including aluminum, titanium, stainless steel, cobalt-chromium, and others.*

security and resiliency. The U.S. Army Garrison Fort Huachuca received a Secretary of the Army Energy and Water Management Award, which recognizes installations, small groups, and individuals who make significant achievements in energy conservation and water management in support of Army readiness. CTC supported an energy security assessment that resulted in securing a design for a Mission Critical Microgrid.

**Our team combines deep knowledge of traditional fundamentals as well as cutting-edge technologies to offer innovative, customized solutions.**





CTC has a long history of creating advancements in engineering and manufacturing, including innovations in friction stir welding, which are being leveraged in a project to manufacture armored vehicle prototype hulls for the U.S. military.



OPSEC SOP #29698

### Award-winning Engineering and Manufacturing Achievements

CTC's understanding of military ground vehicle prototype manufacturing is being leveraged in a contract awarded by SAIC. CTC's welders, engineers, and other staff are supporting SAIC engineers in the design and manufacture of two Armored Reconnaissance Vehicle hulls for the U.S. Marine Corps, as part of an Office of Naval Research-funded effort. Specifically, CTC is contributing friction stir welding expertise and knowledge gained from our recent experience building two combat vehicle prototypes for the U.S. Army.

Both the Department of Defense and the commercial industry can benefit from CTC's award-winning approach to manufacturing ammunition. The National Armaments Consortium (NAC) and the DoD Ordnance Technology Consortium (DOTC) recognized CTC for Outstanding Technical Achievement for its innovative manufacturing process that improves logistics and the end product. CTC is developing and testing prototype ammunition cases that simplify the manufacturing process, reduce the total cost of ownership and manufacturing footprint, increase performance, and reduce weight. This work is building on decades of experience developing industry-leading environmental and process engineering solutions that cover research and development through testing, technology transition, and implementation.



Building on years of ammunition process engineering solutions, CTC's current focus is on alternative metallic case design for next-generation small caliber ammunition, which provides significant improvements over conventional ammunition.

Both the Department of Defense and the commercial industry can benefit from CTC's award-winning approach to manufacturing ammunition.

The U.S. Army Corps of Engineers published the results of a CTC-managed project that introduced novel technology to monitor steel bridges. The Research and Development Center Construction Engineering Research Laboratory final report details the structural health monitoring system, which is recommended for use on bridges critical for DoD use. The system monitors corrosion using several types of sensors and monitoring systems that transmit data and alerts via web-connected computers. Not only can the system remotely monitor bridges' structural integrity, it can deliver advanced warning of a growing structural problem, providing the ability to repair it before catastrophic failure.



CTC has developed novel technology to monitor the structural health of steel bridges, including a camera system that allows for remote viewing of the entire structure and the main navigation channel.

In addition to the specific activities already mentioned, CTC is engaged in projects involving a variety of other engineering and manufacturing disciplines, including:

- Mechanical Testing and Materials Characterization – Our experienced team performs quick turnaround services for many government and commercial clients, from small-scale testing to overall test programs for material qualifications.
- Custom Fabrication – From concept to production, CTC delivers innovative solutions in all phases of machining, welding, manufacturing, and component development.
- Corrosion Services – CTC supports corrosion control efforts across the equipment lifecycle, conducting material investigations, technology evaluations and demonstrations, as well as outreach and awareness.

- Nuclear Manufacturing – CTC has participated in the advancement of technology needed for the future of the nuclear power industry, from addressing supply chain challenges to developing mechanized/automated manufacturing processes.

