100% organic?
A sustainable entrepreneurship perspective on the diffusion of organic clothing

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Abstract

Purpose – This paper analyses the sustainability-oriented transformation of industries from the lens of sustainable entrepreneurship. We investigate the co-evolution between pioneers introducing radically more sustainable offerings and (mostly large) market leaders with their responses. While sustainability pioneers introduce new products in niche markets, incumbents advance them into the mass market, together leading to the transformation of industries, markets and consumer habits.

Design/methodology/approach – We apply the sustainable entrepreneurship perspective to a case study of the German clothing retail industry with a focus on organic cotton. The analysis covers four of the ten largest German textile retailers. Data collection is based on public available sources.

Findings – The late 1970ies saw the foundation of Hess Natur who pioneered organic cotton practices and supported the development of sustainability standards in the clothing industry. In the beginning largely being a phenomenon in niche markets, to date some of the organic practices have diffused amongst mainstream retailers. This is counter-intuitive as theory suggests that incumbents only adopt practices with significantly lower sustainability standards than companies in the niche.

Research limitations/implications – The study suggests that more research should focus on the co-evolutionary dynamics between pioneering companies and incumbents and examine if and how sustainability practices diffuse into the mass market.

Practical implications – The findings can help managers to better understand their organization’s role in the transformation of industries towards sustainability and, vice versa, how the transformation may affect them. Leading the transformation challenge by adopting organic and other sustainable supply chain practices can be an important measure for market success.

Originality/value – This study is one of the few pieces of research investigating sustainability-oriented industry transformation from a market-based perspective. Actual data on organic cotton diffusion in German retail is presented.

Keywords – Sustainable entrepreneurship, sustainability-oriented innovation, corporate sustainability, CSR, organic cotton, integrated production, transformation, textile industry, supply chain

Article Classification Case study
1 Introduction

The key idea of a sustainable economy is the lasting, world-wide guarantee of individual opportunities to secure basic needs as well as attain a greater quality of life while at the same time preserving nature and promoting humane social relationships (cf. for example WCED, 1987). Changed and changing market, legal, political and social conditions challenge companies to take greater account of sustainability. The degree of sustainability-oriented industry transformation varies from one country to the next; however it is always influenced or even shaped by changes in and of corporations. In this context corporate sustainability does not mean (superficial) “repair” or “corrections” of corporate activities, but instead making deep changes, i.e. making sustainability principles an integral element of corporate value creation – knowing that engagement is most credible when it is comprehensive and lasting and contributes not only to social and ecological development but also to corporate success.

Industry transformation towards sustainability has been studied in the literature on sustainable entrepreneurship. Here new ventures are considered key to introduce radical more sustainable offerings in the market to which incumbent firms react, ultimately leading to a co-evolutionary process toward industry transformation (Hockerts & Wüstenhagen, 2010). Often it is assumed that new ventures introduce higher sustainability standards whereas incumbent firms adopt only ‘watered down’ versions. While this may be often true, we also find indications that incumbents may also adopt higher standards. It is our aim to contribute to this literature by presenting an illustrative examination of the clothing industry with a focus on the diffusion of organic cotton through incumbent retailers. The change from conventional cotton to organic and other more sustainable forms of cotton indeed represents a strategic innovation to incumbent retailers as they need to (a) develop the sustainability consciousness and purchasing patterns of consumers or to enter new consumer segments; (b) build up new competencies in managing the upstream supply chain (i.e. cotton cultivation) and (c) create or engage in co-operations to increase the cultivation of more sustainable cotton.

The paper is structured as follows: in the second section we present the conceptual framework rooted in the literature on sustainable entrepreneurship. The third section gives an overview of sustainability issues and the important aspects of sustainability management in the clothing industry. Section four presents the case study method. The fifth section presents the findings of the illustrative case study in the clothing industry. Finally section six discusses the findings.

2 Conceptual framing: sustainable entrepreneurship

Corporate innovativeness, triggered by sustainability-oriented business leaders and processes, has initiated a dynamic process in Germany and many other countries world-wide. This has shaped growth and change processes in companies, and fundamental structural change in industries and in the economy as a whole. This in turn has influenced the kind of management increasingly needed to successfully lead a company today.

