Shoes from Nettles and Cocoons

By Gunter Pauli

This article introduces a creative approach to footwear as one of the 100 innovations that shape "The Blue Economy". This article is part of a broad effort to stimulate entrepreneurship, competitiveness and employment.

The Market
The global retail sales of footwear broke the historic $200 billion dollar mark in 2010 growing to an estimated $238 billion by 2013. Strong demand from emerging markets in Asia and Latin America underpinned an annual compounded growth rate in excess of 6 percent. This represents in 2010 the marketing and distribution of more than 10 billion pair of athletic and non-athletic shoes. The total number of shoes sold increased by 2 billion pair over the last five years, and is expected to reach the 12 billion mark by 2013. Even though the United States market continued to expand at a rate of one billion dollar per year between 2004-2008 and the prognosis is that it will be valued at $48 billion in three years, its relative worldwide share will have dropped under one fifth by 2013. The shoes business is one of the most globalized industries. In the case of North America, 96 percent of all footwear is produced overseas with 87 percent coming from China, the remainder from Vietnam, Indonesia and Brazil.

Women's dress and casual footwear is with 35 percent the largest product category, while men's athletic footwear including sneakers and boots come in second with 22 percent. Men's dress and casual footwear are rounded up at 15 percent, about the same volume at women's sports wear. The traditional shoe store maintains control over distribution with over more than half reaching clients, clothing stores represent only 12 percent of sales, and sporting goods retail outlets just 7 percent. The largest footwear company in the world in sales is Nike (+ $10 billion), outpacing Adidas, Puma and Asics. The outdoor and environmental shoe makers Geox (Italy) and Ecco Sko (Denmark) have both surpassed the one billion dollar sales mark. The oldest one is Bata, originally founded in the Czech Republic in the late 1800s, then transferred to Canada in 1940 and finally settling in Lausanne, Switzerland. The company has sold +12 billion pairs of shoes in its history.

The Innovation
Due to its extreme globalization and media exposure consumers are interested to know the functional benefits of products (like Geox claiming that shoes breath), and they wish to understand the company's values. Since there is an oversupply on the market, issue related marketing provides a positive emotional connection that goes beyond stardom. Deckers has taken the lead with the Simple Shoes brand proposing 100 percent sustainable shoes with material choices ranging from organic cotton, metal-free leather, bamboo fibers and even recycled car tyres and inner tubes for its soles. As a reaction to the high level of
standardization Zazzle introduced amongst others custom designed shoes permitting clients to create unique canvas shoes by uploading their own designs, patterns, illustrations, images and text offering a dazzling 42 billion variations. However, while personalization, social and environmental issues are important, the key subject that is often ignored is health. The health of our feet serves as a barometer of our body's overall health.

Guillem Ferrer, who revolutionized the designs and the ecological footprint of the Spanish shoemaker Camper, studied in detail the 26 bones, 33 joints and 150 ligaments that provide our mobility. Our feet house a complex web of nerves and blood vessels needed for the estimated 160,000 kilometers humans walk during their lifetime. Poor blood circulation diminishes oxygen and nutrient delivery to feet. Guillem studied how important it is to liberate feet from rigid, air and water tight shoes which cause fungal growth and hampers flexibility. A detailed analysis of the shape, and especially the deformation of feet caused by the fashionable footwear, and the proliferation of fungal diseases motivated Guillem to imagine how footwear could evolve into the custodian of the feet where health of feet, the wearer of the shoes, and the health of the environment would be a priority. He left Camper, and created his private shoe design studio.

A meeting of minds in Bhutan between Guillem and Dr. Fritz Vollrath, Professor at the Department of Biology of Oxford University and an expert in silk gave light to a unique opportunity. The silk caterpillar creates a unique cocoon with its saliva that protects the moth-in-waiting. This hard shell that is later covered with tiny threats of silk which has distinct anti-fungal and anti-bacterial characteristics. It is strong and durable. With an estimated one million tons available from sericulture, there is not enough to supply the whole shoe market, but there is more than is needed to start the design process with the guarantee that sufficient material is within reach to secure a market development. Whereas Fritz is considering the development of a large market in association with athletic shoes renowned for causing fungal diseases, Guillem focuses on the redesign of a local business model for shoe making whereby 95 of the market is local, and 5 percent goes global. This is one of the core principles of The Blue Economy: respond to the local needs with what you have.

**The First Cash Flow**

Guillem is proceeding with the design in cooperation with the Tarayana Foundation that is dedicated to bringing livelihoods to the villages. However, producing a sole is not enough. Guillem's search for an abundant textile that is not competing with land for food brought him to the common stinging nettle, one of the nine sacred herbs in ancient cultures. This is an outstanding plant often considered a weed. It grows easily, requires no fertilizer, can be harvested wild and has been successfully converted into cloth. This nettle fiber was already used in Neolithic settlements in Switzerland before wool or linen. The combination of silk cocoons and nettle fabric will provide the basis for the design of a systemic design of shoe ware beyond what has been considered viable. Considering the creations of Guillem in the past offers us a guarantee that his explorations for healthy shoes will be beautiful as well. That it will be a competitive proposal, with a solid social and ecological impact.
The Opportunity
Starting any new business with new materials always needs to overcome the hurdles of shortage of money and lack of experience. The production of nettle yarn has been mastered in the past, and does not require exceptional expertise. The harvested wild nettles can first be stripped of their leaves, which produce an excellent soup, then converted into yarn. Instead of textiles competing for food, this plants offers food and then a sturdy fiber. The cocoons are the left-over from sericulture and are given a new value reaching out to the farmers who are in need of better income. Under these conditions it is not only possible to produce a sustainable product locally, it is even viable to produce fashionable goods that outcompete on cost, value and health performance the internationally traded commodities.

It is this approach that is likely to inspire entrepreneurs who are not dreaming of singlehandedly replacing Nike or Puma, but those who are prepared to nibble a minor part from their massive market. Since the framework of this business model could be applied throughout the world, thousands could embark on this venture, once Guillem has proven that the customers buy this creation. Since he announced his intention and described his first options, he has generated more interest than he can produce any time soon which is for any entrepreneur a luxurious position.

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