Annual Report 2017-18



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Message from the Chair



Watching an organization mature and grow is one of the greatest rewards of leadership and the past year has been a very rewarding one for the board and staff of the Trillium Network.

Some of the projects Trillium started working on three years ago are coming to fruition and others are building momentum. Most importantly, Trillium is connecting with more and more manufacturing firms and organizations that support their growth. These connections help us spread the news about Ontario's manufacturing successes and initiate discussions about the challenges our manufacturers face.

Ontario manufacturing is seeing steady growth. Based on the latest annual data (2017), Ontario's manufacturing GDP had rebounded by 21 percent in real terms since the financial crisis of 2009 and has grown at an average rate of 1.7 percent over the past three years.

Of course, there are always challenges on the horizon. Market access is a critical one for manufacturers and the current negotiations with our NAFTA partners are a key uncertainty for exporters and their supply chain partners. Opportunities to capture a share of fast-growing emerging markets got a boost with Canada joining the Trans-Pacific Partnership, building on new market access via the coming into force of CETA. However, firms will have to work hard to turn these government agreements into sales.

Furthermore, manufacturing technology is changing rapidly. Industry 4.0 is now upon us and Ontario firms must adopt the new digital manufacturing techniques or be left behind.

Issues like these are top of mind for the board and staff of the Trillium Network. We will be continuing our work over the next year to help Ontario manufacturers address these challenges and more as they compete and succeed in global markets.

CAROL STEPHENSON

Chair of the Board Trillium Network for Advanced Manufacturing

Message from the Managing Director



Like Ontario's manufacturing sector, the Trillium Network is growing as we expand our work to support manufacturing in the Province. Over 2017-18 we've seen steady growth in our number of partners, our manufacturing profiles and engagement with manufacturers and organizations that support them. Along with the growth have come several changes.

A key change came when we moved our offices from Richmond Street in downtown London to the Social Science Centre on Western University's main campus. The move has allowed us to connect more closely with researchers in Engineering, Science and Social Science who are interested in the challenges that manufacturers face. In addition, it gives us better access to students and recent graduates who make up a key part of the Trillium staff.

In early 2018, Peter Wallace left the Board of Directors to join the federal public service as Secretary of Treasury Board. We are grateful for his service to the Trillium Network and wish him every success in his new role. Turning to staff changes, Program Officer Bing Feng left us to pursue graduate studies in business and Office Manager Denise Deschenes-McKay went on parental leave. They were replaced by Program Officers Stephen Flaherty and David Zhang. To help us with our additional data and GIS work, we hired Research Associates Omar Imambaccus and Maria Shaposhnikova.

On the programming front, we launched our manufacturing mapping application: *TrilliumGIS*. With the help of funding from FedDev Ontario and our core funding from the Province of Ontario, we are now able to provide information about Ontario manufacturing firms, research and training institutions, and transportation infrastructure, free of charge to firms, educators and researchers, policy makers, and investors. With more than 200 users to date, *TrilliumGIS* is already proving its value to the manufacturing sector.

As we look ahead to our fourth year, we will continue to focus on the challenges facing Ontario manufacturers and helping them and the organizations that support them to prepare for future growth.

PAUL BOOTHE

Managing Director Trillium Network for Advanced Manufacturing The Trillium Network for Advanced Manufacturing is a non-profit organization dedicated to supporting the growth of Ontario manufacturing. Working with our partners, Trillium connects, convenes and collaborates with like-minded individuals and organizations to support the manufacturing sector. We use our network to connect partners in order to make them aware of the many initiatives underway to encourage manufacturing. When appropriate, we convene groups to discuss issues and opportunities facing Ontario manufacturers. Finally, we look for opportunities to collaborate with partners on projects of common interest.

The Trillium Team

BOARD OF DIRECTORS

The Network is governed by a Board of Directors chaired by Carol Stephenson. Current board members include Paul Boothe, Richard Dicerni, Ian Howcroft, Ray Tanguay (Vice-Chair), and Ben Whitney.

