



2026 REPORT

**NRC INDUSTRIAL RESEARCH ASSISTANCE PROGRAMME
ADDITIVE MANUFACTURING DEMONSTRATION PROGRAM**

Summary

The NRC Industrial Research Assistance Program funds the AM Demo Program, which is designed to increase adoption of new additive applications by industry across Canada. This 2026 report summarises the progress achieved over the last year.

The global additive manufacturing landscape continues to evolve and change. Growth in the capability and adoption of desktop polymer printers means they now command equal market share with industrial polymer and metal machine sales combined.

Canada has a strong additive manufacturing ecosystem, with over 300 industrial grade printers across all additive technologies, polymer and metal. Canada Makes, one of NGen's clusters, provides a suite of digital tools to help industry evaluate how printing might fit their needs. A new capability map has been developed to help answer strategic sovereign questions posed by the "Build/Partner/Buy" government policy.

The AM Demo Program continues to deliver exceptional industry results across Canada. Many new applications for 3D printing, with significant (\$m) sales pipelines are reported in the case study section of the report. With a modest budget of \$500,000 the demo program saw over 75 projects successfully executed over the past year. The economic return is conservatively estimated at over \$10m per year across the direct and indirect supply chain.

While the AM demo program is designed to increase adoption of new additive applications, equally important is its role in fast tracking successful new product introductions to Canada. Examples this year include the Project Arrow EV, Maplewing FPV drone and NV1 electric hydrofoil, to name only a few in the report. These new product introductions represent a system level return for the program vs a component level, and the economic impact is likely to be at least an order of magnitude higher. Sales from each successful new product introduction over a 5-year period are expected to average \$25 million.

Although the AM Demo Program is not primarily a jobs creation program, the additive manufacturing ecosystem in Canada is estimated to represent around 10,000 jobs currently, with growth predicted between 15,000 and 25,000 jobs within the decade.

By funding many different projects with a relatively small amount of activation money, the AM Demo program is uniquely successful in delivering results that are transforming Canada's adoption and leadership in additive manufacturing.

“Projects initiated through the AM Demo Program have translated into over \$1M in domestic and international sales over the past 6–7 years, demonstrating strong commercial follow-on from early-stage validation work.”

“The program has facilitated the development of multiple strategic relationships with OEM clients across Canada and the United States, spanning sectors such as aerospace, medical, and energy. These engagements have evolved from initial demo projects into long-term collaborations”

“The AM Demo Program enabled Libellule Monde to conduct extensive multi-vendor testing, procure materials, and complete the full certification process with Transport Canada. This contribution has had a direct impact on enhancing aircraft interior safety and accessibility. Without identifying and implementing a new method and expanding our capacity, we would have lost not only this product but also the new opportunity.”

“3D printing made our unique value proposition real. It’s like moving the ball quickly up the field: it lets teams communicate ideas fast, clearly, and without expensive processes getting in the way”

“The success of this initiative has generated strong interest and is expected to lead to potential new orders estimated at approximately \$500,000.”

Additive Manufacturing – Global Trends, Canadian Insights

In 2025 Additive Manufacturing resumed its global growth at 5%, after flatlining in 2024 at just over 12Bn USD.

Perhaps the most interesting and unexpected trend is that sales of desktop polymer printers now equal the value of the \$m industrial grade printers that have historically driven machine revenue (Figure 1).

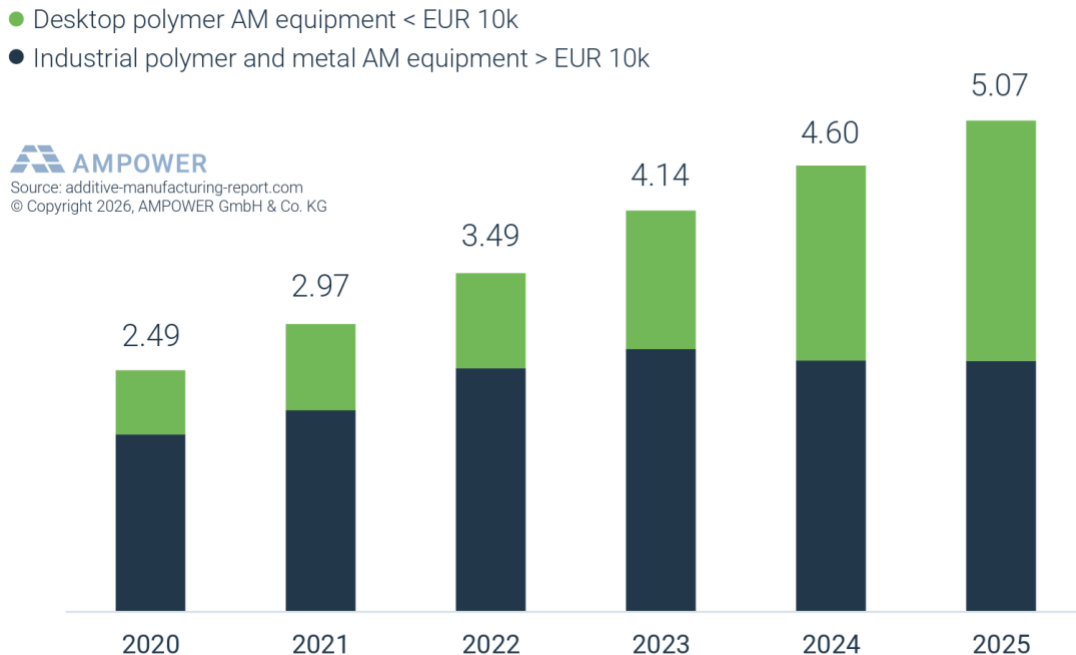


Figure 1 Global additive equipment market EUR Billion [Courtesy of AMPOWER]

Canada is home to one of the early polymer print farms, with Precision ADM’s investment in over 100 Formlabs SLA printers producing nasal swabs during the Covid crisis.

