

Startup of the week / Pretty plastic wheelchairs for the developing world

These relatively low-cost wheelchairs were inspired by plastic playground facilities, explains Pablo Kaplan.

By [Inbal Orpaz](#) | Apr. 8, 2014 | 6:04 PM



The plastic wheelchair, designed with the idea of being inviting, convenient, light-weight and durable.
Photo by Pablo Kaplan

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If it ain't broke, don't fix it, they say. But what if it ain't broke but could be a lot better, and save disabled children, too? That's the rationale behind an Israeli start-up's colourful plastic wheelchairs, which are cheaper to make than the traditional metal ones, prettier – and designed with the human in view. That had been less of an issue when the devices were first invented in the 5th century.

1,700 years later, visitors to Jerusalem's Alyn Woldenberg Family Hospital, Israel's only rehabilitation facility for children and adolescents, can see kids using colourful wheelchairs made from plastic instead of metal. It's no coincidence that the handlebars on the back resemble beetle antennae – the designers took inspiration from playground equipment.

The brightly coloured plastic wheelchairs are also lighter than their metal counterparts, at 10 kilograms, compared to 17 kilograms, making them zippier and more manoeuvrable.

In effect, these children are test drivers for the startup Wheelchairs of Hope. These kids, together with Alyn's staff, actually helped to draw up the specifications for the vehicles.

"Wheelchairs have looked more or less the same for 50 years or more. They look as if an engineer or a metalworker designed them and put no emphasis on the design or the human interface of the person who is on the chair 24 hours a day," says Pablo Kaplan, who founded the initiative together with his wife, Chava Rotshtein.



Chava Rotshtein with the plastic wheelchair.
Photo by Pablo Kaplan

Plastics for humanity

The decision to use plastic as a raw material was not by chance. Kaplan and Rotshtein both worked for years at Keter Plastic, Israel's world-renowned plastics manufacturer.



Pablo Kaplan

For 28 years, Kaplan was the company's marketing director.

Immediately prior to founding Wheelchairs for Hope, Kaplan and Rotshtein ran a plastics company in Switzerland. While preparing their return to Israel, the couple decided to parlay their long years of experience in the field into doing something for humanity. They decided to make a relatively low-cost wheelchair out of plastic that would sell for less than \$100, compared to the \$150 that cheap wheelchairs cost today.

The innovation of the new wheelchair is in its design, as well as the use of plastic. "If you look at a conventional wheelchair, the last thing you'd want to do is to sit on it. There's no reason not to make a wheelchair that looks nice and inviting," Kaplan says.

He and Rotshtein operate like a lean start up, and are busy raising the half-million dollars needed to put their product into mass production at an Israeli factory and bring it into compliance with European standard. The product prototypes were printed on a 3-D printer.

The biggest advantages of plastic are that he knows it well and it's light, says Kaplan. "Second, plastic is a material that can be sculpted. We recognized that plastic has a high degree of design flexibility and that it's possible to make it into something that is more attractive and human. It's also washable, durable and suitable to all climates, he points out.

The target audience he has in mind is chiefly children ages 2 to 14, in the developing world too, where every dollar off the production price matters. In the so-called Third World, disability can prevent a child from attending school. "That is why we decided to focus on children," Kaplan says, adding, "There are 65 million disabled people in the world who need wheelchairs. Of them, at least 20 to 30 million have no chance of obtaining one. One-third of these are children."

So by his math, around 7 million children need wheelchairs and can't obtain one. At least some will be helped by this lower-cost concept.

The company also plans to look into using recycled plastic as a raw material, but Kaplan notes that this would reduce the colour options.

Kids take friends for rides

The chairs are designed to be easy to maintain, and are made "Ikea-style," as Kaplan puts it. They are flat-packed, ready for assembly.

"Maintenance is minimal. Each carton includes spare parts as well. One of the guidelines for engineering development was high durability. The first chair that was made, for children aged five to nine, is suitable for a child weighing up to 40 kilograms, and we are testing it for weights of up to 150 kilograms, because we have no control over whether a child will give a ride to a sibling or a friend," Kaplan says.

Wheels for Hope is a company for all intents and purposes, but with a social agenda, Kaplan says. "We call ourselves a social enterprise."

The World Health Organization is part of the initiative. While still in Switzerland, Kaplan and Rotshtein met with WHO mobility experts and described their vision to them. Today the WHO is helping to open the doors for Wheelchairs for Hope in countries where the first pilot program for their wheelchair will take place. Starting in 2015, chairs will be shipped to Tajikistan, Brazil, India and the Palestinian Authority, among other places, for the pilot.

For now, in addition to Alyn Hospital the chairs are also being test-driven at Beit Issie Shapiro in Ra'anana. Prof. Aaron Ciechanover, a Nobel Prize laureate in chemistry and a friend of Kaplan and Rotshtein, is a member of Wheelchairs of Hope's board of directors.