STAFF

Paul Boothe, Managing Director David Hudson, Deputy Director David Moloney, Deputy Director Alister Smith, Deputy Director Denise Deschênes-McKay, Office Manager Stephen Flaherty, Program Officer David Zhang, Program Officer Omar Imambaccus, Research Associate Maria Shaposhnikova, Research Associate

PARTNERS

The list of Trillium Network partners is growing. Current partners include:

Automotive Parts Manufacturers' Association Automotive Policy Research Centre Business Council of Canada Business Development Bank of Canada Canadian Manufacturers and Exporters Citv of Toronto Conference Board of Canada Excellence in Manufacturing Consortium Export Development Canada FedDev Ontario Bluewater Technology Access Centre Innovation. Science and Economic Development Canada Institute for Competitiveness and Prosperity Invest Ontario Lawrence National Centre for Policy and Management Ministry of Economic Development and Growth Mowat Centre National Research Council Canada Waterloo Economic Development Corporation Waterloo Manufacturing Innovation Network Yves Landry Foundation

What We Do

We publish profiles (60 to date) of successful Ontario manufacturing firms and pursue key thematic areas to support the growth of Ontario manufacturing, we are currently focussing on four such areas:

Business-to-Business Mentorship

We are working with the Business Development Bank of Canada and other partners to build Ontario Global 100, a business mentorship organization that aims to support the next generation of Ontario's global exporters.

Educational Partnerships

We are working with our partners to collect and map Ontario's manufacturing research and training strengths to encourage collaboration between research and training organizations and firms.

Investment Attraction and Trade Promotion

With the help of our federal (FedDev Ontario), provincial (MEDG) and private sector (Scott's Directories) collaborators, we have developed an application to support manufacturing investment attraction and trade promotion. *TrilliumGIS* is now available for public use at www.trilliumgis.ca.

Adoption of Industry 4.0

Working with partners, we are collecting and disseminating information and best practices on digital manufacturing (Industry 4.0) to help Ontario firms get ready to meet rapidly-changing global competition.

2017-18 Performance Report

The Trillium Network grew in a number of dimensions in Year 3. Our network partners have increased in number to 21, but more importantly, our engagement with partners has been deeper and more extensive. Overall, we participated in more than 15 partner-related manufacturing meetings and events last year.

Social media is a key tool for us to spread the news about Ontario manufacturing and we saw a substantial increase in the number of our followers (317 percent) and our engagement with them (258 percent). We published 20 more manufacturing profiles of firms and related organizations bringing our total to 60.

We added to our knowledge base in a number of ways. In the spring of 2017 we participated in the Hannover Messe, the world's largest advanced manufacturing trade fair, to help us better understand the rise of digital manufacturing techniques encompassed by Industry 4.0.

Together with our partner, the Institute for Competitiveness and Prosperity, we conducted and published a study of firm strategy with respect to international trade, focussing on the lessons from six internationally-successful firms.

Also in the area of trade, mentorship of the next generation of export leaders is well underway at Ontario Global 100 (OG100) and Trillium continues to support OG100 by participating in events and contributing content to be shared among its member CEOs.

With the support of FedDev Ontario and the Ontario Ministry of Economic Development and Growth, we launched our new geo-mapping application for manufacturing: *TrilliumGIS*. The application and corresponding data have already gone through their first updates and will be updated every six months.

To help make all this happen, our full-time and part-time staff grew to 12 this year including our three student interns.

Finally, on the governance side, we met our balanced budget target and conducted and published our second GHG audit. We continue to offset necessary GHG emissions to maintain our standing as a carbon-neutral organization.



Initiatives: TrilliumGIS

TrilliumGIS underpins one of the Trillium Network's key priorities: to work with federal, provincial and local partners to support the attraction of domestic and foreign investment in manufacturing. In support of this priority, *TrilliumGIS* provides decision-quality data, free of charge, to a broad range of target users, including:

- Firms throughout Ontario's manufacturing sector, particularly SMEs;
- Firms outside Ontario looking for supply chain partners as well as potential investment opportunities;
- Post-secondary educational and research institutions across the province that are looking for training and research partners;
- Employers and agencies at the federal, provincial, regional and local government levels; and,

Middlesex Manufacturing Firms

• Researchers and think-tanks.

Key Elements of TrilliumGIS:

- 1. Geo-spatial data that locate and visually display firms, educational institutions, transportation infrastructure and labour characteristics of the selected regions.
- 2. Firm data including products and services, employment characteristics and markets.
- 3. Educational institution data with filters permitting search by program and school name.
- 4. A map of certified development sites in Ontario that is integrated to provide comprehensive information about pre-qualified industrial properties.
- 5. A search function that allows users to explore by business type, product category, NAICS code description, or geographic location.
- 6. Customized reports generated in response to specific queries.