Today PolyUnity operates small farms of polymer printers in multiple provinces across Canada providing healthcare parts using its i3d.health system. Canadian OEM Mosaic effectively provides a print farm inside just one of its groundbreaking Array machines, with each Array containing 4 high temperature polymer printers, as well as automated filament and part handling.



Figure 2 Mosaic’s new Array machine dramatically increases polymer printing productivity

Just as the global Covid crisis spawned Precision ADM’s printed nasal swab solution, the Ukraine war has driven growth in polymer printing with the widespread use of drones. Ukraine’s ramp up in small drone manufacturing has been spectacular. They now have ability to produce over 10,000 drones a day. This is truly a modern-day version of “Rosie the Riveter” production with 3d printing coupled with manual assembly.

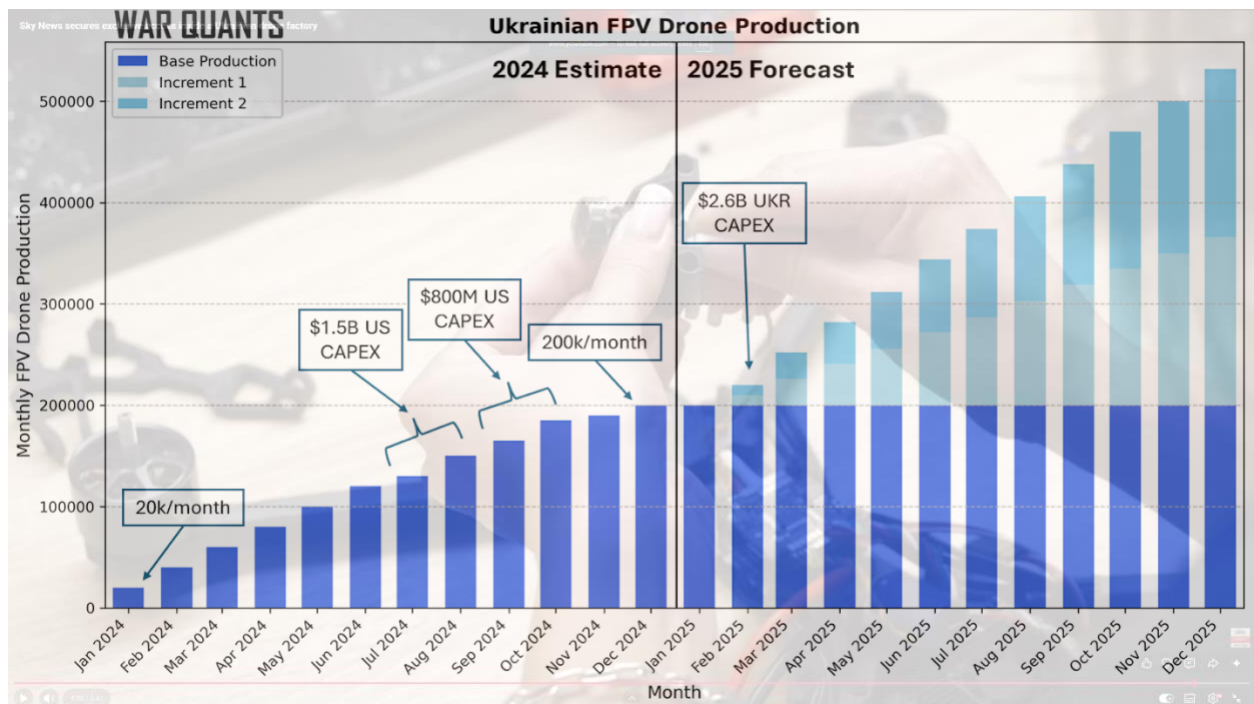


Figure 3 Ukraine drone production is now over 6m a year, vs US production which is currently just 100,000 per year

Geo-political events have pushed defence to the top of the agenda for most countries, and Canada is no exception. 3D printing is being called upon to potentially answer both new unmanned vehicle requirements, whether these are airborne, on the ground or sea, as well as improve availability of aging assets such as ships.

For new unmanned systems the approach taken in North America looks like being fundamentally different from the Ukraine FPV/Russian Shahed drone story. In the US companies such as Palantir and Anduril have scaled rapidly with US defence contracts and venture capital funding. They will need domestic supply chains to provide components for the plethora of new military products they are planning to assemble in massive facilities such as Arsenal-1, Palantir's proposed 5 million sq ft "hyperscale" manufacturing plant in Ohio.

Unlike the Ukrainian (and Russian) solution of using manual labour to assemble new unmanned products, the US will need to embrace robotic techniques. Divergent in California is one of the leaders in printed systems that are being robotically assembled.



Figure 4 US company Divergent is championing robotic assembly vs manual assembly for higher production volumes

Canada's sovereign ability to build is a fundamental question in Canada's new "Build, Partner, Buy" strategy. This was the driver for Canada Makes to develop its capability map for 3D printing across the country. The data behind the map provides quantitative answers to questions such as "how many drones of size X, material Y, could we make?"