Corporate sustainability is about systematic management efforts to make a company’s value creation and related production processes, products and services more sustainable by reducing negative and increasing positive ecological and social impacts (Schaltegger & Burritt, 2005). Corporate sustainability can thus be understood as innovation into the (normative) direction of sustainability. Processes, products and even business models are improved or replaced to become considerably more
ecological and social than previous versions (Boons & Lüdeke-Freund, 2013; Hansen et al., 2009; Hansen & Große-Dunker, 2013). Thus, not only optimization, but also a fundamental rethinking of the core business and revenue logic is necessary (Schaltegger et al., 2012). Unsustainable products and production processes or even entire technological regimes must be abandoned and new ones created in their place. In the Schumpeterian sense of the “creative destroyer” (Schumpeter, 2006), a sustainable entrepreneur is expected to take unsustainable conditions as occasions for creating new and more sustainable products, services, and organizational forms, which can then replace existing structures, making them unattractive or even obsolete. This is usually confronted with resistance by most of the actors profiting from the existing (unsustainable) arrangements or regimes (e.g. legal or political hurdles, missing finance and initial customer support). Following this line of thought has inspired an entirely new research field of ecopreneurship (Schaltegger, 2002) and sustainable entrepreneurship (Cohen & Winn, 2007; Hall et al., 2010; Hockerts & Wüstenhagen, 2010; Larson, 2000; Plieth et al., 2012; Schaltegger & Wagner, 2011).

Following Schumpeter, the “entrepreneurial function” is not limited to the owner or founder of a business – rather it is a person or even a group of cooperating individuals successfully implementing “new combinations” (Schumpeter 2006; Hagedoorn, 1996). Thus, sustainable entrepreneurship can also be expressed in very different ways (Figure 1). On one hand, motivated by their own personal values, pioneers introduce sustainable products and services or radically new business models to the market or develop markets in a correspondingly new fashion – these are entrepreneurs in a conventional sense. On the other, entrepreneurs also exist in established companies, also called intrapreneurs (Schaltegger & Wagner, 2011), as they enable, initiate and lead change processes towards greater sustainability. Today this often means that sustainability managers work together with other managers in conventional business functions in order to induce a sustainability-oriented business transformation. This can only succeed in and with a company if the social and ecological issues are dealt with in a way that enhances the long-term success of the company.

In discussions about sustainability these two idealized types of companies have so far been too often studied separately, either new entrants (Fowler and Hope, 2007; Plieth et al., 2012) or incumbents (e.g. Goldbach et al., 2003) with initiatives by both being often judged as little effective regarding the overall transformation of an industry. Pioneer companies for example are accused of operating in niches and as a result are unable to demonstrate that they have had a relevant impact on economic sustainability and market transformation. And vice versa conventional companies taking their first steps towards sustainability, for example by launching an eco- or organic product line, have been accused of changing little in the company’s essential “unsustainability” and even of greenwashing. Although both arguments are to an extent right, considered on their own they are too limited. These two idealized types of companies have rarely been studied together and in particular they have not been studied as a dynamic process over time. And yet a sustainability-oriented transformation of economic sectors and the economy itself may only be possible with contributions from both forms of sustainable entrepreneurship. This is the idea behind an evolutionary economics perspective on sustainable entrepreneurship, which unites in a common framework both the development of sustainability pioneers (so-called “bioneers”, Schaltegger, 2002) from niche to mass market and the change processes of conventional companies through sustainability management (cf. Schaltegger & Hansen, 2013; Schaltegger & Wagner 2011; Wüstenhagen, 1998; Wüstenhagen et al., 2008). These two forms of sustainable entrepreneurship and their contribution to a sustainable market change have also been characterized as “emerging” and “multiplying Davids” on the one hand and “greening Goliaths” on the other (Hockerts & Wüstenhagen 2010; Wüstenhagen 1998; see also Baumol, 2002). The sustainability-oriented industry transformation calls for the development of mass markets, either
through the growing or multiplication of sustainability pioneers or the transformation of conventional companies to become more sustainable. These two idealized types of developments do not take place independently, but instead interact in a complex way also referred to as a co-evolutionary process (Hockerts & Wüstenhagen, 2010). While there are also explicit interactions based on acquisitions and investments, we are more interested in the rather implicit interactions between independent actors through mimicry of sustainability practices.

