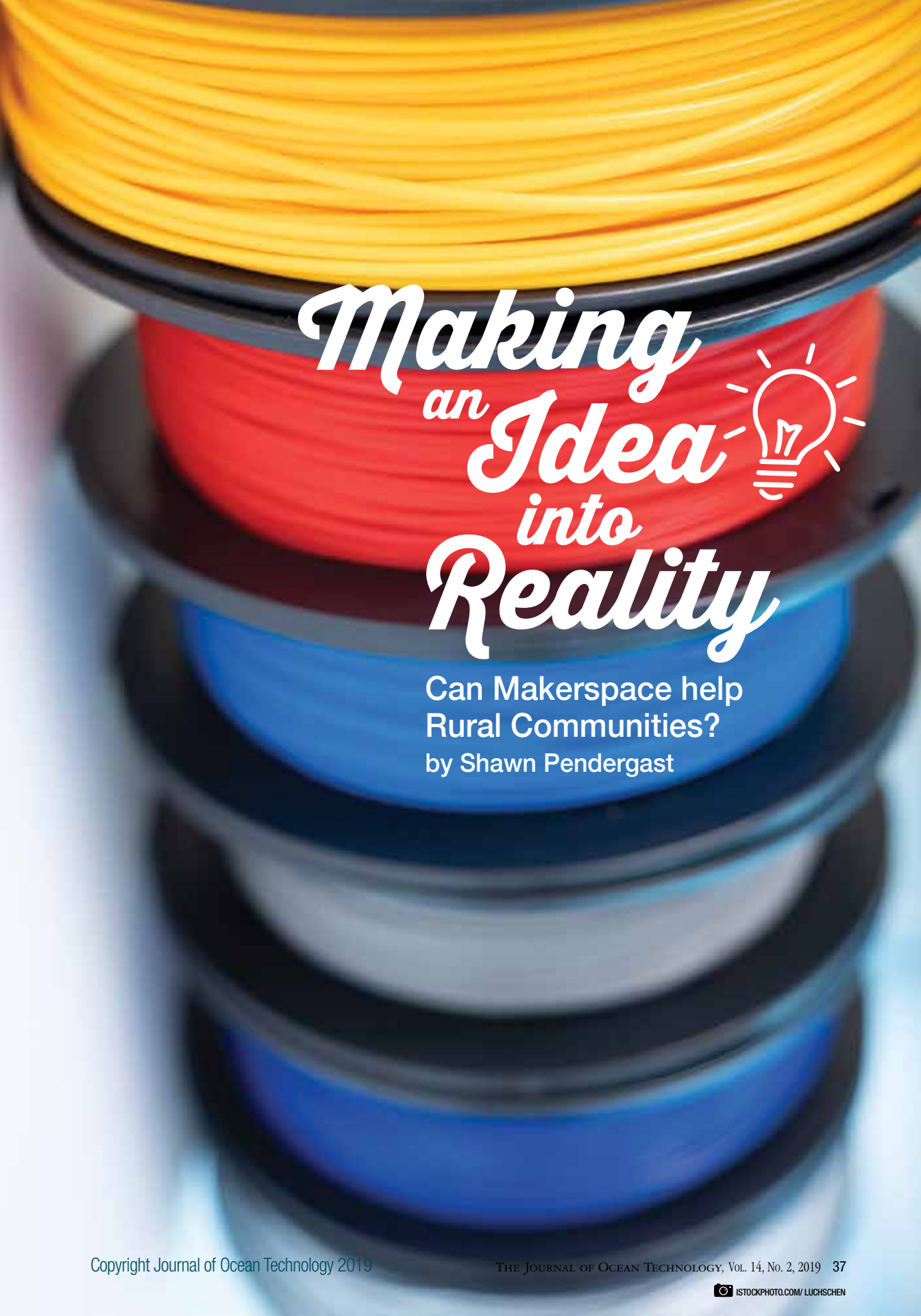


# Making an Idea into Reality

## Can Makerspace help Rural Communities?

by Shawn Pendergast





ISTOCKPHOTO.COM/ LUCHSCHEN

This essay investigates the potential of Makerspaces to assist rural Newfoundland from an economical and innovative standpoint. The idea is to supply $1,000 Makerspace kits to rural coastal communities. The spaces will include kits of tools and supplies to enable community members to prototype potential solutions to real-world problems associated with the marine environment.