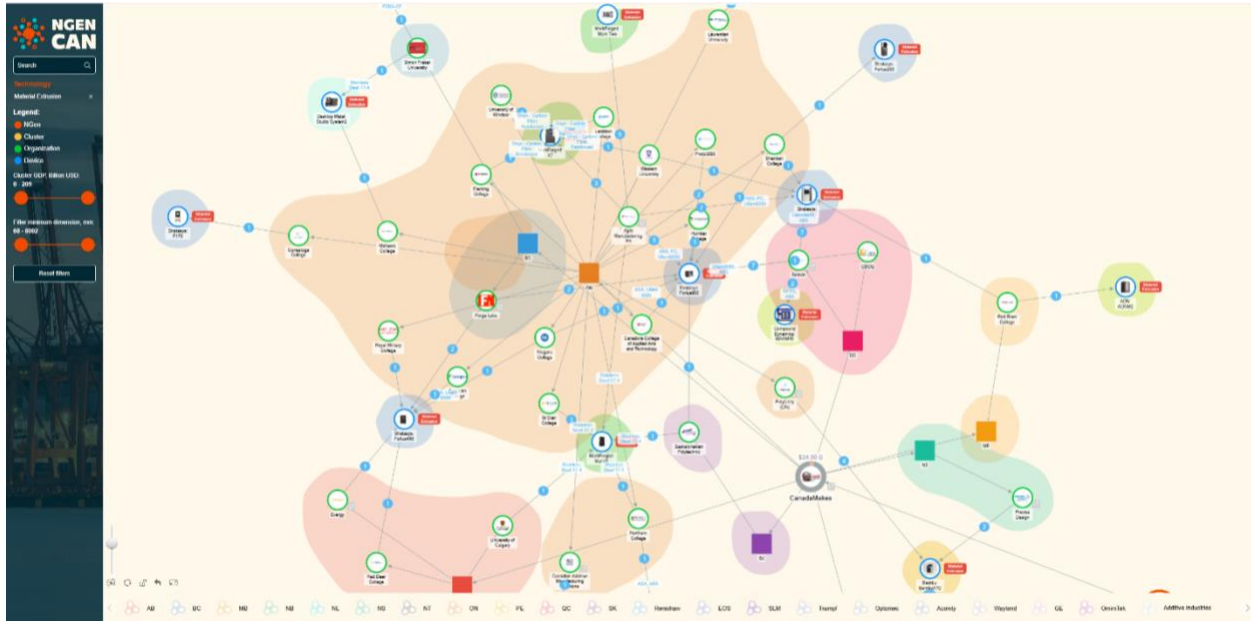


Figure 5 Canada Makes new capability map answers strategic questions on manufacturing capacity for Build/Partner/Buy

The second strand of Canada's strategy - to partner - is helped by the NGen Cluster Accelerator Network which promotes collaboration between OEM product design and clusters like Canada Makes (3D Printing), Canadian Robotics Council and Optonique (where photonics often underpins everything we want to build, and control).

In addition to the defence surge, polymer applications are often the easiest wins for any market or industry. A recent workshop with Michelin in Bridgewater, NS highlighted how some of their special purpose machinery could have replacement parts printed in-house using desktop polymer printers. The new parts delivered improved performance (reduced vibration and longer life) and reduced the cost of carrying inventory by nearly an order of magnitude.

Canada has a strong polymer 3D printing OEM base, with machine manufacturers Mosaic and AON3D, as well as extruders Dyze Design and antimicrobial polymer specialist Polyamna, to name a few. Polymer printers represent approximately half of the total Canadian capability mapped by Canada Makes. Predicted growth applications for polymer printing are shown in Figure 6, produced by Additive Manufacturing Research™. The AM Demo program supported several innovative Canadian projects in many of these new growth areas.

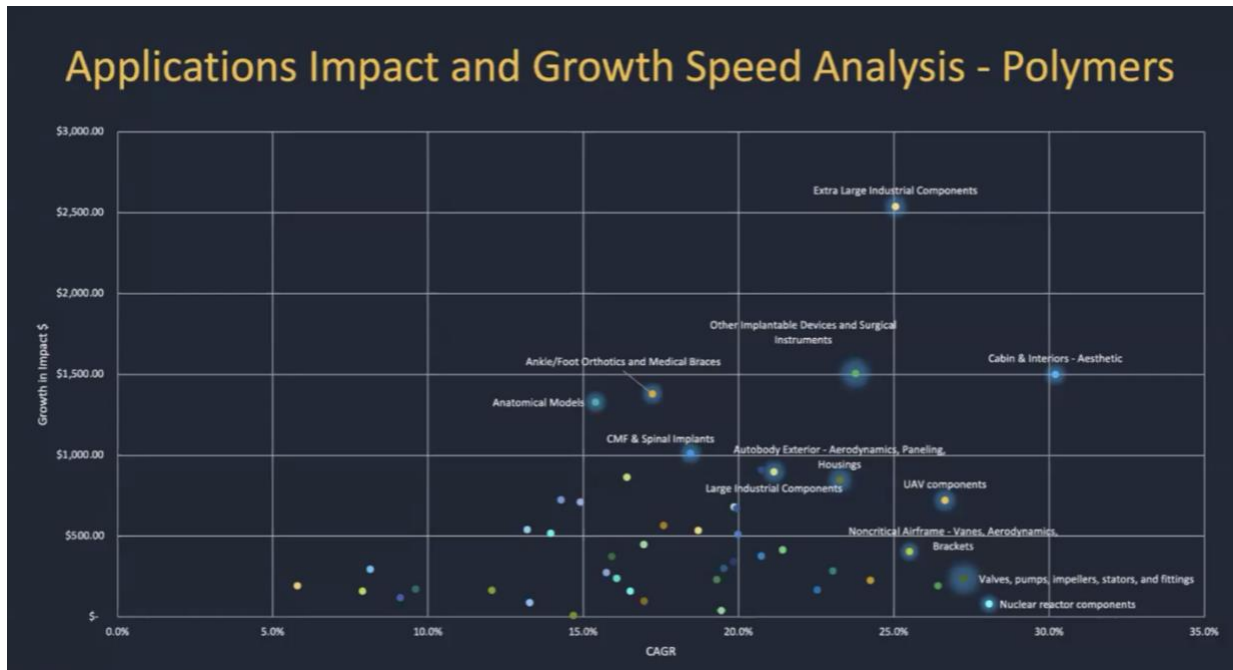


Figure 6 Application growth areas for polymer printing (Additive Manufacturing Research™)

For metal printing, laser powder bed machines continue to dominate the sector, representing over 80% of the market, with no Canadian OEM. There are now over 100 different manufacturers of systems, although fewer than 10 dominate global sales. Canada has an installed base of approximately 150 laser powder bed machines, with the largest installation being at Burloak in Ontario.

In the defence sector a notable new user is Millbrook Strategic Sciences in Ottawa, with 3 Renishaw 500Q machines printing suppressors for military contracts, including Colt Canada. Significant growth areas (predicted by Additive Manufacturing Research™) for metal printing is shown in Figure 7.