Few empirical studies exist so far examining the dynamics of industry transformation with pioneering works in energy, food and textile sectors (Villiger et al. 2000; Wüstenhagen, 1998) and a more recent study in the clothing industry focusing on the differences of approaches by contrasting pioneering company Hess Natur and incumbent retailer H&M (Illge & Preuss, 2012). Schaltegger (2002) looks at both new ventures and incumbents, but in a cross-industry sample and not with a focus on interactions amongst peers in the industry. The goal of this paper is hence to illustrate these interactions with an exemplary case in the clothing industry.

Overall, from the perspective of sustainable entrepreneurship, the sustainability-oriented transformation of industries and the entire economy occurs in the interplay of radical change by sustainability pioneers ('bioneers') in niche markets and incremental improvement strategies of conventional companies in mass markets (Wüstenhagen, 1998; Hockerts & Wüstenhagen, 2010). A detailed analysis of individual companies and their classification as “sustainable” or “unsustainable” companies is unable to adequately describe these interactions and change processes. It is much more instructive to analyse these transformation processes and interactions within specific industries, as will be done here for the clothing industry.

3 Sustainability in the clothing industry

3.1 Overview of industry

Clothing is a basic human need and the textile and clothing industry (in the following simply clothing industry) delivers goods in response to this demand. At the same time the clothing industry is subject to severe ecological and social problems in most of the phases of the supply chain spanning from fibre production, spinning, fabric production, dyeing and finishing, to clothing production (cf. Goldbach et al., 2003). Over the last few decades the clothing industry has faced price pressure exacerbating its efforts to become more sustainable. The pursuit of comparative a cost advantage has led to the outsourcing of much of European and US clothing production to emerging and developing countries in Asia. This covers most of the value chain. The value creation remaining in Western countries is mostly limited to value-added services such design and overall brand management (exceptions are some new entrepreneurial firms experimenting with new business models based on local production; e.g. Plieth et al., 2012). This relocation of value chain activities to low-wage countries has increased the sustainability challenges as it becomes ever more difficult to manage or even oversee labour and ecological practices at supplier sites in supply chains (Hansen et al., 2011).

Many different responses to the sustainability challenges in the clothing industry exist, both social and environmental which have led to a plethora of standards, certification systems and labels covering different parts of the value chain (see Figure 1).
Environmental improvements aim at more sustainable inputs (particularly fibres) and the control of the production regarding chemicals and other risky substances threatening the natural environment and workers’ as well as other stakeholders’ health. In this paper we focus on the (environmental) sustainability at the beginning of the value chain by highlighting the most important fibre used for clothing, i.e. cotton.

3.2 Approaches to the (environmental) sustainability of fibres

The main natural fibre used in the clothing industry is cotton (DU, 2009b). Cotton fibre production is a sustainability hotspot in textile production (Gminder, 2006, p. 126) and agriculture. Replacing conventional cotton contributes substantially to ecological and social sustainability dimensions. Impacts of production are manifold (e.g. DU, 2009b; Gminder, 2006; Goldbach & Seuring, 2003; Illge & Preuss, 2012): first, conventional cotton is usually cultivated in large monocultures that are responsible for decrease of virgin forests and displacement of local population. Second, conventional cotton production uses very large quantities of pesticide and chemical fertilizer which not only contaminate soil and water and decrease biodiversity, but also have significant health impacts on farmers and agricultural workers in developing countries and, due to residues, even on consumers (e.g. with allergenic reactions). About 10% of worldwide pesticides and 25% of insecticides are used on conventional cotton production (Gminder, 2006) covering about 4% of the global agricultural land. With the aim of solving some of these problems, genetically modified plants are spreading, however, with severe negative side-effects such as loss of farmer rights to collect their own seeds (due to patents), heavy dependence on (sometimes monopolistic) seed firms, increased cost of seeds and negative impact on alternative crops and wild plant populations (e.g. cross pollination) (DU, 2009b; Gminder, 2006). The price pressure on raw materials and particularly fibres further intensified agricultural production systems and their negative environmental impacts (Goldbach et al., 2003).
Four major approaches exist to address ecological challenges of natural fibres which differ in their effectiveness including replacement of natural fibres, use of recycled fibres, integrated production, and organic production of natural fibres:

- **Replacement of natural fibres.** A first approach is the replacement of cotton and other natural fibres with artificial fibres. An increasing share of clothing uses synthetic fabrics such as polyester (Shishoo, 2007). However, based on non-renewable and mostly petrochemical-based, non-recycled materials cause themselves many environmental and health problems in all phases of the product life-cycle and thus mostly do not represent a more sustainable alternative to clothing made from conventional cotton. A more promising alternative might be the substitution of natural fibres with man-made fibres from renewable sources, such as Lyocell fibres based on cellulose (Shishoo, 2007; TextileExchange, 2011) or 'qmilch' based on milk proteins (Schölsch, 2013).

