

CrossGuard: from HEMA to Hockey



This project is done in collaboration with CrossGuard.

CrossGuard is a company that has developed a protective glove called the ProGauntlet. These gloves work like an exoskeleton that protects the hands from hard impacts without restricting the freedom of movement.

The ProGauntlet has been designed for practitioners of Historical European Martial Arts (HEMA), or medieval sword fighting. It has been designed to withstand high-impact blows from steel swords repeatedly, to protect the users' hands from virtually any type of impact caused by these swords. Without adequate hand protection, these blows would easily cause serious injuries. The ProGauntlet has been designed to offer an extremely high level of protection against repeated impacts.

CrossGuard has chosen for the market HEMA market particular due to the personal interest of the founders, whose passion has been the starting point of their quest to design the ultimate HEMA glove. They appear to have succeeded in this quest, but the HEMA market proves to be relatively small, consisting of about 30,000 users worldwide.

According to CrossGuard the HEMA market is still large enough for the company to run a sustainable business, but they will need to increase their market size in order to let the company grow.

The qualities of the ProGauntlet might have great value in other markets where the hands need impact protection and freedom of movement. The purpose of this project is to determine in which market(s) can launch the ProGauntlet, if any.

Unique design features of the ProGauntlet

The value of the glove can be attributed to a number of technical features of the glove, but these are only the manifestations of the underlying factors that truly set it apart. The most important technical elements are shown on the right.

These three elements, together with many other design elements found in the glove, create a glove that offers an unrivaled combination of impact protection and freedom of movement.