Summary for Middlesex

Middlesex contains 598 businesses that match your search criteria.

Top Firms by Employment

Name	Employed	Primary NAICS
General Dynamics Land Systems	2000	336990
3M Canada	1800	327910
Cargill Value Added Protein Canada	1000	311990
3M Canada - 3M ESPE Dental	1000	327910
Trojan Technologies	800	333310
	List all companies	



Initiatives: Learning First-Hand about Industry 4.0



The latest developments in "advanced manufacturing" are often broadly captured under the heading of Industry 4.0 (I4.0), initially coined in 2011 in Germany under an initiative to develop the "Digital Factory" of the future.

Given the importance of these developments to the future competitive success of Ontario's firms – from SMEs to global giants – a key objective for Trillium this year has been to deepen our understanding of I4.0. This is a step towards working with our partners to build awareness among firms generally and SMEs in particular. We were thus very pleased to accept an offer from one of Trillium's key partners - Siemens Canada - to join their Canadian customer delegation to the Hannover Messe in April 2017. Two board members (Ray Tanguay and Ben Whitney) and two senior staff (Paul Boothe and David Moloney) joined the group.

Considered to be the world's leading trade fair for industrial technology, with some 6,500 exhibitors and 200,000 trade visitors over five days, the Hannover Messe included demonstrations of some 400 cutting-edge applications of I4.0.

As a preliminary crash-course towards understanding the latest elements of I4.0 and to see first-hand their transformational impact, Siemens began our week in Germany by showing us through three of their own factories in the Nürnberg region. Siemens' Digital Factory Control Products facility in the nearby town of Fürth, and their Digital Factory Motion Control facility in Erlangen build products that enable digitization of individual steps in the manufacturing process. Combining "Industrial Internet of Things" sensors, data capture and digital process controllers is a key step towards end-to-end integration and automation from product design through to postproduction service.

At a third factory in the region, Digital Enterprise Electronic Works Amberg, Siemens showed us its own next step towards what it calls "Totally Integrated Automation in the Digital Enterprise". Amberg produces digital controllers that are key to I4.0 processes, in a factory that was itself assessed as 75 percent automated as of 2016.

These factory visits underlined for us the revolutionary changes to all phases of manufacturing that together make up I4.0. They also highlighted the contrast with the step-wise, evolutionary approach that firms would traditionally take to updating their end-to-end business processes. It was therefore reassuring once we arrived at the Hannover Messe to see not only the bewildering variety of innovations that were on display but to note that an important element of the Messe program in 2017 was to develop practical tools for firms looking for their own entry points into this world of accelerated change in advanced manufacturing.

Forward-looking firms of all sizes are beginning, to assess their own starting points, needs and opportunities. They seek to understand the risk/ reward tradeoff associated with specific steps towards digitization as well as the best sequencing of those steps, and to prioritize allocation of scarce staff time and expertise to design and implementation.

Various tools and methodologies for launching and pursuing these firm-level transformations were on display in Hannover. We came away with the strong belief that firms that do not pay attention will find it increasingly difficult to compete with those that do. Trillium will continue to work with its collaborators to help develop and build awareness of practical tools and entry point to I4.0 for Ontario firms.

Initiatives: Manufacturing Profiles - Solar Ship

Imagine being completely cut off from the modern world: no paved roads, no supermarkets, no phone service, and no internet. These challenging circumstances represent everyday life for many communities in Northern Canada.

The lack of paved roads to this part of the country means getting supplies to those who live and work in the region is very challenging and extremely expensive. Warming global temperatures have eliminated many ice roads—thick, year-round ice that once linked areas not accessible by paved or dirt roads—and there are no airfields for landing planes, making it even more difficult to provide essential goods and services. Ontario-based firm Solar Ship Inc. seeks to solve these issues through the creation of new aviation technology that can reach remote locations.

Solar Ship's mission is to produce airships that allow for the transportation of goods and communication services to the most isolated regions in the world. Solar Ship's founders, Jay Godsall and Michel Rugema, and their team came up with the idea of taking the classic Canadian bush plane and reworking it to allow for a small takeoff area and a larger payload. Godsall's family had been building bush planes for several years, and he was well aware of the reliability and reputability of Canadian-made bush planes.