As a contributing member of a community, I want to make a difference in the place I call home. Many small communities are finding it difficult to stay competitive in an uncertain economic and global environment. In my province of Newfoundland and Labrador, with the fall in oil prices, the importance of a diversified economy has become clear. The reality is that at some point oil will either run out or become somewhat obsolete. While I may not be a true early adopter, who is always on the bleeding edge of technology, I have always been one to embrace technology that I see as useful. Once such idea is Makerspace and its potential to promote what I call Innovation Literacy.

Last year I began to work full-time as a faculty member at the Marine Institute. During my time at the Institute, I have become more familiar with concepts such as the blue economy, the fishery, and the world's oceans. Around the same time I started to work at the Marine Institute, I also attended the Canadian Network for Ocean Education (CaNOE) conference. During the conference, I had a chance to present some of my ideas around Makerspaces, but more importantly, I observed all the creative things that were going on around ocean literacy and marine innovation. This combined with discussions among friends around the impact of Makerspaces, and slowly the idea of combining Makerspaces and rural communities began to emerge. The idea started to take shape that Makerspaces could potentially enable some form of innovation and lead to economic spin-offs in rural communities no matter where they are located. We named this idea Marine Makers, and envisioned fostering a group of innovations within rural communities.

**What is Community Makerspace?**

Depending on who you talk to, you may get many different definitions of a Makerspace. According to the Library as Incubator project, "Makerspaces are collaborative learning environments where people come together to share materials and learn new skills. Makerspaces are not necessarily born out of a specific set of materials or spaces, but rather a mindset of community partnership, collaboration, and creation." For me, the driving force behind a Community Makerspace is to provide a space where people can share ideas, create, innovate, and turn their ideas into reality.

**Makerspaces and the Economic Environment**

The International Monetary Fund has said that 10 years after the global financial crisis western countries are still at significant risk from a financial stability perspective. Pressure from emerging markets and increased trade disputes are partly responsible for this risk. In addition, unpredictable oil prices and an ever-increasing over-harvested fishery will also present unique challenges for communities that rely on these resources. Like with most challenges, opportunities often can present themselves. The European Union now has policies in place to promote innovation within its borders. Concepts such as "Open Innovation" promotes opening innovation to people with experience outside of academia and the fields of science and engineering. In my country, Canadians and Newfoundlanders have long been known for their resilient nature and innovative spirit. One of the themes of this year's federal budget was to brace Canadians for a fast-changing global economy. Additionally, the Brookfield Institute's recent publication titled "Turn and Face the Strange" listed entrepreneurial spirit as one of the top 31 trends in Canada for the next decade. They suggest the majority of new employment opportunities will be individuals creating their own positions.