THE SHELL MATERIAL

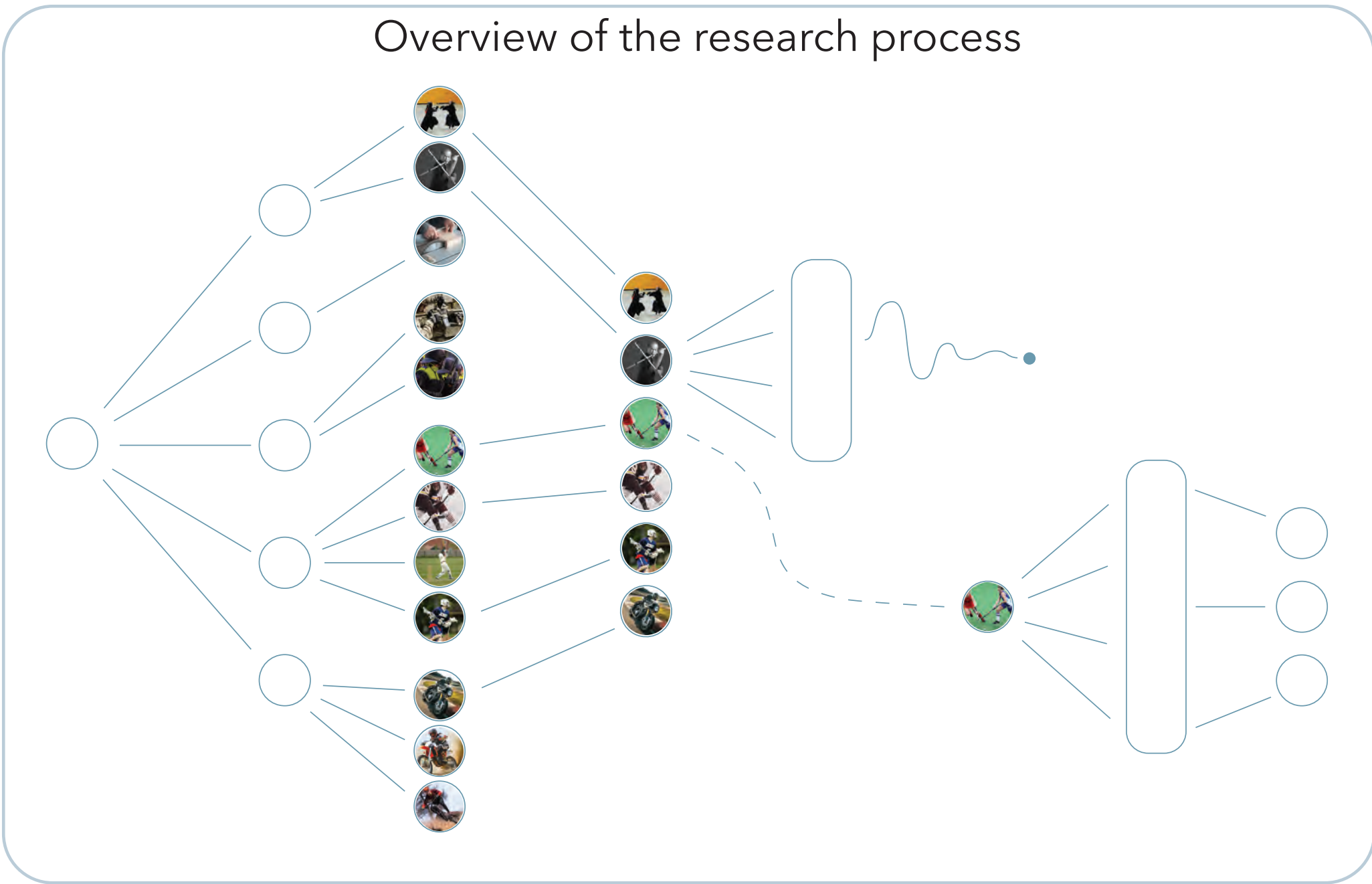
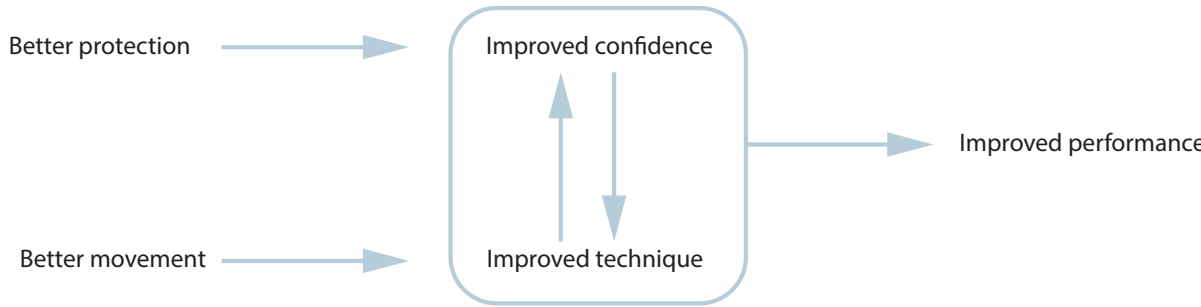
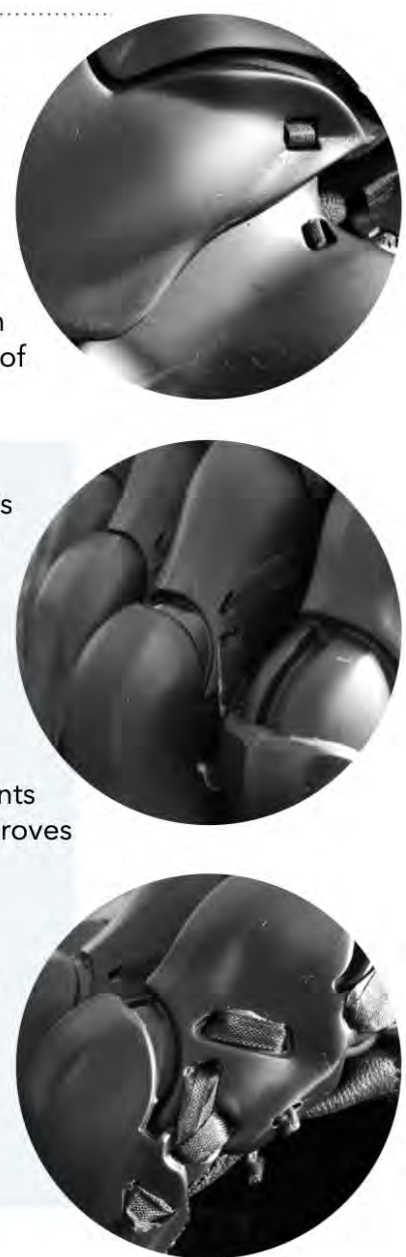
► The polyurethane (PU) that is used for the outer shell is extremely tough, strong and elastic at the same time. Upon a full-on impact by for instance a steel sword, the material disperses the energy, protecting the hand underneath from harm. Even with such extreme impacts, the material stays intact and simply bounces back to its original shape.

THE ARTICULATION OF THE OUTER SHELL

► The glove allows full articulation of the fingers and joints through a set of overlapping panels. This geometry also improves the toughness and impact protection of the glove.