Applications Impact and Growth Speed Analysis – Metals

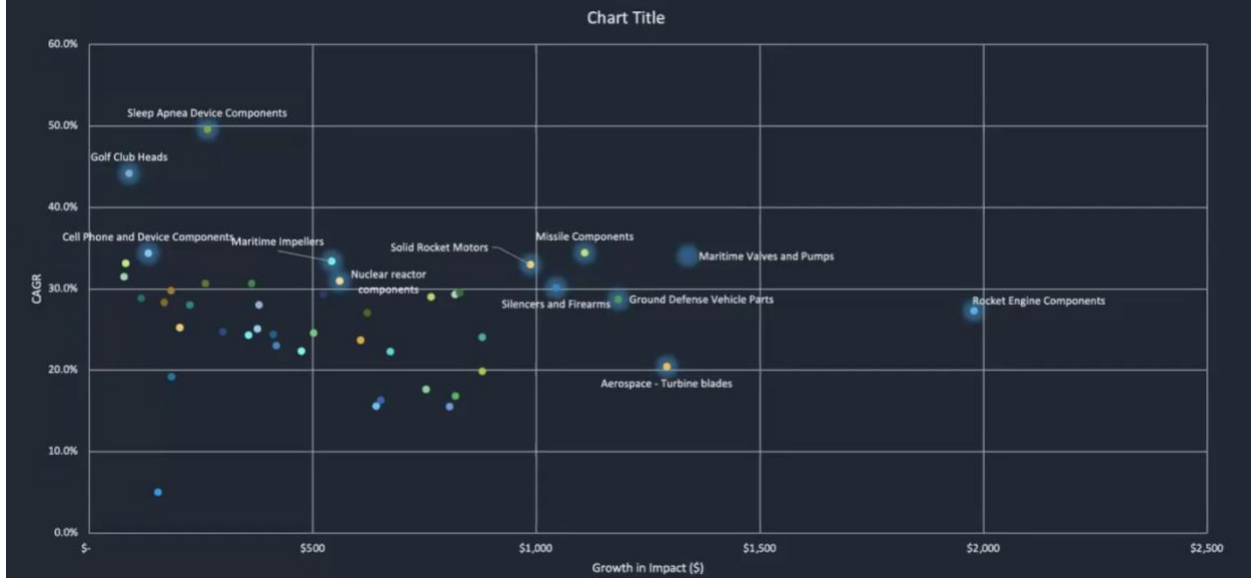


Figure 7 Application growth areas for metal printing (Additive Manufacturing Research™)

Maritime Valves and Pumps appear in the metals growth area, and several of the AM Demo projects have been focused around Canadian marine applications (Apollo, using laser cladding to repair naval components, Polycontrols with WAAM for propellers, CMQ using LPBF for impellers).

Canada has a number of companies pursuing sovereign space launch, and the AM Demo program also supported at least one rocket engine component project (Nordspace). Aerospace projects also included turbine blades (OptiFab) and drones (Custom Prototypes, Tronosjet).

AM Demo Program – Purpose, Structure

The AM Demo Program is designed to increase the rate of additive manufacturing adoption by industry across Canada. Projects are quickly assessed and typically \$5000 is available for a company with a new, viable application requiring a 3D printed solution. In the past year more than 75 projects were funded, from well over 100 proposals submitted.

The demo program is unique in that the amount is just enough to move from talking about it to doing it, but everyone effectively has some “skin in the game” forcing efficient, agile execution. The relatively small amount for each project means all parties desire a positive application outcome, which results in a pragmatic focused approach. The high percentage of projects that lead to both new customers and significant sales pipelines is born out by the case study testimonials in this year’s report.

One of the key objectives is to ensure a good first experience for all demo program companies since they are generally new to additive manufacturing. Nothing stunts adoption of technology faster than a bad experience. Canada Makes has a well-developed, diverse ecosystem of suppliers for the AM Demo program. Proposals are first vetted, followed by customer discovery meetings. This ensures a good fit between industry requirement and solution provider. Discovery meetings benefit all participants in terms of providing new leads, market intelligence and signalling emerging industry needs.

“Projects initiated through the AM Demo Program have translated into over \$1M in domestic and international sales over the past 6–7 years, demonstrating strong commercial follow-on from early-stage validation work.”

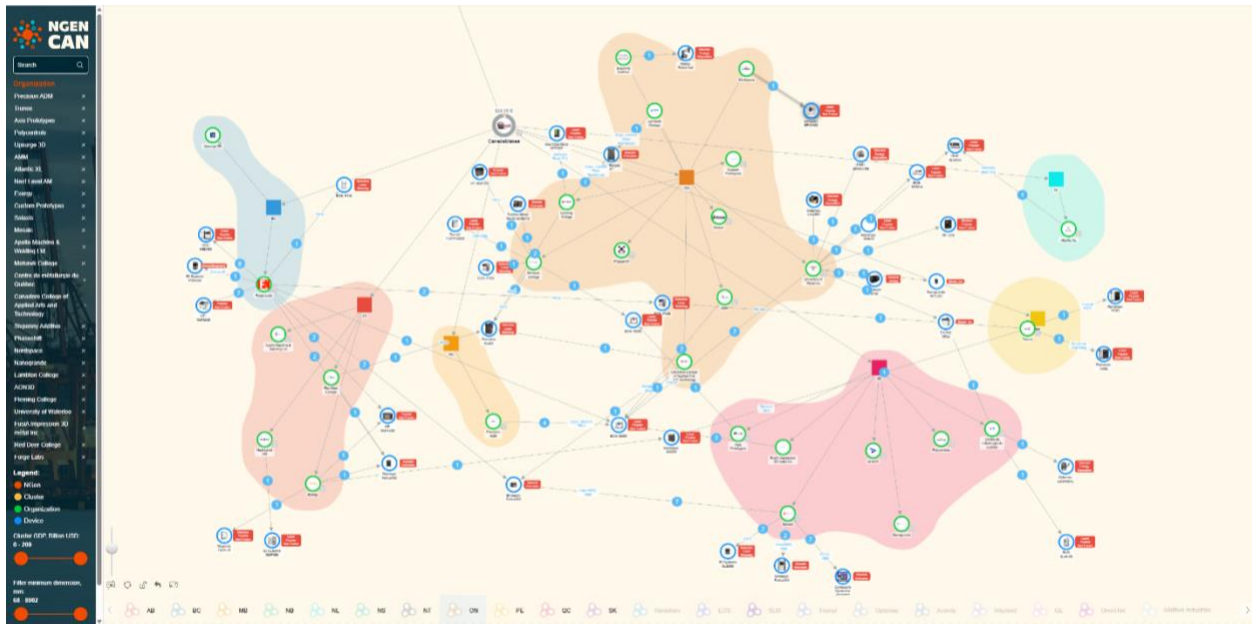


Figure 8 AM Demo program participants West to East by province, and by 3D printing technology