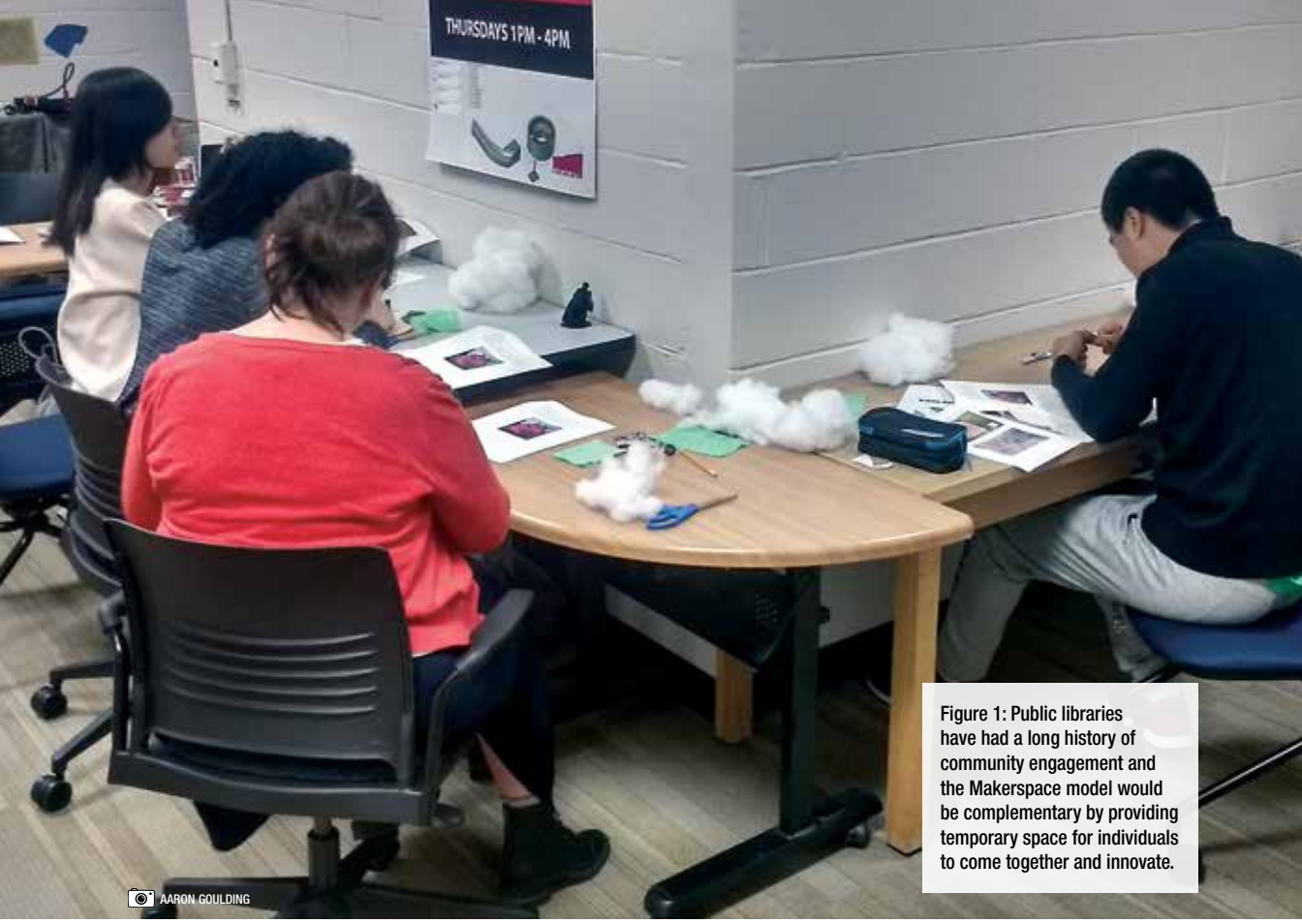



Figure 1: Public libraries have had a long history of community engagement and the Makerspace model would be complementary by providing temporary space for individuals to come together and innovate.

**Project Goal**

The driving goal of this idea is to create innovative communities that have the potential to drive economic development, thus contributing to the economic well-being of Newfoundland and Labrador. At the core, the idea is about engaging rural communities and utilizing community spaces to create local economic incubators. For example, underutilized library spaces could be rejuvenated by Maker activities. Public libraries have had a long history of community engagement and this type of model would be complementary by providing temporary space for individuals to come together and innovate (Figure 1).

**How it Would Work**

The idea is to equip the community with a Makerspace for approximately $1,000. Interested communities would apply for funding and, if successful, would receive a Community Makerspace kit which would include many Maker tools, including a 3D printer (Figure 2). A simple online application process would be necessary; one important criterion would be the inclusion of 100 signatures of community members that support the initiative.

At its heart, the Community Maker would include equipment that would allow for people to take their ideas and experiment with them. In addition to equipment, there would be Maker training provided to selected community members. This would mainly be done via video conferencing and online training material specifically catered to the equipment contained in the Community Maker kit.