CONNECTIONS BETWEEN THE SHELL PARTS

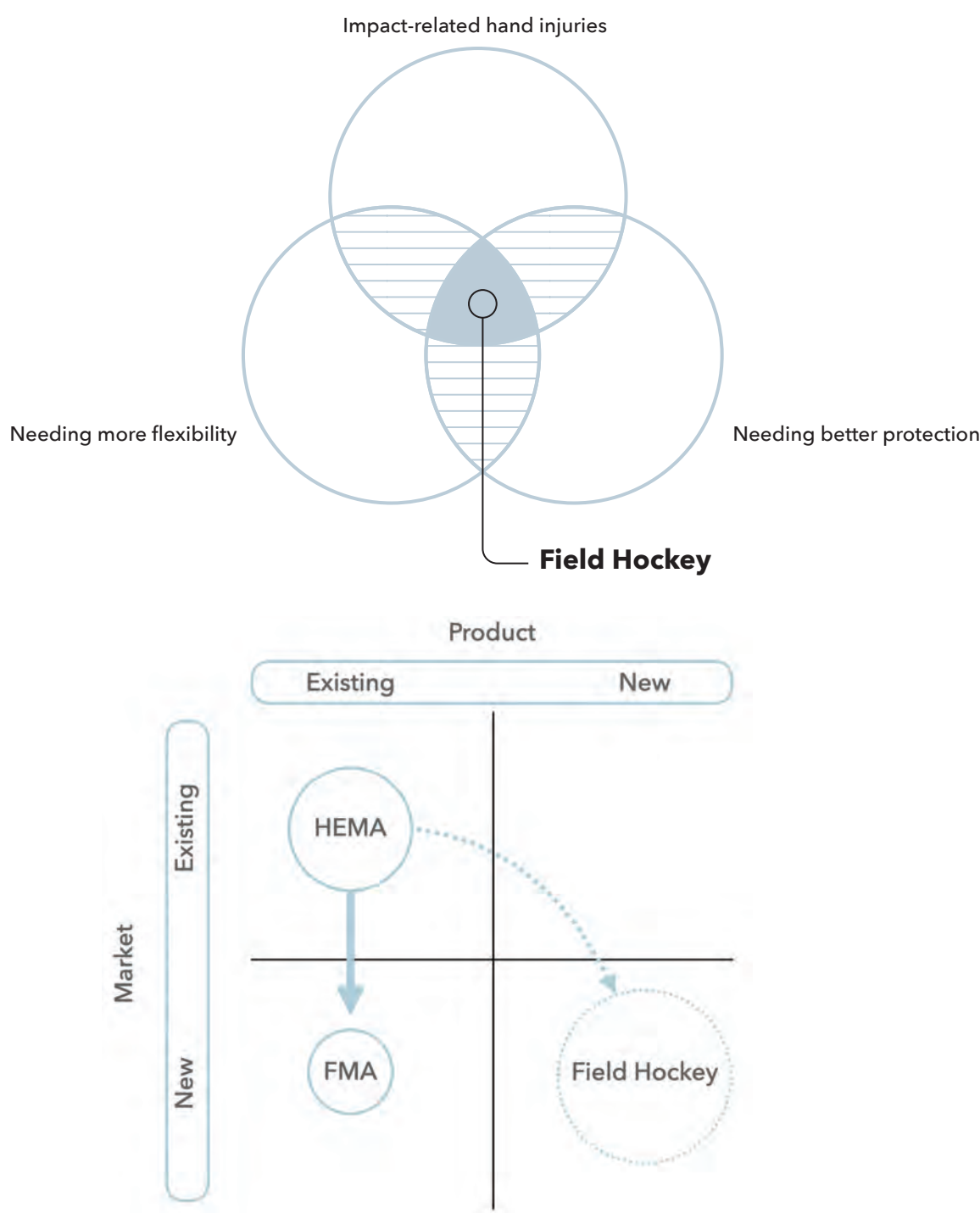
► All individual parts are connected with highly durable straps. This allows for a much lower profile and makes the glove lighter, more flexible and more resistant to impact from different directions. Especially the connections in the finger joints are what makes the glove stand out in terms of lightness, mobility and protection.



The ProGauntlet in its current form might not be useful for field hockey, but the type of protection may be very valuable for hockey players. There appears to be a dissatisfaction with the current design and quality of field hockey gloves. Hockey players need a stronger, more flexible, lightweight impact glove. This sounds like something that CrossGuard can make.