- **Use of recycled fibres.** A second approach is the use of recycled fibres. Cotton recycling is so far rarely used with one of the exceptions being H&M which intends to increase the use of recycled fibres of both cotton and polyester – however, detailed information is given only on polyester (H&M, 2011). Overall, polyester takes the lion’s share of recycled fibres and cotton recycling is only slowly gaining more attention (TextileExchange, 2010). Certifications systems are increasingly available to guarantee the recycled contents in the finished good, for instance the Global Recycling Standard (GRS). However, the contribution of recycling to increase the industry’s sustainability is often overstated. In fact, recycling is mostly “downcycling” (Braungart and McDonald, 2007), i.e. collected materials (e.g. from plastic bottles) are of lower value and not used for the same purpose again (i.e. plastic bottle) but for “more forgiving purposes” (e.g. carpets). Also, products with recycled contents can often not be recycled again, e.g. because of the mix of different plastics. Some may even consider plastic recycling as misleading, as the diffusion of recycled plastics in industry applications also cements the demand for virgin plastic and thus further stabilizes the existing (plastics) regime (e.g. Geels, 2002).

- **Integrated production of natural fibres.** A third approach aims at the provision of a more sustainable production system for natural fibres. This covers integrated production (also referred to as integrated pest management). The integrated production system (IOBC/WPRS, 2004) is an **efficiency** approach and deals with the reduction of environmental impacts by using less pesticides and fungicides, chemical fertilizers and water and was already called for in the Brundtland report (Brundtland Report, 1987: 67). Certification standards such as Cotton made in Africa (AbTF, 2012) or initiatives such as the Better Cotton Initiative (BCI, 2009) are examples for this approach. We will use the term ‘improved cotton (IC)’ in the remainder of the paper to refer to this type of ecological (and partly socially) improved cotton. Some researchers and practitioners also see genetically modified fibres as a solution to the excess of pesticide use and thus as a contribution to sustainability – however, against the background of the lack of knowledge both on long-term effectiveness and the many ecological, social and ethical risks associated with the technology, we emphasize the precautionary principle and question the instrumentality of genetic engineered plants for sustainability until the doubts are reasonably resolved (Makoni & Mohamed-Katerere, 2006).\(^1\)

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\(^1\) Some researchers and practitioners also see GMO fibres as a solution to ecological challenges related to excess pesticide and insecticide use. Most prominent is Monsanto’s “Bt Cotton” plant which incorporates genes of the bacterium “bacillus thuringiensis” for the production of a biological insecticide and thus makes the plant resistant to some insects – at least in the short term. Introduction of GMO cotton in major production countries such as the US, China and India have often resulted in yield increase and decreased pesticide use (e.g. Krishna & Qaim, 2012) and is thus promoted by biotech proponents as a
This debate is also reflected in the assessment criteria of the various cotton initiatives: the Better Cotton Initiative is "technically neutral" and allows GMO cotton (BCI, 2009) whereas the Cotton-made-in-Africa bans it (AbTF, 2012).