Godsall also knew that while a bush plane could withstand the weather and landscapes of Northern Canada, it was lacking in its ability to carry a large amount of cargo, forcing pilots to make multiple trips to deliver basic necessities to one location. As a result, Solar Ship took the successful bush plane concept and added buoyant gas, creating a hybrid airship that could handle a significant cargo load while also allowing for a short takeoff and landing strip. Solar Ship was incorporated in 2006 and has grown rapidly since.

The company's manufacturing centre is located at Brantford Ontario's small airport. Its aircraft range in size from the 20-metrewide Caracal, which is able to take off and land in an area as small as a soccer field and carry a payload of 200 kilograms, to the 50-metre-wide Wolverine, which is able to carry a 6-metre-long shipping container of up to 5,000 kilograms, and can take off and land in dirt, grass, pavement, mud, and water. Solar Ship is also in the process of developing the massive, 100-metrewide Nanug, which can carry up to 30,000 kilograms and fly as far as 2,000 kilometres. These airships vary in range and specialty. For example, the Wolverine is mainly for medium-haul cargo services in remote areas, while the smaller Caracal is designed for delivering emergency services to an area. Solar Ship also manufactures balloons that can be placed above a large area to provide phone and Internet service, enabling workers, emergency services, and peacekeepers to communicate in even the most remote areas.

Solar Ship's products are all powered by solar panels that have been designed with a slight curvature in order to fit the aircraft. These panels provide special advantages compared to traditional bush plane engines: (1) they eliminate the need to have a steady source of fuel when in remote areas; (2) a solar powered electric motor allows for faster takeoff speeds, and more flexibility in terms of where the motor can go, making more efficient placement possible; and (3) the solar panels generate power that is environmentally friendly. Godsall emphasizes that electric power is better and more powerful than traditional fuel overall, while its eco-friendly aspect is an added side benefit. Solar Ship's airships do have the capacity to be equipped with a traditional bush plane engine if the customer prefers, but having the ships use solar electric power is often advantageous.



Godsall proudly states that, contrary to what many people might expect, Solar Ship is able to beat Chinese manufacturers on price and American manufacturers on quality.

Godsall believes that a competitive nature is what separates the acceptable from the great, referring to Brantford's own Wayne Gretzky as an example of this philosophy. While Gretzky was not necessarily the biggest or fastest hockey player, his competitive nature and attitude pushed him to become "the Great One." Similarly, Godsall and his team believe it is of paramount importance that they embrace this "Canadian-style" of competivenessthat is, be friendly and helpful when dealing with suppliers, customers, and employees, but continuously and aggressively seek to produce a better product than any of its competitors. Solar Ship has even organized races against some of its competitors' products. Recently they have challenged American aerospace giant Lockheed Martin's hybrid aircraft to a competition once it is completed in 2019.

Godsall attributes Solar Ship's success to a few additional factors, not least of which is the ingenuity of the company's employees at every stage of production. Solar Ship encourages and uses suggestions from employees at all levels to improve the speed, efficiency, and overall quality of its aircraft. New ideas from fresh minds are seen to have the potential to take their product to a high level, no matter which Solar Ship employees supply the ideas.

For example, Solar Ship hired a team that had worked for a raincoat manufacturer before it closed. Now, that team builds airships for Solar Ship. Godsall views this move of personnel as indicative of Canadian manufacturing in general, moving from the old to the new, and towards a high-tech economy.

The ship-building division receives digital designs from customers before an automated cutting machine cuts the waterproof and non-rip material to the received design. The team on the floor then makes the balloon that goes on top of each ship using machines that produce high levels of heat to weld the fabric together. The welds on Solar Ship's products are much thicker and more durable than those on any other comparable products in the market. Finally, the team puts the solar panels on the fabric and adds a coating that protects the panels safe from the weather but still allows them to collect energy.

Solar Ship's employees come from some of the best-known technology and manufacturing companies in the world, including Virgin Group and Tesla Inc. Godsall utilizes the Canadian brand, landscape, and culture to attract outstanding talent. Solar Ship routinely holds races between its own models and concepts to determine which designs work best, as the firm is constantly competing against global companies for contracts around the world. The company's current contracts include the federal government's Build in Canada Innovation Program, and Peace + Freedom Services, a network of peacekeepers that helps connect remote regions in Africa.