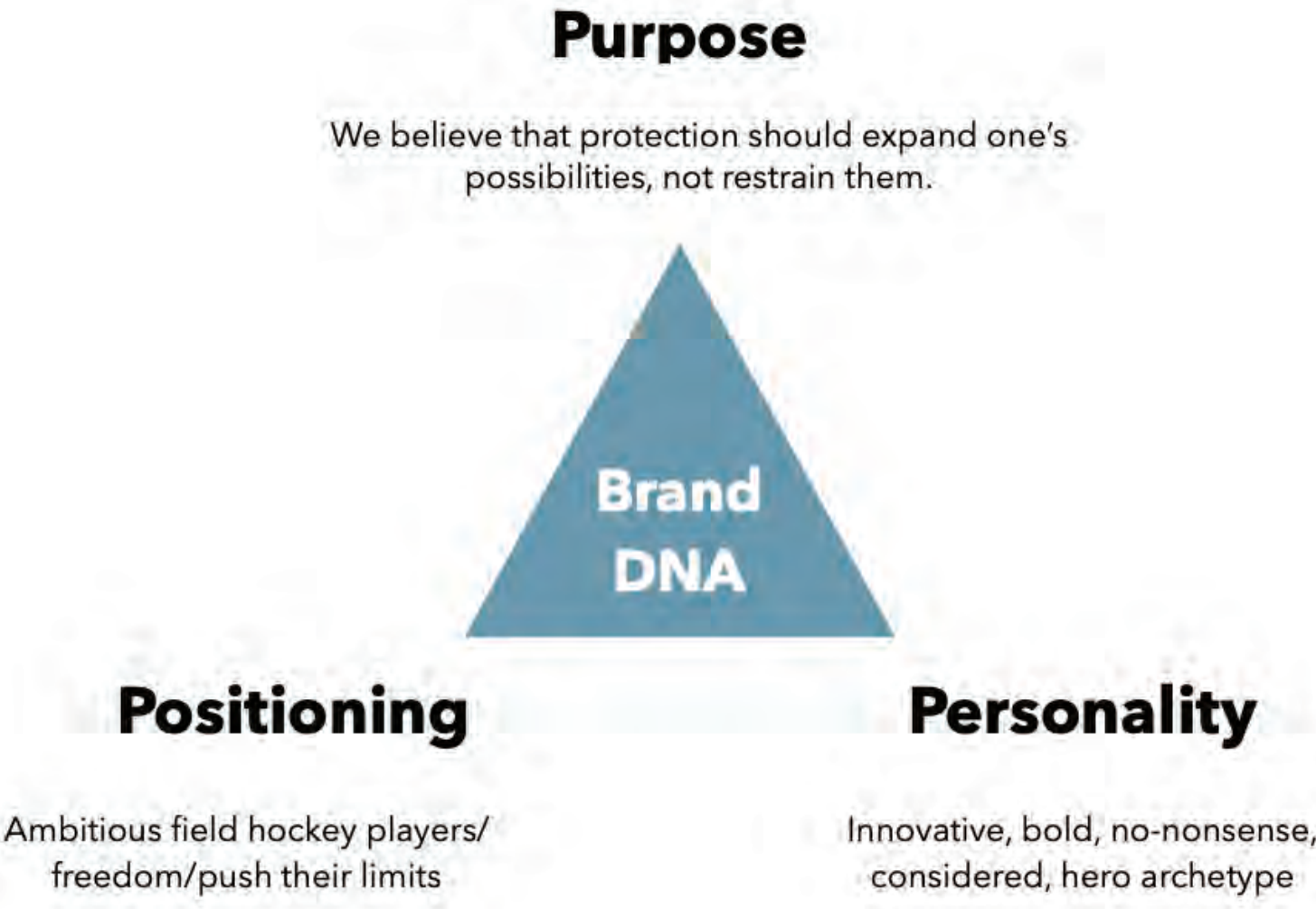
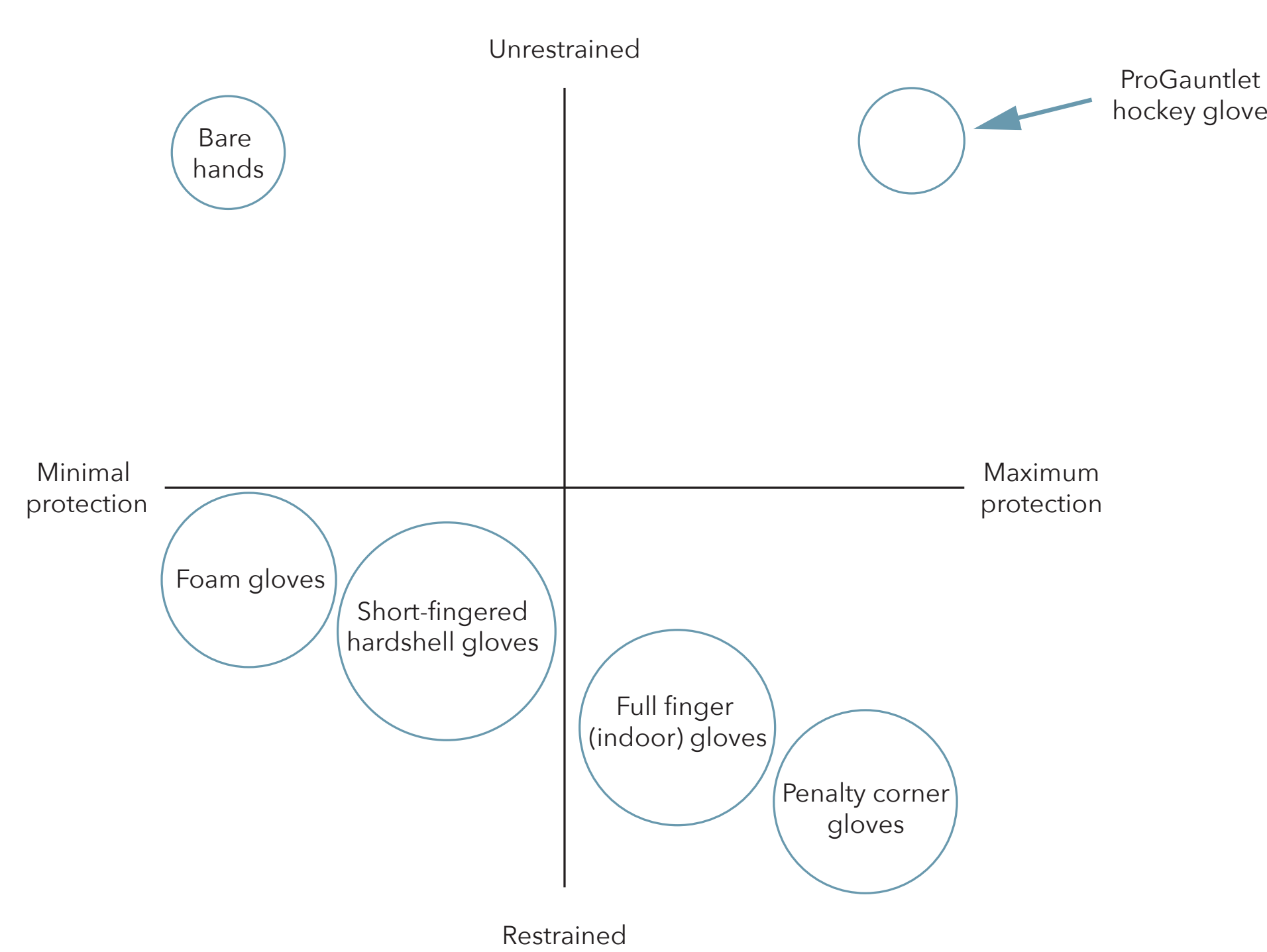
The prevalence of (serious) hand injuries appears to be very high in field hockey.

In a way, the current situation in the field hockey market is somewhat similar to the situation in the HEMA market. With the ProGauntlet, CrossGuard has entered a low-tech market with a high-tech product. The overall level of innovation and R&D in the HEMA market was very low until the introduction of the ProGauntlet. This glove has shown that HEMA gloves are a serious product. For field hockey, CrossGuard might be able to achieve a similar effect. There is a lot of room for improvement in the field of hand safety during field hockey. Solving the problems with the current gloves seems to be something that is within the reach of CrossGuard's capabilities.



Positioning:

Unrestrained Protection



For ambitious field hockey players, CrossGuard offers a hockey glove that is tough, virtually unnoticeable and gives people the freedom to expand their limits.

Douwe Bouwers
Mapping the future of protective hand-exoskeletons:
Market identification and branding strategy development
11 December 2020
Msc Strategic Product Design

Committee Erik-Jan Hultink
Pinar Cankurtaran
Company CrossGuard