### Sharing Industry-leading Expertise

- Mike Tims, CTC Advisor Engineer, and Ken Sabo, CTC Senior Director of Manufacturing, co-authored an article on metal additive manufacturing in *Aerospace & Defense Technology* in December 2018.
- CTC achievements involving friction stir welding for the military were featured in an *SAE International* article in January 2019.
- CTC and EVC innovative water recycling work was highlighted in the *Pennsylvania Chamber Catalyst* magazine in April 2019.
- Rob Akans, CTC Metalworking Technology Senior Director, presented on the developments in advanced manufacturing in the U.S. nuclear industry at the *Organization of Canadian Nuclear Industries Advanced Manufacturing Seminar and Exhibit* in Ontario in April 2019.
- Rob Akans also participated in a featured panel of advanced manufacturing for nuclear energy applications at a *Department of Energy Advanced Manufacturing Summit* in Oak Ridge, TN, in May 2019.

Links to the items listed above are included in the digital version of the Annual Report at [ctc.com](http://ctc.com).



# Information Technology



## CTC Capabilities:

- Artificial Intelligence and Machine Learning
- Cloud Architecture and Security
- Cross Domain Solutions
- Cybersecurity
- Extended Reality

CTC's information technology (IT) solutions are at work in high-level, high-priority areas of the Department of Defense, U.S. government agencies, and many other organizations. CTC has been at the forefront across the spectrum of information technology that enables our clients to survive cyberattacks, take advantage of custom artificial intelligence and machine learning capabilities, leap ahead using ground-breaking virtual reality solutions, and design and deploy cloud-based capabilities.

## Patent-pending Technology Makes the Virtual World More Real

If you've ever worn virtual reality glasses, you know how disorienting it can be to navigate the digital landscape while you're in the "real world." CTC created a system that adds a physical dimension to an extended reality (XR) experience. PolyFormXR™ automatically builds physical infrastructure that corresponds to what is created using XR equipment. This way, those navigating the virtual environment are able to negotiate the structures in it.

CTC has submitted a utility patent for PolyFormXR, which has both military and entertainment applications. For military trainers, it can create the illusion of a sprawling area of operation for urban mission rehearsal training exercises for dismounted soldiers. For entertainment industry



A cross-discipline team created a unique virtual reality platform that makes the virtual world more real. Pictured with one of the PolyFormXR columns that CTC manufactured are (l to r) John Wass, Jeremy Brougher, Dave Hockenberry, Ron Punako, and Dave Luciew.



developers, it can assist creation of many different virtual-physical correlated fictional worlds that may be rotated many times throughout a business day, as needed.

Using any XR equipment, the PolyFormXR software measures the heights of objects in that virtual world and then its smart surface hardware recreates the object shapes in the real world to represent infrastructure such as walls, windows, doors, stairs, chairs, etc.—all using a grid of moving neighboring columns. After the physical recreation is complete, participants put on their XR equipment and experience the target virtual world with both virtual and tactile components.

### Securely Navigating the Cloud

CTC developed the first FedRAMP-compliant Software as a Service for deploying complex capabilities in a classified cloud environment. Today, CTC offers clients a wide range of cloud development and security expertise. Our team has quickly and efficiently integrated ambitious and highly complex projects into the Amazon Web Services (AWS) Commercial Cloud Services (C2S) environment for our intelligence community clients. Our cloud migration services take into account an organization's unique, mission-specific requirements to develop the correct architecture and execute a rapid and successful transfer to the cloud. Further, our highly respected cybersecurity professionals can help protect applications and data in the cloud. Most recently, working with our intelligence community clients, the military services and our partners, CTC has engaged in an extensive effort to design and deploy lightweight clusters to the tactical

edge. These edge nodes provide deployed military units with an enhanced ability to exploit actionable intelligence more quickly than ever before.