- **Organic fibres.** In contrast to the integrated production system, the organic production system is a ‘consistency’ approach (Schaltegger & Burritt, 2005) as it aims at producing cotton with material flow systems in harmony with the natural environment. This is achieved by crop rotation, use of natural fertilizer (usually from animal husbandry) and natural plant protection – it thus represents a circular economy in the agricultural sector. Chemical pesticides and fertilizers are forbidden, though exceptions (e.g. phosphor) exist. For the last decade organic cotton has become an important trend in the clothing industry particularly in Europe and the US (Willer & Kilcher, 2011; Memon, 2012). Organic agriculture can lead to considerable yield increases in comparison to conventional cotton (e.g. Gminder, 2006, p.127; Hess Natur, 2009), but is often less profitable as it mostly requires more manual labour and thus causes higher costs. Organic cotton production has experienced strong growth in the past and – although it experienced a steep decrease in 2011/12 (a major problem, beside others, is the provision of organic seeds due to pollution by genetically modified cotton) – future growth is forecasted (TextileExchange, 2012). Still, organic cotton accounts for only about one percent of worldwide cotton production (Pay, 2009). Two main certification systems for organic cotton exist internationally: the Organic Exchange standard (OE 100; OE Blended) only controls for the organic content while the “IVN certified BEST” and Global Organic Textile Standard (GOTS) additionally define ecological and social criteria for the entire textile supply chain (IVN-certified BEST is considered the most ecological stringent standard in the industry; derived from the latter, the related GOTS standard relaxes some of the criteria). Moreover, a huge number of company-specific labelling approaches exist which may be used in addition to or in replacement of independent certification (DU, 2009a).

Although these approaches may all play a role in advancing sustainability, natural fibres and particularly cotton are considered to be the most popular fibre with overall very good fibre characteristics (DU, 2009b). It is thus unlikely that cotton will be entirely or largely replaced in the near future. Apart from other improvement approaches, it is thus of major importance to consider sustainability strategies for cotton, which is the topic of this paper. We have thus explained organic and improved cotton strategies which go back to organic production and integrated production systems, respectively. As an umbrella category, practitioners and researchers often refer to them as “sustainable cotton” (e.g. Goldbach et al., 2003; H&M, 2011; Illge & Preuss, 2012) though, to be more precise, it should be called more sustainable cotton (or less unsustainable cotton). Though we focus on organic cotton in this paper, empirically (as we will see later) the two approaches are closely interrelated and thus it is not always practicable to deal with the two production systems in a separate manner (it should also be mentioned that organic and improved cotton often simultaneously lead to social benefits, such as eliminated health threats of pesticides; higher incomes of farmers due to organic price premiums; and better working conditions in production due to additional social criteria in certification systems such as GOTS).

solution to sustainable development. The effectiveness, however, has been questioned as being far from a fact, as the technology depends on local circumstances (Qaim et al., 2006) and seems to erode in the long-term due to secondary pests (Wang et al., 2008; Zhao et al., 2011) or pesticide resistance (Tabashnik et al., 2012). However, others criticise the technology not for their (in)effectiveness but for their non-technical risks, both ethical and social (Hahn, 2012). Overall, the potential benefits of GMO plants are controversially discussed and are linked to overstated benefits, missing evidence on long-term effects, narrow assessment of risks based on simplified cost-benefit analysis excluding many ethical, social and other aspects and, last but not least, unethical marketing practices of biotech companies (e.g. Makoni & Mohamed-Katerere, 2006). Considering the lack of scientific knowledge on long-term impacts and risks of GMO, the precautionary principle should apply (Makoni & Mohamed-Katerere, 2006; Zhao et al., 2011).
We followed a case study research approach (Yin, 2003) with the focus on the clothing industry. The case is rather ‘illustrative’ emphasizing the dynamics of the industry rather than ‘in-depth’ on a single company case as the aim is to examine the practical usefulness of the theoretical concepts on sustainable entrepreneurship. It is an embedded single case design (Yin, 2003, p.43) using two units of analysis: the analysis focuses on the industry level, though we also specifically consider individual companies (incumbents) and how they respond to sustainability challenges. We selected the clothing industry for its high importance for sustainability transformation of the economy and society. First, clothing is a basic human need. Second, the current practices in the industry are mostly unsustainable in all phases of the product life-cycle from cotton plantation to fibre production, production of clothing, finishing of clothing and end-of-life treatment (see previous above). As we focus on incumbents’ responses to sustainability challenges, we have chosen four of the ten largest players in the German clothing retail sector (Table 1) of which three belong today to the top ten organic cotton buyers (TextileExchange, 2012). The selection was based on information availability and the related knowledge about the scope of organic textile practices.