What makes the Marine Community Maker different is the emphasis placed on generating ideas, and taking some of those ideas and trying to make them commercially viable. Through a defined process, communities would take their ideas, refine them, and have the opportunity to pitch their ideas. A pitch would

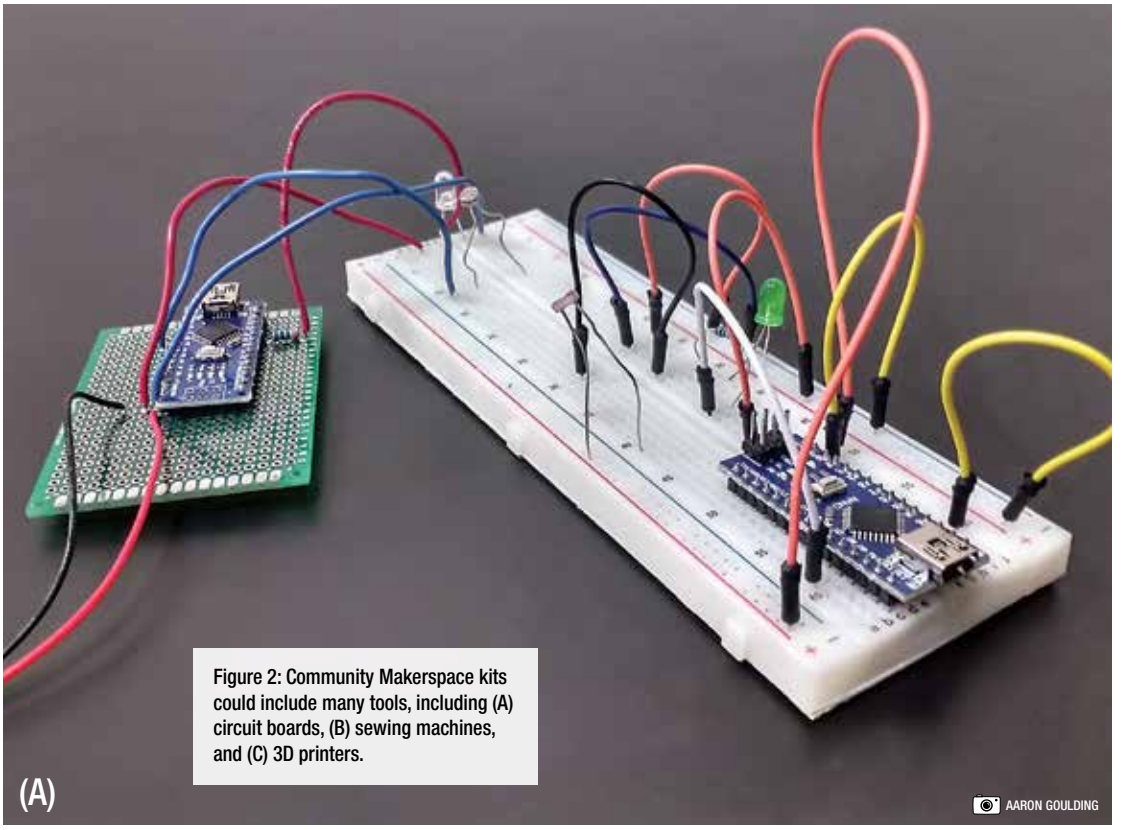
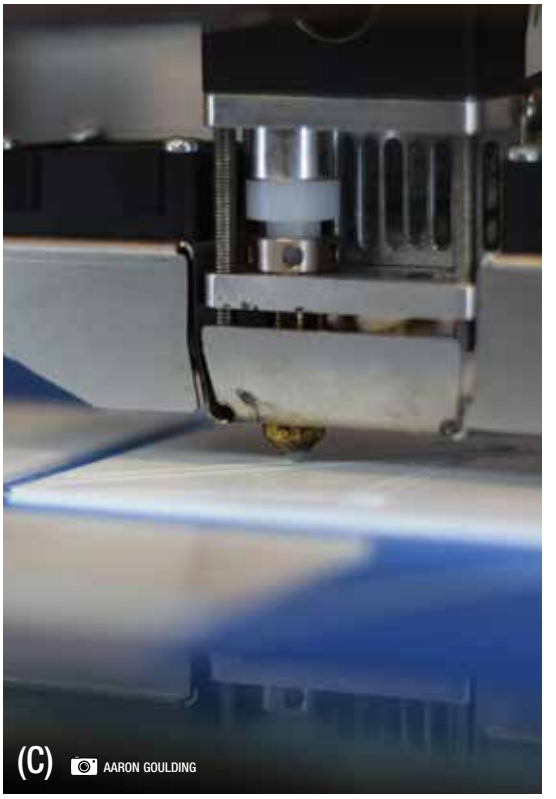