The AM Demo program is truly coast to coast across Canada, from British Columbia to Newfoundland. It embraces all forms of 3D printing, in polymers and metals, and involves many ecosystem suppliers, as shown in Figure 8.

2026 AM Demo Case Studies



This section will take a deeper dive into some of the recent AM Demo projects, starting with solar energy pioneer Solar-Optim. A young company that has grown from Alberta start-up to sales across the globe, with almost every step of the way helped in some form by 3D printing. This remarkable story is told by Solar-Optim's CEO and Co-Founder, Carrie Nystrom.

“Working with Exergy Solutions, with support in part through the AM Demo program, has been very helpful to Solar-Optim’s product development. Additive manufacturing has allowed us to move quickly from design to printed parts for fit-up, testing, and revision. This has been especially useful when field work identifies changes that need to be made quickly. For example, after piloting our RB4s in Spain, we identified a need to widen the product to better bridge larger gaps between solar panels. Exergy was able to help us revise the endplates, and this resulted in related changes to the unit that were easily accommodated with small updates to the frame connections made from 3D printed parts. This enabled us to quickly create the RB4+.

The program also supported parts for our work on the products’ electronics control box. During our CE certification process, we learned that changes to the electronics were needed to achieve compliance. To accommodate the new boards, we needed to change the electronics box enclosure and used 3D additive materials for the control box. These materials also enable the box to handle heat and withstand harsh operating conditions without adding excessive weight. In this case, additive manufacturing gave us a practical way to make unforeseen updates quickly while maintaining the product’s tight tolerances.

3D printing has also helped us to drastically reduce our product’s weight without giving up strength, a key factor to our success. This has enabled us to progressively cut our product’s weight in half compared to our first prototype, the RB1. To achieve this significant lightweighting challenge we had to redesign the product using a combination of carbon fibre, aluminum, and proprietary 3D printed parts to keep the unit light while still maintaining the strength needed for demanding field deployment. This capability was a gamechanger in refining the machine’s exoskeleton and producing the structural components that hold it all together.

Another major benefit has been functionality in the field. We have designed and developed tool-free adjustability into the machine. Quick connect and disconnect features make it faster and easier to replace parts, change brushes, and handle assembly and disassembly on site.

Finally, additive manufacturing enabled us to incorporate moving mechanical features within our Deadman’s handle that would not have been feasible to create otherwise. This has enabled us to increase safety and functionality of our machines, satisfying a wide array of OH&S requirements in the EU and Australia.”



Figure 9 Solar-Optim product development has been powered by rapid iterations using 3D printed solutions from Exergy



Founded in 2019 in Toronto, Phaseshift Technologies is an advanced materials company dedicated to accelerating the development and adoption of new materials critical to a sustainable future. Their CEO, Fazal Mahmood, explained how the AM Demo Program has helped in their journey.

“Prior to the AM Demo project, we had verified the material properties of our proprietary metal matrix composite (cermet) and demonstrated its printability in relatively simple geometries. Our ASTM G65 abrasive wear testing showed results 2x better than our closest competitor and approaching those of sintered cermets. The missing piece was proving we could translate this material performance into a functional, complex part using additive manufacturing.

Nozzles used in Oil Sands operations endure extreme wear conditions. These nozzles are traditionally made from cermets (ceramic-metal composites), which are notoriously difficult to shape by conventional manufacturing methods. As a result, nozzle designs remain simple, leading to uneven wear distribution and shorter service life.

Using the AM Demo grant, we revised the nozzle design that leverages the geometric freedom of Laser Powder Bed Fusion (LPBF) to optimize for more even wear distribution and extended wear life, something not achievable with conventional cermet manufacturing.

The grant funded three key phases:

- 1. Optimizing the nozzle geometry for 3D printability*
- 2. Printing the nozzles using our proprietary cermet*
- 3. Verifying the printed parts for any obvious defects*

As a result, we were able to demonstrate the following:

- Successfully demonstrated the feasibility of 3D printing cermet nozzles with complex, wear-optimized geometries*
- Results led directly to a field trial with a major Oil Sands operator, for whom we are now producing a larger batch of nozzles for real-world testing*
- This was Phaseshift's first AM alloy to go to market, and the learnings from this project (both technical and commercial) have been crucial in shaping our subsequent materials development projects, particularly those focused on additive manufacturing.”*



Figure 10 The key step for Phaseshift was to “translate material performance into a functional, complex part using additive manufacturing”



Based in Bromont, (Quebec) Solaxis specializes in large-format industrial 3D printing with advanced and certified thermoplastics, for end-use production parts, functional prototypes and specialized tooling. They are one of the few companies in Canada that hold AS9100 aerospace quality approval. Marketing and Sales Specialist, Marie-Christine Flibotte describes the benefits of a recent AM Demo project.

How it helped a customer derisk:

“The program enabled the customer to significantly reduce technical and production risks associated with the replacement of complex composite parts. The original manufacturing process presented recurring challenges, particularly related to surface finish quality in intricate geometries, where applying gel coat in deep corners often resulted in defects such as air bubbles. By leveraging additive manufacturing (AM), the customer was able to overcome these limitations, achieving improved surface consistency and reducing defect rates. This allowed for more reliable validation of the component design.”

