

Better, more affordable prosthetic knees bound for developing world

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With a \$2 investment from the Canadian government, foundations and the private sector, LegWorks will mass produce its innovative, affordable prosthetic knee, the All-Terrain Knee (AT-Knee), the functionality and durability of which makes it ideal for amputees living in the developing world. Credit: LegWorks

Backed with a blend of private and Government of Canada investments catalyzed by Grand Challenges Canada, a new Toronto-based company will contribute to a better life for amputees in developing countries. With the new funding, LegWorks will mass produce its innovative, affordable prosthetic knee, the All-Terrain Knee (AT-Knee), the functionality and durability of which makes it ideal for amputees living in the developing world.

With \$1 million expected from private investors and foundations matched by federal funds, the project will receive an anticipated \$2

million to scale-up the success of the company.

LegWorks began with a \$100,000 proof-of-concept grant three years ago from Grand Challenges Canada, now the intermediary for the scale-up investments.

Said the Honourable Christian Paradis, Minister of International Development and La Francophonie, "Throughout the developing world, an amputated leg imposes economic, social and mobility hardships. This innovative product proves that we can create relatively simple and affordable ways to help people in low-resource settings cope with a limiting disability and lead more fulfilling and productive lives. Canada is committed to finding innovative ways to address persistent development challenges and to help improve the lives of those most in need."

Said Dr. Peter A. Singer, Chief Executive Officer of Grand Challenges Canada, "Five years ago, Grand Challenges Canada began seed funding 'Bold Ideas with Big Impact' in global health; today, Canada and [developing countries](#) are reaping part of the harvest with the creation of innovative companies like LegWorks, which are serving humanitarian purposes."

"We are proud of the success demonstrated by the researchers behind LegWorks, proud that such a high level of private funding has been attracted to scale up this innovation, and proudly looking forward to helping launch many more such companies in the months and years to come."

The federal government's contribution to the project comes from a special \$10 million strategic partnership fund provided by the Department of Foreign Affairs, Trade and Development Canada (DFATD) to accelerate the scale-up of highly promising Grand

Challenges Canada innovations that improve health in developing countries. Selected innovators also access technical, business support and other resources to accelerate their growth.

LegWorks' All-Terrain Knee

The LegWorks "All-Terrain Knee" (AT-Knee), is a safe, high-functioning, durable, affordable prosthetic knee joint developed at Toronto's Holland Bloorview Kids Rehabilitation Hospital. It enables lower-limb amputees to walk more efficiently, safely and comfortably. Its patented design provides incredible stability, is easy to fit and maintain, and can even be used in harsh environments, including water.

In trials, early users in 10 countries reported a 95% preference for the relatively low-cost AT-Knee to more expensive existing technologies.

Developed with a \$100,000 Grand Challenges Canada seed grant awarded in 2012 to the Bloorview Research Institute, the AT-Knee easily outperformed existing technologies under rigorous conditions in El Salvador, Chile and Myanmar.

In the first five years, LegWorks expects 37,000 units to be sold via distributors, NGOs, prosthetic clinics and government rehab facilities, in both high-income countries and the developing world.

Introduction of the innovative device will be scaled up and taken to market this summer. The \$2 million investment deal includes a loan via Grand Challenges Canada of up to \$1 million (of which \$405,000 has been dispersed), matched by MaRS Innovation, Holland Bloorview Kids Rehabilitation Hospital, Ontario Centres of Excellence and a group of private angel investors.

The potential global market for lower limb prosthetic devices is estimated at 10+ million people, a number growing in step with an aging population, chronic health problems, landmines, war, violence, traffic injuries and other causes often related to poverty.

The World Health Organization estimates that only 5 to 15% of all lower-limb amputees in the [developing world](#) have access to appropriate prosthetic services and technologies—a large unmet need.

Stripping the ability to walk, lower-limb amputation restricts independence, employment potential and productive participation in the community.

Said innovator Jan Andrysek, Scientist in the Bloorview Research Institute at Holland Bloorview Kids Rehabilitation Hospital, "With the AT-Knee and LegWorks, it is our goal to begin to provide more universal access to better prosthetic care for individuals living with amputations around the world. In short, we want to make high-quality and well-functioning prosthetic devices affordable and accessible for the many individuals whose needs are currently left unmet."

"The AT-Knee will create a world of possibilities for amputees - a world of independent mobility and full participation in life, be it work, school or play. At Holland Bloorview, where we envision such possibilities for all children and youth with disabilities, we are so proud of Dr. Jan Andrysek and his transformative research that will impact lives globally," said Dr. Tom Chau, Vice President of Research at the Bloorview Research Institute, Holland Bloorview Kids Rehabilitation Hospital.

More information: legworks.org/

Provided by Grand Challenges Canada

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