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Otto</td>
<td>4.158</td>
<td>Own collection (&quot;PURE WEAR&quot;)</td>
<td>High</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>H&amp;M</td>
<td>3.211</td>
<td>Own collection (&quot;Organic cotton&quot;)</td>
<td>High</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>C&amp;A</td>
<td>3011</td>
<td>Own collection (&quot;Bio cotton&quot;)</td>
<td>High</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Metro (incl. Galeria Kaufhof)</td>
<td>2.418</td>
<td>Selected items</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Karstadt</td>
<td>1.973</td>
<td>n.a.</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>P&amp;C</td>
<td>1.334</td>
<td>n.a.</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Tengelmann (includes Kik)</td>
<td>1.195</td>
<td>Selected items</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Lidl</td>
<td>1.049</td>
<td>Selected items</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Aldi Group</td>
<td>1.034</td>
<td>Selected items</td>
<td>Low</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Tchibo (Textiles)</td>
<td>945</td>
<td>Selected items</td>
<td>High</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Top-10 textile retailers in Germany
¹ TextilWirtschaft (2011); ² TextileExchange (2012); ³ Sustainability reports, websites and media

For the following case study, we collected data from secondary sources such as previously published research, industry studies and reports, market reports and company reports.

5 Illustrative case study: transformation in the German clothing industry

5.1 Pioneering the organic market in Germany

The German market for ecological textiles and clothing was mainly pioneered by Hess Natur. In 1976, Hess Natur was founded by Hans Hess as mail-order business in Germany with the aim of developing
While in the beginning the focus was on clothing without negative health impacts a next step further upstream the supply chain led to the questioning of existing cultivation practices of natural fibres and hence to investigate the impact of organic cotton. As the supply for organic cotton was virtually non-existent, Hess Natur partly in cooperation with development aid institutions or NGOs, invested in development projects increasing organic cotton cultivation (e.g. in Africa). In 1991, in partnership with the Sekem farm in Egypt, Hess Natur was the first company worldwide to invest in organic cotton cultivation (Hess, 2009). Ultimately, Hess Natur developed its own market for textiles and clothing based on organic cotton. In 2008 Hess Natur was still the global number 10 organic cotton user in the world, though its relative share has dropped considerable with the market entrance of large incumbents and is hence not part of the top-10 list anymore (TextileExchange, 2010).

Hess Natur probably developed the world’s most stringent sustainability criteria for clothing and the textile supply chain and co-founded the International Natural Textile Association in 1999 which issued organic textile standards and certification schemes in Germany (Paulitsch, 2001) and subsequently led to the Global Organic Textile Standard (GOTS) which is now applied on a global level (Pay, 2009, p.4).²

While in the beginning the development of organic markets was the task of early pioneers, the mainstreaming was only possible through incumbents which followed and reinforced this trend.

5.2 Mainstreaming the organic market in Germany

5.2.1 Overview

An “early follower” in the organic cotton trend was the Otto Group, the largest textile retailer (mail order business) in Germany (cf. Table 1). The company’s engagement is strongly driven by the family-majority-owner and CEO Michael Otto. Already in the 1980s Otto acknowledged the importance of environmental protection and formulated it a corporate goal (Goldbach et al., 2003; Seuring et al., 2004). Otto confirmed its engagement by purchasing organic cotton and developing its own label ‘Pure Wear’. In 2010, Otto has become the 10th largest buyer of organic cotton worldwide (TextileExchange, 2012).

² Internationally, the US-based outdoor clothing company Patagonia was another small pioneer replacing conventional with organic cotton in 1996 (Fowler & Hope, 2007). The company was one of the largest organic cotton buyers in the world until 2006 (TextileExchange, 2011).
For the last few years other conventional retailers have entered the market for organic cotton clothing (Table 2). The retail sales volume of organic cotton products has grown steadily for the last decade (Figure 2). For example C&A has purchased organic cotton since 2006 and in 2009 founded its own brand “Bio Cotton” for 100% organic clothing (C&A, 2012a). Today C&A, the second largest textile retailer in Germany, has taken a leading role in the purchase of organic cotton, making it one of the world’s largest buyers of organic cotton. In terms of quantity it has long overtaken the pioneers Hess Natur, Patagonia and Otto (TextileExchange, 2011). In 2011, C&A sold about 32 million items made from organic cotton and the company plans to double this number in the short term. This strong diffusion into the mass market is only possible because C&A did not pass the higher resource costs of organic cotton (in comparison to conventional cotton) on to the consumers, but accepts a smaller profit margin (C&A, 2012, p.104).