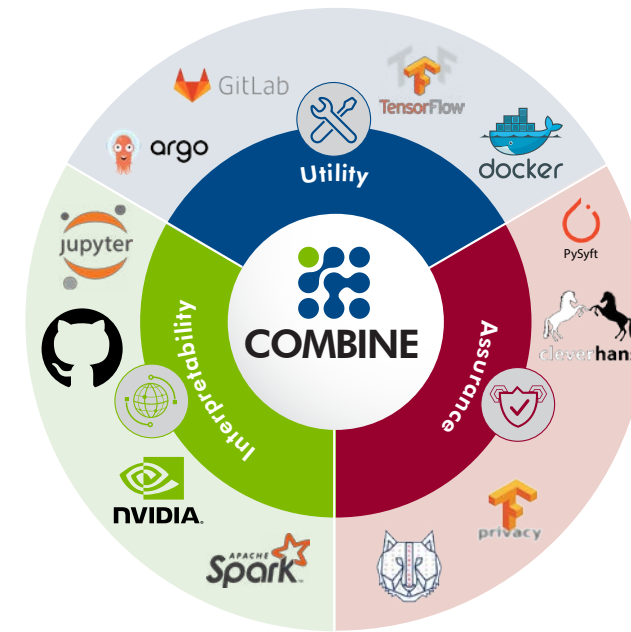


### Innovative Machine Learning Designs

More and more, artificial intelligence (AI) is impacting our lives as computer systems perform tasks that humans have traditionally performed, from recognizing images and speech to decision-making. For businesses and governmental organizations alike, AI and Machine Learning software applications are highly accurate in predicting outcomes, solving real-

world organizational challenges and significantly improving existing processes in a variety of ways.

Beyond understanding machine learning techniques and algorithms, CTC's experts apply the right approach to address your specific needs. Leveraging deep knowledge of machine learning and modern engineering and software design principles, we offer secure and private machine learning models that ensure high utility, assurance, and interpretability for both cloud and edge applications.



*CTC keeps pace with the rapidly changing machine learning market to understand the implications of emerging research and to evaluate and integrate these tools and capabilities into commercial machine learning tools or our own COMBINE™ big data microservices architecture platform.*

## Sharing Industry-leading Expertise

- Lucas Truax, CTC Senior Information Systems Security Engineer, and Scott Zimmerman, CTC Advisor for Information Technology, co-authored an article on securing the nuclear advanced manufacturing supply chain in the [American Society for Quality newsletter](#) in the summer of 2018.
- Reginald Brothers, CTC Board Member, was quoted on the DoD's need to fund technology R & D in [GovCon Wire](#) in February 2019.
- CTC sponsored the VR/AR Association Pittsburgh's "XR Executive Summit" in April 2019.
- Lucas Truax and Scott Zimmerman organized the inaugural [BSides Flood City](#) event in Johnstown in April 2019.
- Lucas Truax, Frank Cameron, CTC Senior Systems Engineer, and Scott Zimmerman presented on the integration and use of the Risk Management Framework at the [BSides Pittsburgh](#) conference in June 2019.

*Links to the items listed above are included in digital version of the Annual Report at [ctc.com](http://ctc.com).*



*PolyFormXR automates the construction of synthetic physical infrastructure, such as walls, windows, doorways, stairs, and large props, for urban combat training.*



# Readiness



## CTC Capabilities:

- Safety and Occupational Health Services
- Mission Assurance Support Services
- Readiness and Continuity of Operations Technology-based Solutions
- Advanced Education & Training Solutions

CTC is honored to play a role in ensuring that DoD and Homeland Security agencies are prepared to carry out their critical missions, regardless of circumstance. Our engineers, analysts, instructional system designers, subject matter experts, and certified program managers help prepare those who are sent into harm's way and those who perform essential functions for continuity of operations.

## Energy Expertise Making a Powerful Impact

CTC plays a key role in ensuring the energy efficiency, resilience, and reliability at all Marine Corps installations worldwide. The U.S. Marine Corps Installations Command (MCICOM) awarded CTC a contract worth up to \$36 million to address utility distribution systems that support the the Marine Corps energy reliability and resilience requirements. As the prime contractor, CTC has completed the base year and has started on the first option year on that contract. The work includes CTC and several small business subcontractors identifying potential infrastructure upgrades, conducting energy audits, analyzing mission assurance assessments, and developing solutions to fix gaps identified by those assessments.