How it led to new market application for AM:

This project contributed to exploring the use of additive manufacturing into new applications within the aerospace sector, specifically for aircraft cockpit components. It demonstrated that AM can meet the functional and quality requirements of this highly

demanding environment, opening the door to broader adoption in similar high-value, precision-critical applications.

How it led to potential new orders (\$):

The success of this initiative has generated strong interest and is expected to lead to potential new orders estimated at approximately \$500,000.

Additional impacts / benefits:

Beyond the direct outcomes, the program delivered several key strategic benefits:

- *Acceleration of cost reduction: The use of AM enabled the customer to optimize production methods earlier in the development cycle, reducing overall costs.*
- *Faster time-to-market: Rapid prototyping and iteration shortened development timelines, allowing quicker validation and deployment.*
- *Increased innovation capacity: The reduced risk and increased flexibility encouraged the customer to pursue more advanced and complex designs.*
- *Enhanced product development: The ability to test and refine new concepts more efficiently supports ongoing innovation.*

Without this program, the customer would likely have continued using the existing manufacturing process, limiting innovation potential, maintaining higher defect rates, and slowing down product development cycles.”



Maya HTT participated in the Additive Manufacturing Demo Program to demonstrate how AI-based control and optimization tailored to AM processes can strengthen additive manufacturing workflows and accelerate industrial adoption. The AM Demo Program's structure was especially valuable because it helped manufacturers de-risk an initial AM application through funded demonstration work, expert guidance, and access to the right technology partner like Maya HTT. Remi Duquette, VP of Industrial AI, explains more.

“In a nutshell, for Maya HTT, the AM demo program created an opportunity to show how software, simulation, optimization, and AI can improve confidence in additive manufacturing workflows.

How did the AM demo help a customer de-risk?

The program helped de-risk a customer's first additive manufacturing application by lowering the cost and uncertainty of prototype and new methods evaluation, producing a real part or coupon, and letting the customer assess technical feasibility, workflow fit, and business value before making a larger commitment.

Did the program lead to new market applications for AM?

The project helped open discussions and opportunities in automotive, transportation, and aerospace & defense, where customers are looking for better process control, quality consistency, and faster qualification paths. The demonstration supported a qualified opportunity pipeline estimated at approximately CAD \$200,000 in potential follow-on work.

Other benefit statements worth highlighting?

A good addition is that the program did more than prove a single use case. It gave Maya HTT customers a lower-risk path to evaluate AM as part of a broader digital manufacturing strategy, including process optimization, data continuity, and future scale-up.

Can you share any quotes from your customers?

“What made the AM demo program with Maya HTT valuable was not just the demonstration itself, but the access to the right expertise. It reduced uncertainty around technical feasibility, cost, and provided us with clear next steps.”

“The AM demo project with Maya HTT helped us understand how to optimize our design for additive manufacturing process to create value in our business. It opened our eyes to applications we would not have prioritized otherwise.”

The AM Demo program supports all forms of additive manufacturing. A good example is how Polycontrols was able to demonstrate that cold spray could safely provide a new, cost-effective repair for a high-value helicopter gearbox housing, shown in Figure 11.



Figure 11 Polycontrols cold spray capability allowed a novel gearbox repair to be validated for a Canadian aerospace overhaul customer



Figure 12 Polycontrols new Wire Arc Additive Cell may be the key to reducing turbine overhaul costs, potentially saving the customer millions of dollars

Polycontrols has recently invested in a new Wire Arc Additive Manufacturing (WAAM) facility, and the AM Demo program has helped support a turbine repair scheme using WAAM that can potentially solve wear, corrosion & cavitation damage. If the heat affected zone can be controlled, then the prize could be multi million-dollar savings in this energy infrastructure application.

Repair of legacy components when replacement is either impractical or uneconomic is where laser cladding can really shine. However, materials used in ships and submarines may not be widely available in powder form, and the resulting additive material properties also need to be established before printed parts can be used in service. The AM Demo program supported a collaboration between Apollo-Clad and a major Naval prime, to provide repair solutions in Nickel Aluminum Bronze (NAB) on large shaft components.

Apollo developed an innovative technique to clad onto a sacrificial tube, that is subsequently machined away, leaving a pure NAB tube. This technique was successfully proven both for external cladding, and also for the more challenging internal cladding, as shown in Figure 13.



Figure 13 Apollo-Clad developed a novel process for maritime applications, using sacrificial tubes to add Nickel Aluminum Bronze and efficiently produce large shafts



Figure 14 Novel mining attachment under development by Cambrian College

Cambrian R&D collaborated with Mine Tailing Solutions ahead of the annual Prospectors and Developers Association of Canada conference in Toronto, Ontario to scan, model and 3D print a miniature model of a unique box blade attachment prototype for snow moving equipment. The model allowed Mine Tailing Solutions to have a physical representation at its booth during the conference to show how its technology and custom use case of the blade can assist with reducing risk associated with tailings management during periods of seasonal transition.

The company has adapted equipment traditionally used for snowmobile trail and ski hill grooming to hard pack snow on tailings areas to slow the melt of snow and ultimately reduce the risk associated with flooding and water management issues.

Cambrian is now working on the fabrication and installation of a full-scale prototype for testing in 2027.



Figure 15 Impeller printed and tested by CMQ in Stainless Steel 17-4

CMQ in Quebec performed a targeted testing program, including material characterization and wear assessment for a printed impeller operating in harsh conditions. This approach provided a clear understanding of the component's readiness for industrial use.

The results confirmed that the LPBF process can produce high-quality stainless-steel components with strong mechanical performance. At the same time, the study highlighted areas where further optimization could enhance performance, helping to guide future development efforts for the client.



Figure 16 Talus (ankle) medical implant produced by Precision ADM

Precision ADM, headquartered in Winnipeg, Manitoba, manufactures high value components and device applications for the medical, aerospace, energy and industrial sectors.

The medical industry is moving towards patient specific devices to offer better, more personalized therapies, and Precision ADM has used the AM Demo program to develop new solutions, as Derek VanDenDriessche explains.

How has the AM demo program helped derisk for your customer?