Figure 2: Community Makerspace kits could include many tools, including (A) circuit boards, (B) sewing machines, and (C) 3D printers.

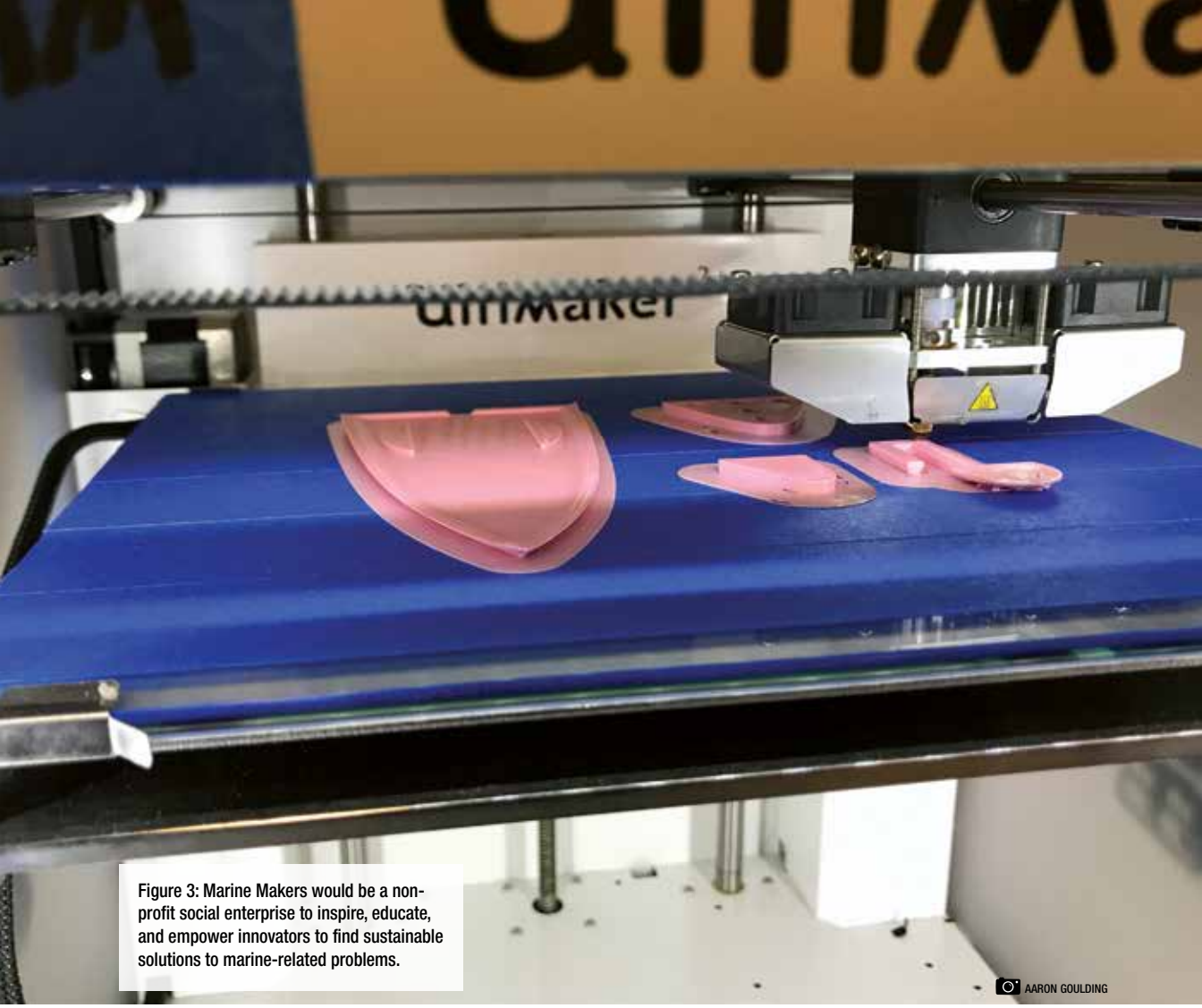



Figure 3: Marine Makers would be a non-profit social enterprise to inspire, educate, and empower innovators to find sustainable solutions to marine-related problems.

be arranged by the Marine Makers and would include pitching the idea to an incubator or innovation centre that has the mandate to promote ideas of enterprises. These groups are often associated with universities and/or governments. For example, in Newfoundland and Labrador, Memorial University's Genesis Centre would be an ideal group. If accepted into their enterprise program, the Genesis Centre can provide working space, university resources, and contacts to potential investors. Of course, a partnership with an incubation centre would be the final step, and realistically only a few ideas would make it to that point. While still very rough, steps from a practical standpoint could include:

- Apply for a Community Maker Kit
- Teach the teacher – i.e., teach someone how to use the equipment
- Help with workshops in the community
- Host community Maker innovation challenges. This would typically happen over a weekend, where groups would come together with an idea and create something using the Community Maker Kit.
- Give winners an opportunity to pitch their ideas to an incubation/innovation centre (e.g., 5-10 minute presentations)

**Formation of Marine Makers**

Marine Makers would be a non-profit social enterprise with a mission to inspire, educate, and empower a community of innovators to make sustainable solutions to marine-related problems in order to improve lives of people

through saving time and/or money. In addition to the initial startup kit, Marine Makers support will also include initial setup and training, along with ongoing education and project mentoring. Marine Makers may solve problems such as preventing finger blistering so fishermen can continue to generate income, to reducing salmon poaching through the use of camera-enabled