Solar Ship is a highly innovative and uniquely Canadian company that is striving to make a difference in the world while creating the next generation of cargo aircraft. The firm's desire to help and grow, its respect for employees and their ideas, and its passion for competition will ensure that it continues to be an innovator in the aerospace industry.



Initiative: Manufacturing Profiles - NRC London

Defined as the manipulation of the physical world to achieve human goals, technological innovation has been a key driver of Canada's economy since the country's inception. From the technologies that Indigenous peoples used to adapt to harsh environmental conditions to Canadarm2, the robotic arm used on the International Space Station, Canada has a long history of technological development and innovation. A major factor in achieving this status has been Canada's continued investment in organizations and programs supporting the research, development, and market application of new technology.

One such federal organization is the National Research Council (NRC), responsible for bridging the gap between early-stage research and development (R&D) and commercialization. The NRC does this through its offering of over 30 approved collaborative programs designed to assist a broad spectrum of activities and business models.

Established in 1916, the NRC has worked with various collaborators to face challenges head-on and develop innovative solutions that improve society and the well-being of Canadians. Over its 100-year history, the NRC has been involved in the production of many groundbreaking technologies, such as Canadarm, the Cobalt-60 cancer bomb treatment, computer animation, the crash position indicator, the electric wheelchair, the electronic synthesizer, the explosives detector, and the pacemaker. The NRC enables effective collaboration across multiple industries by utilizing its 22 separate research facilities throughout the country. Each facility specializes in a different area of R&D.

For example, the NRC's London location was originally built in 1997 as a research

institute aimed broadly at manufacturing and construction. The facility's current purpose is to support Canada's automotive industry, as it is in close proximity to the majority of Canadian producers. David Muir, R&D Director of the London location, states that the facility is within a two-hour radius of 90 percent of firms in the industry. Muir believes that the facility's capabilities, coupled with its talented team of employees, will allow NRC London to assist Canada's manufacturing sector as a whole, through new technological development and collaborative work within the sector.

The facility is currently undergoing a \$5 million renovation that will transform the space once used for construction research into a working digital "microfactory". The space will also include multiple reconfigurable R&D labs, experimental vehicle bays, a microfactory demonstrator, and meeting space. The result will be an open-plan, collaborative workspace, where all levels of the automotive supply chain can work together with the NRC.

Allowing collaborators to work with each other's products and processes in an open, creative environment will accelerate the development of technological innovations, making manufacturing processes more efficient and effective. The renovation is expected to be completed by Spring 2018 and will be accompanied by the hiring of 10 additional employees to operate the new facility.

NRC London currently has 45 employees who possess a variety of skills and educational backgrounds, which allows the facility to maximize its collaborative efforts. The NRC's partnership with nearby Western University enables the organization to easily recruit summer students from local engineering and science programs, as well as universities in other cities including Hamilton, Guelph, and Waterloo. With the new facility expansion, NRC London is looking to recruit from engineering and science programs that deal with manufacturing automation (e.g., software



engineering and analytics), as the facility looks to bring Industry 4.0 to the Canadian automotive sector.

The NRC operates on a \$1 billion budget. Muir states that NRC London operates through three different models: (1) investing federal money into research to benefit Canadian industry; (2) undertaking joint R&D projects with industry including consortia-based work; and (3) performing fee-for-service research and specialized testing for individual clients. NRC also provides funding through the Industrial Research Assistance Program (IRAP), designed to help accelerate the growth of local businesses through innovation and technology.

Muir notes that most of the work conducted at the facility is done through joint R&D projects. NRC London promotes this model by providing the option for businesses to become on-site resident partners at the facility, thereby giving businesses the opportunity to take advantage of working with the NRC's highly-skilled scientists and engineers, as well as gaining access to NRC's research equipment to develop superior products and manufacturing solutions. Muir also aims to conduct more research projects in partnership with Western University in the future.

NRC London is dedicated to working on projects that will stimulate wealth creation for Canada through technological innovation. When considering growth metrics for the facility, Muir focuses on the measured impact that NRC London has on the community, rather than the number of projects. To ensure research projects address challenges in the automotive industry and create value for its partners, NRC London conducts the majority of its research based on industrial feedback so that it can better understand present and future needs and concerns.

The NRC is referred to as Canada's "best-kept secret," as it has produced or collaborated on many major innovations that directly affect Canadian society. The organization will continue to push Canada to the forefront of technological advances through its broad spectrum of programs designed for a multitude of industries.

