

DEPARTMENT OF THE NAVY

# SBIR/STTR TRANSITIONS

## PROPEL SPOTLIGHT



### Propel, a Navy SBIR-funded Business, Pivots to Produce Masks During COVID-19 Pandemic

By TARA M. CLAPPER

**SMALL BUSINESS LEADERS ARE USING THEIR EQUIPMENT AND THE AGILITY AND SKILLS OF THEIR WORKFORCES TO MEET URGENT NEEDS CREATED BY THE GLOBAL COVID-19 PANDEMIC.**

Pawtucket, R.I.,-based Propel LLC specializes in developing new textile innovations, such as [Propel's stitchless seam technology](#) and smart textile technology and is currently working on its third Phase II Navy SBIR, this one for 3D knitting technology, a new additive manufacturing process that allows manufacturers to 3D print a garment directly from yarn with no intermediate steps. Clare King, president of Propel, signed this Phase II with NAVSUP on March 19. This award coincided with the immediate need for cloth masks. The Centers for Disease Control and Prevention (CDC) now recommends wearing cloth face coverings in public places, and cloth masks are in short supply for healthcare workers and the general public. Outside the Phase II, King began work immediately to supply cut and sewn masks. King sourced bulk Berry-compliant fabrics and elastic in her home state and worked with a local company to develop the metal nose stays that are important for a good fit. Within five days of startup, King was producing and selling 1000 masks a day and now is working with five factories across the United States to supply the cut and sewn masks in both very large and small quantities. Orders are coming in from military bases, fire and police departments and businesses large and small across the country as well as from individuals. She has now launched on their website, <https://propel-llc.com/>, the ability for customers to quickly select the masks needed and



Propel's personal protection mask

place an order.

In addition, the R&D team at Propel immediately developed prototype concepts for 3D knitted masks that could be made at scale. No modifications to the SBIR-supported 3D technology was required. Propel's Massachusetts-based technical point of contact, Magdalena Mulherin (NAVSUP's Navy Clothing and Textile Research Facility), brought

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### *Propel, Pivots to Produce Masks During COVID-19 Pandemic (continued)*

the potential to use the 3D knit technology to make masks to the attention of Amy Brayshaw, Director of Organizational Clothing for the U.S. Navy. King was asked for a white paper on rapid prototyping and production of 3D knit cloth masks. This was quickly reviewed by the Navy and Propel was awarded a nine-month SBIR Phase II.5 contract to begin work immediately. Propel's goal is to deliver to the Navy 50 first prototypes within four weeks of contract signing. Initial production capability is for 2500 units a day so rapid transition of concepts to full rate delivery is very feasible. Propel has already built out a distribution network for the sewn cloth masks. As the 3D knit masks are rapidly developed, this infrastructure will be used to transition sales beyond the Navy to the commercial market.

As part of this new SBIR effort, Propel will also identify the industrial base for 3D knitting in the United States. With 3D knitting the design for an item is coded and then knit directly from yarn, cutting the typical design to production cycle for a textile product from months or years to weeks or even days. 3D knitting requires fewer people to run a large volume of production than traditional methods of garment making, making it ideal for design of newly needed products and manufacturing at scale in times of a national emergency. Propel plans to research other products that can be 3D knitted to respond to COVID-19 and future national emergencies.

In addition to producing masks, King has partnered with her neighbor, Cynthia Treen, a hand sewer and owner of Threadfollower (<https://www.threadfollower.com/>). Together, they're producing a hand sew-at-home kit with no sewing experience needed. Each "ISewMasks" kit produces four masks and is great for families to

do together. Treen and King use a Source America company, Peckham Inc., in Lansing, Michigan, for kitting. Peckham's employment base is 75 percent disabled. The website is now live at [isewmasks.com/](https://isewmasks.com/).

King is using the skills she developed in the Navy SBIR/STTR Transition Program (Navy STP) to meet immediate pandemic-related needs. King credits what she learned in Navy STP for helping her with fast turnaround and knowing how to produce plans, white papers, and prototypes. The program "Has given me so many skills in understanding the system, in marketing the products. I'm using all those skills," she said.

Sadly, King's mentor from her university days died from COVID-19; this personal loss inspired her to take immediate action to help others protect themselves from the virus. "Professor Peter Sinclair taught me economics and was always so supportive of my entrepreneurial endeavors. I've never worked so hard as I have in the last four weeks, but this has become personal for me and I want to use all my skills and knowledge to make a difference today and as we rebuild this nation."

To learn more about Propel LLC, visit the company website at <https://propel-llc.com/>.

For more information on the STP and Navy FST, visit:



[NavySTP](#)



[NavyFST](#)