![Figure 2: Global Retail sales of organic cotton products (Source: TextileExchange, 2012, p. 22)](image)

Table 2: Organic cotton (OC) and improved cotton (IC) use by large German retailers (based on TextileExchange, 2012; Otto Group, 2011; C&A, 2012a,b; H&M, 2011; Tchibo, 2012)

<table>
<thead>
<tr>
<th>Goals:</th>
<th>C&amp;A</th>
<th>H&amp;M</th>
<th>Otto</th>
<th>Tchibo</th>
</tr>
</thead>
<tbody>
<tr>
<td>- by 2012/2013</td>
<td>Double sales of OC items</td>
<td>Use 5% IC (BCI)</td>
<td>- 5% OC - 10% IC (CmiA) (in own brands only)</td>
<td>Maintain OC</td>
</tr>
<tr>
<td>- by 2020</td>
<td>Promoting OC through Cotton Connect initiative - 100% sustainable cotton (OC+IC)</td>
<td>- 100% sustainable cotton (OC+IC+recycled cotton)</td>
<td>- 100% sustainable cotton (OC+IC)</td>
<td>Sell 8.5 Mio sustainable textiles (OC+IC) which equals 15% of total cotton products</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Organic cotton (OC) history:</th>
<th>C&amp;A</th>
<th>H&amp;M</th>
<th>Otto</th>
<th>Tchibo</th>
</tr>
</thead>
<tbody>
<tr>
<td>- collection name:</td>
<td>(“Bio cotton”)</td>
<td>(“Conscious collection”)</td>
<td>(“PURE WEAR”)</td>
<td>(n.a.)</td>
</tr>
<tr>
<td>- Global sourcing of OC [Rank]</td>
<td>#2</td>
<td>#1</td>
<td>#10</td>
<td>-</td>
</tr>
<tr>
<td>- OC items sold [Mio items]</td>
<td>12.500¹</td>
<td>15.000</td>
<td>n.d.</td>
<td>450</td>
</tr>
<tr>
<td>- % OC of total business</td>
<td>13% [items]</td>
<td>7.6% [tons]</td>
<td>1.5% [items]</td>
<td>5% [tons]</td>
</tr>
<tr>
<td>- % sustainable cotton (OC+IC) of total business</td>
<td>13% [items]</td>
<td>7.6% [tons]</td>
<td>2.2% [items]</td>
<td>5% [tons]</td>
</tr>
</tbody>
</table>

¹ data from 2008
5.2.2 Marketing strategies, long-term strategies and supply management

The strategies of the textile retailers in Germany to market organic cotton follow different paths which can be described by the following characteristics:

- First, retailers may sell only a selected item in organic quality for piloting or experimentation (e.g. Tchibo), introduce a new organic collection (e.g. C&A, H&M, Otto) or transform the entire product portfolio (the latter is limited to pioneering companies such as Hess Natur and Patagonia; though the future will show whether incumbents such as C&A take this route as planned in the long-term, too).

- Second, differences exist with regard to certification. All retailers mention the use of certification standards GOTS and/or OE. The actual certification is very important as they differ with regard to whether they only control for the organic content (OE) or additionally for production characteristics in the entire supply chain (GOTS). However, detailed information on the share of certification in relation to the overall organic cotton use is very difficult to obtain.

- Third, not all retailers analysed use labels of independent certification systems (e.g. GOTS) at the point of sales. Often they only use their own proprietary label such as PURE Wear (Otto) or Bio Cotton (C&A). Reasons for this may vary, but probably increase flexibility of retailers, reduce their dependency on one certification organisation, and may simplify communication to consumers in case several (competing) certification systems are used simultaneously.

- Fourth, retailers do not always use either integrated or organic qualities in a pure manner. Organic cotton is also used in blending strategies where integrated or organic fibres are mixed with conventional cotton (Hustvedt & Dickson, 2009). While all organic certification systems allow for a tolerance of up to 5 percent of conventional material in the final goods, specific blending certification allows to vary the degree of organic cotton and other fibres (e.g. the minimum amount of organic cotton in the final good is 5% and 70% in the OE Blended and the GOTS “made with x% organic” standards, respectively). For example, H&M uses both 100% organic and blended organic clothes (H&M, 2013). With the blended cotton strategy, incumbents can transform the entire product portfolio more easily as only a minimum amount of cotton needs to be mixed into the clothes (though not part of this analysis, Nike now sells 90% of brand items with a minimum of 5% organic cotton; Nike, 2011, p. 27).