drones. Perhaps even more significant than the solutions that arise to marine problems will be the skills that individuals learn through having access to a Makerspace environment and the education that they receive while there. Three dimensional printing, drone manufacturing and piloting, problem solving, teamwork, etc. are all critical skills for the economy of tomorrow.

## Conclusion

So consider this a call to arms: we are seeking corporations, foundations, and organizations from both the private and public sectors who share our vision and want to provide social investment to assist those impacted by marine-related problems. Together we may have the potential to help rural communities in your area in some meaningful way.


## Acknowledgments

The author thanks Aaron Goulding for his support and help in developing this idea.




Shawn Pendergast has over 20 years' experience managing various enterprise level IT systems. He started as a full-time instructor at the Fisheries and Marine Institute of Memorial University in April 2018 and has worked as a part-time instructor since 2015. Recently, he worked at Memorial University as the Manager of Student IT Services. Mr. Pendergast also has experience working with Schneider Electric, a multinational high-tech company in Victoria, British Columbia. During that time, he had the opportunity to participate and lead many major IT commercial projects with organizations like Honda, Weyerhaeuser, City of Chicago, and ABB. In addition, he was employed in the forestry sector in British Columbia and conducted environmental impact assessments in Ontario. Mr. Pendergast graduated from UNB with a B.Sc. from the Faculty of Forestry and Environment Management and completed a graduate diploma in Information Technology, followed by an M.Ed. at Memorial University. He is currently working on his doctorate at the University of Calgary with a focus on educational technology within higher education; specifically, how new technologies such as 3D printing and the Makerspace concept can help improve student engagement at the post-secondary level.