*CTC has supported several military branches with their energy requirements. The new heat and power plant at Marine Corps Recruit Depot Parris Island is a prime example of the Marine Corps commitment to energy efficiency. (Photo courtesy of Ameresco)*

## Helping the Military in the Emerging Field of Operational Cybersecurity

CTC provides critical expertise to assist the MCICOM in protecting information technology that runs facility systems such as utilities, fire suppression, and access control systems, including those associated with military

installations. CTC and a small business partner were selected in March 2018 to carry out their work through two contract option periods that run through March 2020. This work includes highly specialized technical, analytical, and investigative resources and expertise in Facility Related Control Systems and comprehensive assessment services.

## Custom Educational and Training Solutions

CTC has a rich heritage of providing cost-effective education and training solutions to organizations in the federal government and private industry. We led the development of global learning standards, the Sharable Content Object Reference Model (SCORM), and bring 25+ years of expertise in instructional design practices, principles and techniques; curriculum development; adult learning theory; and instructional product development.

## Validating Personnel During Emergencies

CTC's Identity, Credential and Access Management (ICAM) products and solutions have been deployed at various complex occasions such as presidential inaugurations and natural disasters. CTC's ICAM activities include the development of the Emergency Response Official Accountability tracking system (ATS) and the Federal Emergency Response Official (F/ERO) Repository System. These mobile, electronic credential validation systems identify responding personnel and achieve operations among different jurisdictions during emergencies.

## Sharing Industry-leading Expertise

- CTC Safety Professionals Lori Schroth, Brandon Hody, and Chris Chaffin co-authored an award-winning article on medical marijuana impairment in the workplace in the [ASSP Professional Safety journal](#) in August 2018.
- Elizabeth Keysar, Ph.D., CTC Energy and Sustainability Policy Analyst, co-authored a journal article for [The Military Engineer](#) about the sustainability design of the Carl R. Darnall Army Medical Center at Fort Hood, TX, in March 2019.

*Links to the articles listed above are included in the digital version of the Annual Report at [ctc.com](http://ctc.com).*



# Enterprise Ventures Corporation



## Dear Colleagues and Friends,

### EVC Board of Directors



Edward J. Sheehan, Jr.  
Chairman



Russell C. Davis  
Director



Ned Renzi  
Director



Gary C. Slack  
Director



David A. Schario  
Director



Dale M. Mosier  
Director



David A. Schario  
President

In FY19, CTC and EVC Executive Leaders developed a Joint Operations Plan, which defines how CTC (nonprofit) and EVC (for profit) work together to support the overall CTC strategic plan. The plan contains specific information on how we transition potential products between the organizations, how we maintain alignment between EVC products and CTC development efforts, and how we collaborate on opportunities. EVC's role is explicitly described. EVC provides the capability to build and produce products, thereby expanding the ability of the organization to win work along the entire lifecycle of opportunities, from RDT&E to production.

FY19 was a year of transition and challenges. Huntsville Operations transferred to EVC in FY19, the water recycling technology was re-engineered to address market needs, TALON production scale-up was completed, and AGIS software certification was pursued and achieved. These items represent a significant investment in infrastructure and capability that will enable EVC to grow its business base in FY20 and beyond.

FY19 investments have led to the establishment of a National Stock Number (NSN) for the H-60 Bridge Tool Deluxe Kit, shortening sales cycles; certification by the National Cross Domain Strategy and Management Office (NCDSMO) of AGIS software as required by federal government organizations; and qualification by Army Research Laboratory of TALON coating, enabling implementation on multiple weapon system platforms. These investments have already increased pipeline opportunities, including receipt of the first Request for Quote (RFQ) for TALON and the first RFQ for an anticipated Army-wide buy of Bridge Tools.

EVC has built a solid team that is both excited and optimistic heading into the new fiscal year. In FY20, EVC will specifically focus on growing sales in each of its business units: TALON coatings, AGIS software, professional services, and production. Resources related to sales, marketing and business development have been prioritized in FY20.