“The NGen AM Demo Program enables clients to validate complex parts that are difficult or impossible to produce using conventional manufacturing methods. By leveraging additive manufacturing, customers can prototype, test, and iterate rapidly—significantly reducing technical risk before committing to full-scale production. This program has been particularly effective in helping clients in the medical device, aerospace, and energy sectors de-risk new product development while accelerating time-to-market.”

How has it led to new market application for AM?

“Through participation in the AM Demo Program, Precision ADM successfully expanded into the bespoke orthopaedic implant market in North America. A key example is the development of a patient-specific talus (ankle) implant, featuring optimized lattice structures for enhanced osseointegration and tailored precisely to an individual’s anatomy. This represents a high-value application uniquely enabled by additive manufacturing.”

How has the AM Demo program led to potential new orders?

“Projects initiated through the AM Demo Program have translated into over \$1M in domestic and international sales over the past 6–7 years, demonstrating strong commercial follow-on from early-stage validation work.”

Has it led to new partnerships?

“The program has facilitated the development of multiple strategic relationships with OEM clients across Canada and the United States, spanning sectors such as aerospace, medical, and energy. These engagements have evolved from initial demo projects into long-term collaborations”

Have you hired new staff?

“As a direct result of growth driven by AM Demo Program projects, Precision ADM has expanded its team, hiring additional skilled personnel in additive manufacturing engineering, production, and design.”



Figure 17 Project Arrow Vector - a near-term innovation platform engineered to demonstrate commercially scalable Canadian technologies aligned to the 2030 mobility environment.

It's sometimes hard to know where to begin with a company that produces such a diverse and award-winning range of printed solutions, but Custom Prototypes continued to raise the bar over the past year! Andrew Sliwa's team were printing custom automotive parts for Project Arrow and Borealis, showcasing Canada's ability to compete on the World stage with a complete EV and supply chain to support it.

Then there was the radical new NV1 electric hydrofoil boat from Envgo, another success story designed and built in Canada. Maplewing a new drone, and the eye-catching Cloudwalker sculpture over Custom Prototypes home in Etobicoke, Ontario. Truly a team that never seems to sleep or run out of creative solutions.

“Custom Prototypes helped us turn a complex idea into something people could see, touch, and immediately understand — 3D printing made our unique value proposition real.

It's like moving the ball quickly up the field: it lets teams communicate ideas fast, clearly, and without expensive processes getting in the way.”



Figure 18 Custom Prototypes Maplewing FPV drone, NV1 electric hydrofoil model, and eye-catching Cloudwalker sculpture above their offices in Etobicoke, Ontario



Figure 19 Elementiam WAAM printing of near-net-shape stock (Fronius MIG welder, Yaskawa collaborative robot, Element X software)

One of the AM demo projects with Alberta based Elementiam explored the advantages of large-format 3D printing for producing custom Inconel 625 stock for post-machining applications. The focus was on tooling efficiency and material cost savings for complex aerospace components that would otherwise require extensive machining from solid billets.

The aerospace component selected was identified as particularly well-suited for WAAM because machining it from a solid block would require removing approximately 40% of the starting material — a costly and time-consuming process with expensive Inconel 625 feedstock. By printing a near-net-shape blank, material removal was reduced to approximately 10%.

The project allowed Elementiam to demonstrate the economic and technical case for large-format WAAM of aerospace-grade Inconel 625 components, achieving a 31% cost reduction and 6–8× machining speed improvement.



Figure 20 Finish machined spar component

Supported by a growing team of six specialists, seven active clients across Canada and the United States, CIPO-registered software, and certified welding solutions for pressure-critical applications, Elementiam is now well-positioned to become a leading provider of advanced WAAM manufacturing and robotic metal fabrication services and software in North America.

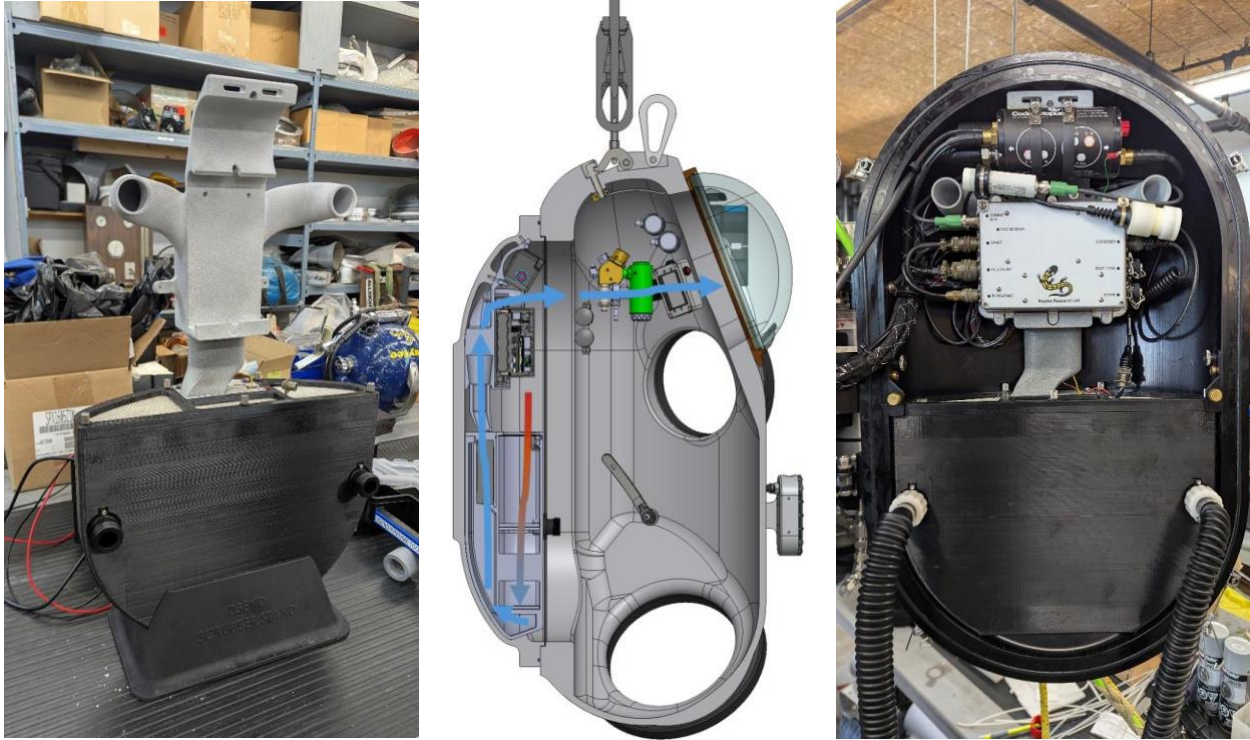


Figure 21 Venting system improvements made possible through 3D printing iterations (courtesy of Nuytco)

Based in North Vancouver BC, Nuytco Research Ltd. is a world leader in the development and operation of undersea technology, with over forty years of experience working around the world.