		2018	2017
Assets			
Current			
Cash	\$	28,269	64,264
Grants receivable		22,150	-
HST rebate recoverable		5,980	2,456
Prepaid expenses		3,151	24,737
		59,550	91,457
Capital Assets		14,122	22,200
	\$	73,672	113,657
Liabilities and Net Assets			
Current			
Accounts payable and accrued liabilities	\$	27,586	11,051
Source deductions payable	•	15,809	14,177
Deferred revenue		16,155	66,229
Deferred contributions related to capital assets		14,122	22,200
Net Assets		-	-
	\$	\$73,672	113,657

Statement of Operations as of March 31, 2018

Revenue	2018	2017
Grants	\$ 549,052	490,251
Federal Economic Development Grant	81,798	-
Amortization of Deferred Contributions related to capital assets	8,078	5,612
Loss on disposal of capital assets	(5,340)	-
Rent	3,779	-
Interest	373	1,021
	\$ 637,740	496,884

Expenses

Salaries, benefits and consulting fees	\$ 476,424	377,809
TrilliumGIS application development	50,016	526
OG100 membership fees	46,849	50,000
Meetings and travel	24,653	24,952
Rent	16,275	13,912
Professional fees	8,814	7,649
Office and general	5,697	4,462
Amortization of capital assets	 2,738	5,612
Utilities	 2,385	3,789
Insurance	 1,700	1,836
Publications	 1,685	4,241
Bank charges	 504	250
Geomapping programming fees	-	1,846
	\$ 637,740	496,884
Excess Of Revenue Over Expenses From Operations	5,340	
Loss on disposal of capital assets	 (5,340)	
Excess Of Revenue Over Expenses For the Year	 0	0

Auditors statement:

"This financial summary is an excerpt from the complete financial statements of the organization which were audited by BDO Canada LLP, dated May 14, 2018, and as such does not contain all disclosures required under Canadian accounting standards for not-for-profit organizations. A copy of the complete audited financial statements are available from the organization upon request."

2018-19 Operating Plan

To support the growth of Ontario manufacturing, Trillium will focus its efforts in the following areas:

Objective 1: Building the Network

Using our website and social media we will continue to promote the work of our partners and others that supports the growth of Ontario manufacturing. We will continue to add partners in a targeted way. We will increase the target number of manufacturing profiles from 60 to 80 and our target average monthly social media presence by 50 percent over 2016-17 target levels.

Objective 2: Work in Priority Areas

Business-to-Business Mentorship

We will work with our partners to further contribute to OG100 by actively participating in OG100 events and developing and providing manufacturing-related content to the OG100 membership via the OG100 portal.

Educational Partnerships

We will work with our partners to develop a prototype 'heatmap' of Ontario's manufacturing research institutions to encourage collaboration between research and training organizations and firms.

Investment Attraction and Trade Promotion

Working with our federal (FedDev Ontario), provincial (MEDG) and private sector (Scott's Directories) collaborators, we will continue to expand the coverage and functionality of *TrilliumGIS*.

Adoption of Industry 4.0

Working with partners in the Next Generation Manufacturing Super Cluster (NGM), we will collect and disseminate information and best practices on digital manufacturing (Industry 4.0) to help Ontario firms meet rapidly-changing global competition.

Objective 3: Good Governance

We will meet our financial target of budget balance. We will conduct and publish a GHG audit of our activities, offsetting our emissions to meet our environmental target of being a carbonneutral organization.

2019-21 Financial Plan

2019	2020	2021
500,000	500,000	500,000
28,000	-	-
27,000	-	-
555,000	500,000	500,000
460,000	415,000	415,000
20,000	20,000	20,000
20,000	20,000	20,000
15,000	15,000	15,000
20,000	15,000	15,000
20,000	15,000	15,000
555,000	500,000	500,000
	2019 500,000 28,000 27,000 555,000 460,000 20,000 20,000 15,000 20,000 20,000 555,000	2019 2020 500,000 500,000 28,000 - 27,000 - 555,000 500,000 460,000 415,000 20,000 20,000 20,000 20,000 15,000 15,000 20,000 15,000 20,000 15,000 20,000 15,000 20,000 15,000

TRILLIUM NETWORK FOR ADVANCED MANUFACTURING

Connect. Convene. Collaborate.

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