On behalf of the leadership of EVC and its Board of Directors, we want to thank our employees, customers, and partners for their significant contributions to EVC's success. The EVC team is committed to achieving growth while fostering a positive, healthy culture in FY20 and beyond.

David A. Schario  
President,  
Enterprise Ventures Corporation



While CTC focuses primarily on the earlier stages of innovation, namely research and development, EVC is organized to handle the process of bringing these technologies to market once they're mature enough for real-world application. In this annual report, you'll see some examples of how our companies work together to advance technology solutions. EVC's areas of expertise can be categorized into IT/software products, production products, and professional services.

## AGIS Has Your Files Covered



No matter what industry you're in, the need to safely share files across computer domains is critical. A robust cross domain solution can protect organizations from cyber threats and ransomware attacks, which have significantly impacted large and small organizations, generating significant disruption, creating extraneous cost, and causing loss of credibility.

For more than a decade, CTC designed, developed, and implemented cross domain solutions for U.S. federal agencies. EVC has built on that work and is bringing some of that technology to a wider market through its Advanced Guard for Information Security (AGIS) system.

AGIS is a secure, bi-directional file transfer system that inspects and cleans high-risk, commonly used files by removing malicious, hidden, and inappropriate content while preserving the file's original format. Following the inspection and sanitization process, the system transfers a clean, safe version of the file to the receiver. This helps eliminate the introduction of dangerous malware and mitigates the threat of ransomware.

AGIS supports up to 20,000 users on a single system and handles the files most of us use every day, including Microsoft Word, Excel, and PowerPoint; PDF files; JPEG and Windows Bitmap image files; and others.

## Advanced Survivability Technologies

EVC is working with CTC and the U.S. Army to develop breakthrough survivability technologies for military purposes that enhance platform survivability and signature management solutions. EVC develops concepts and specialized solutions that span coatings formulation and manufacture, specific applications and process integration.

## CSTRS: Where It All Began for EVC

In the late 1990s, CTC began working side-by-side with U.S. Navy partners and customers to develop the Carriage, Stream, Tow, and Recovery System (CSTRS), a launch and handling system that provides airborne mine countermeasure capability from an H-60 helicopter. CSTRS enables rapid response to mine threats, providing an extra measure of safety for crew and ships during shallow water missions.

In 2012, EVC created a production services group to continue the development and commercialization of CSTRS. EVC became the original equipment manufacturer of CSTRS, handling all equipment manufacturing, testing, and sustainment for CSTRS. Working in accordance with the AS9100 standard, EVC provides full lifecycle management, including pre-production manufacturing engineering, product manufacturing, and sustainment activities such as spare parts manufacture, repair services, and training.



*The Carriage, Stream, Tow, and Recovery System (CSTRS) was designed to support the U.S. Navy's requirement to provide an organic airborne mine countermeasure capability from an H-60 helicopter. U.S. Navy photo by Ron Newsome (Released). 170316-N-PB086-215*



*EVC's H-60 Bridge Tool Deluxe Kit (left) is designed for the removal and installation of H-60 and S-70 aircraft forward and aft bridge assembly components. The Quick Skive Removal Tools (right) are used to remove sealants, fillers, and specialty materials from surfaces without damaging substrates or primer coatings.*



## The Right Tools for the Job Save Time and Money

Having the right tool for the job can have a significant impact on aircraft maintenance, helping safeguard components made of expensive materials. Before EVC began providing its **H-60 Bridge Tool Deluxe Kit** to the military, mechanics often used universal aircraft-grade tools to remove H-60 and S-70 helicopter forward and aft bridge assembly components. The H-60 Bridge Tool Deluxe Kit is specifically designed for these aircraft. Working with military mechanics and equipment specialists, EVC designed the tools in the Bridge Tool Deluxe Kit to significantly reduce maintenance time (by an estimated 75%) and the associated costs, as well as avoid the damage and further repairs often caused by using less-specialized tools. The tools are also designed to mitigate foreign object debris, known as "FOD." H-60 Bridge Tool Deluxe Kits are in use in several U.S. military services; federal, state, and local entities; as well as commercial organizations.