Nuytco's latest project has been the atmospheric diving system (ADS) 'Exosuit ADS™' – a light weight, free-swimming one atmosphere suit, available in 1000' and 2000' configurations.

What challenge were you (Nuytco) trying to solve, and why did additive manufacturing (with Upsurge) make sense?

The biggest challenge Nuytco was trying to solve was an air flow issue with our atmospheric diving suits. There is a rebreather system inside these suits that take high %CO₂ air and runs it through a system that scrubs the CO₂ out of the air and then expels the fresh air back into the cabin. Previously Nuytco was using corrugated hosing to try and vent the air from behind the pilot up into the head space, but the hosing was very inefficient and did not produce the results we expected. By using Upsurge we were able to prototype a new venting system that when implemented was found to be extremely efficient in moving the fresh air up and towards the diver's face.

Short-term impact — what has the AM Demo program enabled your company to do that you couldn't (or wouldn't) have done otherwise?

Further exploration of 3D printed parts inside of ADS and submersibles along with proof of concept with how efficient 3D printed parts can be in helping optimize these systems. Without 3D printing we would not have been able to make such an efficient venting system in such a short amount of time which has allowed us to dive the suit more effectively and for longer periods of time.

Medium-term impact — looking 6–18 months out, what doors has this opened?

These parts have shown how easily our system can be optimized using 3D printed parts and now we are exploring other areas to 3D print parts such as the rebreather system. Due to the complex curvatures of the ADS's these parts used to be hand-laid with fibreglass and resin, taking up months of time to get custom fit parts. Now we can quickly prototype, test and obtain final products in a fraction of the time.



Figure 22 Aviation-certified Braille signage developed by LBM using additive manufacturing

Founded in 1993, LBM is a leading aerospace surfacing solutions provider based near Montreal, Canada. Stephanie Lemieux, Ceo and Head of DAO at LBM, explains the genesis and impact of their AM Demo projects with NGen.

The problem AM was tasked with solving

Aging method & materials: Libellule Monde's existing method was aging, and the formulation it relied on was slated for discontinuation. Migration to a newer version would only delay the inevitable obsolescence. This posed a critical threat to the company's ability to produce certified aviation Braille & tactile interior placards signage for visually impaired passengers.

What were the technical challenges:

- *Traditional methods lacked the precision, adhesion, and speed required to achieve consistent Braille dot height and spacing.*
- *Adhesion of additive manufacturing addition printed structures on aviation-grade substrates (polycarbonate, vinyl, polyurethane) was cracking and unreliable with legacy systems.*
- *All new material build-ups required full flammability certification per FAR 25.853 / CAWM 525.853 to be installed in Transport and Commuter Category aircraft.*

What was the project impact

This project represents a complete success. Libellule Monde has:

- *Identified new AM method, a next-generation additive manufacturing platform to replace aging, obsolete equipment.*
- *Achieved full regulatory certification for new flame-retardant placard build-ups under Transport Canada / FAA airworthiness standards.*
- *Demonstrated that additive manufacturing can produce aviation-certified Braille signage with superior precision, adhesion, and durability.*
- *Secured the company's future production capability for certified interior aircraft placards serving visually impaired passengers.*

“The AM Demo Program enabled Libellule Monde to conduct extensive multi-vendor testing, procure materials, and complete the full certification process with Transport Canada. This contribution has had a direct impact on enhancing aircraft interior safety and accessibility. Without identifying and implementing a new method and expanding our capacity, we would have lost not only this product but also the new opportunity.”

SME's and Primes Involved in AM Demo Program 2026

Organisation:

AEM Antennae
AI Innovate
AMM
AON3D
Apollo Clad Laser Cladding
Atlantic Towing
Atlantic XL
Automated Cleaning
Solutions
Avmax Aviation Services
Inc
Axis Prototype
Babcock
Blanchette Electric
Boardera
Bombardier
Browning Harvey Ltd
CAE
Cambrian College
Canadore
Carbomat Inc.
Celebrity Craft
CMQ
Chemia Discovery
Cirque de Soleil
Cougar Helicopters
C-Therm Technologies
Custom Prototypes
Dana
Di-corp
Dominis
Dyze
Elementiam
EnvGo

Evercloak
Exergy
Fleming College
Forge Labs
Fusia
General Dynamics
Hydro Quebec
Impossible Sensing
IMS Gomex
Infina Tech
Karma
Kissan Die Tech
Kool Koatings
Lab 915
Lampton College
LibelluleMonde
Lortie Aviation
Maya HTT
Mine Tailings Solutions
MSLR
Mohawk
Mosaic
Myant Inc.
Nanogrande
Next Level
Nordspace
Northstar Downhole
Novitech
Nuytco Research
Oilify
Onstream
Optifab
Precision ADM
Pegasus Aeronautics

Phaseshift
Polycontrols
PolyUnity
Powerlace
Press Lock
Pratt & Whitney Canada
Reaction Dynamics
Red Deer Polytechnic
RF Wireless
Rio Tinto
Robbox
Sankoya
Seaspan
Shimifrez
Siemens
Sixpenny
Solar Optim
Solaxis
Sparrow Downhole
Spinduction
Stitch
Strobeltek
Suncor
Technosub
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