Similarly, EVC offers a tool to remove materials that protect aircraft from the elements. EVC's **Quick Skive Tools** handle the critical and delicate work of removing sealants, fillers, and other specialty materials from fragile, scratch-prone surfaces, without damaging substrates or primer coatings. Though designed for and used primarily on aircraft, the Quick Skive Tools work just as well on other platforms such as wheeled and tracked ground vehicles. Compared to other tools used during maintenance or servicing, the Quick Skive Tools increase removal rates, simplify the process, create no secondary waste or emissions, and do not require the use of personal protective equipment.

## Expert Professional Services Enhance Clients' Success

Both CTC and EVC offer professional services to clients, providing specialized skills and expertise to accomplish their mission. In some cases, the services result in tangible products, such as AGIS, CSTRS, and specialized tools. In other cases, we provide services that are more advisory in nature, consulting on a variety of subjects.

A prime example is EVC's success in building relationships with small businesses to help them win and execute work. We are growing our network of small businesses, most recently in areas such as security, flight operations training, and safety and occupational health. EVC is using its resources and expertise to assist them with everything from developing winning proposals through flawlessly delivering on those contracts.

EVC's professional services include education and training development, information research services, strategic planning and process improvement, and others.





# Charitable Giving



Charity/  
Community

\$96,000



Arts

\$26,000



Education

\$14,000

## CTC Foundation



Howard McClintic  
Executive Director

### Board of Directors



Conway B. Jones, Jr.  
Chairman



Edward J. Sheehan, Jr.  
Vice Chairman



Robert A. Johnson  
Director/Secretary



Mike Kane  
Director

CTC Foundation's dual mission is to educate the public about emerging technologies and concepts, while serving as the philanthropic arm of CTC.

Since 1998, the CTC Foundation has launched diverse education, energy, and environment programs and has gifted nearly \$5 million to nonprofit organizations in communities where CTC and affiliate employees work and live.

A current environmental initiative involves advancing a reverse engineered steelmaking technology, which uses high temperatures to gasify material. In this application, the organic part of waste is separated out as gas, while the balance becomes pure metals or sand-like slag. The process operates at a hotter temperature than incineration, which "burns" the input material without gasifying it. It is a one-of-a-kind technology that has widespread uses worldwide.

Work continues on the epilepsy project, with the publication and distribution of *Voices from the Heart*, a book about accepting children who may have epileptic seizures. Also, the Science Committee's Report was published and is available upon request. It is being used to achieve the goal of having regulations be science-based, not mathematically derived.

These projects are representative of the Foundation's mission: ensuring the future through innovation, science, and technology.

Howard McClintic  
Executive Director, CTC Foundation

## Our CTC/EVC Partnership Has You Covered— *from Start to Finish and Beyond*

As mentioned in the inside front cover of this Annual Report, Concurrent Technologies Corporation (CTC) formed a wholly owned affiliate, Enterprise Ventures Corporation (EVC), to be its for-profit arm. CTC and EVC work together throughout the whole lifecycle, whether we are creating advanced technology and transitioning it to market or we are optimizing scientific/technical processes and providing consulting and support services for those practices.

Typically, CTC handles the research, development, test and evaluation (RDT&E), and EVC focuses on production and commercialization. These synergistic activities involve important back-and-forth collaboration, which is made easier since CTC and EVC are uniquely based in one location. We can move freely between our two companies, making progress in real time. This relationship benefits our clients, who count on us to work together to deliver the best possible solution for their challenges. Below, you'll see some of the many examples of how the synergy between CTC and EVC has benefitted clients—and in the bigger picture—safeguarded our national security.



### Advanced Guard for Information Security (AGIS)

AGIS securely inspects, sanitizes, and transfers commonly used files safely between networks. CTC initially developed AGIS; EVC continues to develop it and is selling it today.



### Specialty Coating

CTC, EVC, and the U.S. Army jointly developed a breakthrough coating system that is currently being fielded by several military entities.



### H-60 Bridge Tool Deluxe Kit

Building on development started by CTC, EVC enhanced and commercialized the H-60 Bridge Tool Deluxe Kit, which greatly improves the process to remove and install certain aircraft components. The kits are in use in the Navy, Army, and Coast Guard.



### Carriage, Stream, Tow, and Recovery System (CSTRS)

As a nonprofit organization, CTC was not set up to sell the CSTRS system it developed to support the Navy's requirement to provide an organic airborne mine countermeasure capability from an H-60 helicopter. CTC created EVC as a wholly owned affiliate to continue development and commercialization of the CSTRS system. EVC is the original equipment manufacturer of CSTRS—our team is responsible for all equipment manufacturing, testing, and sustainment.





# Shining Our Light



Whether we're gaining industry recognition, helping our neighbors in need, or simply taking the time to learn more about each other, we are grateful for the opportunity to shine our light and share our gifts both inside and outside our organization.

## Achieving Awards Together



For the ninth time, CTC was recognized as a "Best for Vets" employer by Military Times, a source of news and information for service members and their families. In 2019, CTC is one of only 19 government and nonprofit organizations to make the list. The companies on the Best for Vets list are recognized for their commitment to providing opportunities to America's veterans.

The Pennsylvania Business Central named CTC a 2019 Top 100 Organization.

For 13 straight years, the CTC annual report has been honored for marketing communications excellence in national and international competitions. Both the FY17 and FY18 annual reports won APEX Awards for Publication Excellence. In addition, the FY17 report won a Platinum MarComm Award, and the FY18 publication earned a Bronze Award through the Service Industry Advertising Awards competition.



## Notable Individual Recognition

The National Safety Council presented its prestigious Rising Stars of Safety Award to Brandon Hody, CTC Safety and Occupational Health Professional. In 2017, Hody was elected Assistant Administrator at the American Society of Safety Professionals Public Sector Practice Specialty.



Hody was also presented with a 2018 Young Alumni Achievement Award from his alma mater, Indiana University of Pennsylvania. The award recognizes recent graduates (less than 15 years) identified as being outstanding in their fields and as having notable career achievements.

Senior Principal Data Scientist Dave Saranchak was elected to the Military Operations Research Society (MORS) Board of Directors. MORS enhances the quality of analysis that informs national and homeland security decisions.



CTC President and CEO, Edward J. Sheehan, Jr., was elected to the National Defense Industrial Association (NDIA) Board of Directors. He was among a class of 16 new board members elected by the NDIA membership. The NDIA, which has 1,600 corporate and 85,000 individual members, is a non-partisan, non-profit association that educates its constituencies on all aspects of national security.

Sheehan was also named to the Pennsylvania Business Central's list of Top 100 People, which recognizes leading business and economic development professionals.



## Caring for Our Communities

EVC staff bought supplies and came to work early on Thursdays to prepare lunches for children in the New Day Inc. summer program. New Day provides Christian counseling and programs for children and families in need.





EVC employees organized a fundraising chili cook-off, where EVC and CTC diners paid \$5 to eat chili prepared by their co-workers. They voted for their favorites, but the real winners are those who use the Food for Families operated by Society of St. Vincent de Paul Altoona-Johnstown because all proceeds went to that program.



A CTC team of employees were part of a record-breaking group of participants in the Easter Seals of Western & Central Pennsylvania Office Olympix. The fundraiser had 40 teams—the most in the event's 31-year history. Easter Seals helps children and adults with speech and hearing disabilities.



As they do every year, CTC and EVC formed a team in the Leukemia & Lymphoma Society's Light the Night: Greater Alleghenies Walk in Johnstown, PA.

## Internal Gatherings Strengthen Ties

Employees bonded during football season with a series of tailgate events. To start the season, employees gathered after work for a "Highbay Happy Hour."



For those based in the company's southwestern Pennsylvania headquarters, "Pitt or Penn State" can spark a heated discussion! But the Pitt-Penn State-themed tailgate was all in good fun, providing a great way to relax and bond during the work day. Employees also participated in a football poll, which raised money for charity.



At another gathering, employees mingled while they enjoyed a picnic lunch to celebrate the arrival of summer.



The Crystal City, VA, team took advantage of a business trip to Denver for a team-building dinner celebrating recent accomplishments.



Everyone who works at CTC, EVC, and CTC Foundation were recognized at Employee Appreciation Day activities. At the Johnstown headquarters, employees gathered to socialize and enjoy treats in the building lobbies.



Both students and employees enjoyed the Take Our Daughters and Sons to Work Day at CTC and EVC. In addition to shadowing their parents and enjoying lunch, the kids learned about the company's additive manufacturing (3D printing) work.



You don't often think "fun" when talking about safety and security. But we found a way to brush up on our knowledge and skills in an interactive and entertaining way. At this year's Safety and Security Day, employees participated in a variety of activities.



About one in ten employees have worked at CTC at least 25 years. That's an impressive statistic, especially considering that many of these folks have been here almost from the very beginning, more than 30 years ago. We appreciate all those who work at CTC, EVC, and the CTC Foundation—especially those who have dedicated so much of their work life to our company. Shown below are some of the employees who reached their 25-year work anniversary.



Board Chairman Howard "Skip" Picking (left) and Senior Director of Human Resources Kathy Jones (right) recognized the 25th work anniversary of Ed Sheehan, Jr. (center).



Ed Sheehan also acknowledged the 25-year milestone of Aimee Ritchey, Project/Program Analyst.





## Honor Roll

Join us in honoring our colleagues who were on active or reserve military duty during fiscal year 2019.

Oliver Bugarin

Gregory Case

Jack Coke

Peter Hanson

Kevin Hillegas

Sidney Johnston

Todd Riviezzo

Dustin Rummell

Dakota Samuels

Amanda Schoepflin

Derric Wiltshire



### Vision

Concurrent Technologies Corporation, inclusive of its affiliates, is recognized as one of the top developers of comprehensive solutions that make the world safer and more productive.

### Mission

To offer robust, technical, and innovative solutions that:

- Safeguard our national security
- Retain U.S. technological advantage
- Ensure the primacy of American manufacturing

### Culture

The employees of Concurrent Technologies Corporation and its affiliates work as a team to serve our clients within our One Company framework while living our brand and values.

13  
CONSECUTIVE  
YEARS

We are proud to announce that this publication, written and designed by Concurrent Technologies Corporation's in-house team of professional writers and graphic designers, has won 22 national and international awards for publication excellence over the past 13 years. These include one bronze award, nine gold awards, and two platinum awards from these organizations: APEX, Hermes, MarCom, Ragan Communications, and Service Industry Advertising.





Concurrent Technologies Corporation (CTC) is an independent, nonprofit, applied scientific research and development professional services organization. Together with our affiliates, Enterprise Ventures Corporation and CTC Foundation, we leverage research, development, test and evaluation work to provide transformative, full lifecycle solutions. To best serve our clients' needs, we offer the complete ability to fully design, develop, test, prototype and build. We deliver robust, technical, and innovative solutions that safeguard our national security, retain U.S. technological advantage, and ensure the primacy of American manufacturing.

CTC's and EVC's quality management systems are certified to the ISO 9001:2015 (Quality) and 14001:2015 (Environmental) standards, and to AS9100D:2016 (Quality-Aerospace-Related Products).

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