For the future development, it will be interesting to investigate both the short-term and long-term goals of retailers more closely. Two of the four retailers aim to considerably increase the share of organic cotton (C&A and Otto). H&M and Tchibo set goals on increasing or introducing cotton from integrated production. As a response to Greenpeace’s “Detox” campaign, C&A and H&M, together with other retailers, have adopted the long-term goal of using 100 per cent sustainable cotton by 2020 (C&A, 2012, p. 100). To which extent this will include cotton with organic or integrated production quality remains open, but possibly both strategies could be pursued simultaneously and the specifics could depend on how quickly the different cotton production systems can be extended at which cost.

As the strongly growing demand faces a very limited supply, C&A has had problems similar to those Hess Natur had three decades earlier as the industry was beginning to change. Their response was to found the initiative ‘Cotton Connect’ to promote the cultivation of organic cotton (C&A, 2012a, p. 106). According to a recent press release, C&A is planning to double the sales of certified organic
clothing (C&A, 2012b). Also other large retailers have invested in more sustainable cotton cultivation, though not with a specific focus on organic quality, but on integrated production. For instance, Otto founded and invested in the initiative ‘Cotton made in Africa’ while H&M, Tchibo invest into the ‘Better Cotton Initiative’.

In sum, the market observation shows that innovative pioneer companies and conventional global retailers, who have often borrowed their strategies from the pioneers, have initiated a notable change in the German clothing industry. This can be seen in the forecasts of most of the market studies, predicting strong growth of the cultivated area for organic cotton and in an increasing need for retailers to rethink their strategy in terms of sustainability (cf. Memon, 2012; Pay, 2009; Textile Exchange, 2011; Wilcher & Kilcher, 2011). The currently low share of organic cotton in the global cotton market of less than 1% (Pay, 2009, p. 5) is thus expected to grow considerably.

6 Discussion and implications

6.1 Discussion

The case study illustrates different roles sustainable entrepreneurship plays in the transformation towards sustainability. The example of the clothing industry shows how the diffusion of the certification of organic cotton and the transformation of the market is driven by the efforts of market actors alone. Regulatory aspects do not play a decisive role in this market. The extraordinary efforts of an early pioneer and the related success in a niche market led to new technological possibilities (organic cotton; healthy and eco-friendly clothes) and related production and certification standards. Conventional mass market retailers (e.g. C&A) have only recently engaged in this trend, but are already leading purchasers of organic cotton and have sometimes even ambitious goals for their further transformation. This rapid transformation of a few conventional players in the market has taken place for at least four reasons:

- **Value through healthy products**: The introduction of organic textiles can, in cases where a high level of health awareness exists and the intangible value of the product is increased through sustainability attributes, represent additional customer benefits (e.g. Hustvedt & Dickson, 2009).
- **Reputational risk**: The risk of scandal accompanying conventional clothing products can have a significant effect on brand value. The Detox campaign of Greenpeace and the numerous responses on YouTube films and activities in retailer stores may have spurred the transformational activities of the large cloth retailers.
- **Continuous use of existing production processes**: Even if the scarcity of organic cotton is a huge challenge and requires a strong and fast expansion of areas of organic cotton cultivation, the change from conventional to organic cotton is relatively simple and does not require new, expensive production technologies (e.g. machines) or work processes (this is different once the sustainability focus is expanded from the mere cotton production and use to the whole supply chain as it is done under certification systems such as GOTS).
- **No sunk costs of transformation strategy**: To switch to organic instead of conventional cotton does not cause new substantial investments in production technologies (e.g. for spinning, weaving, etc.) and thus neither endangers existing sunk costs in production, warehouses, logistical systems, etc. nor causes new ones. In case of missing demand for organic cotton, most costs do not have a sunk cost character but can be seen as investments in improved supply chain partner relationships, quality management and efficiency improvements.
Extant research in sustainable entrepreneurship usually emphasizes that incumbents use lower-level standards of sustainability for their innovations in the mass market (e.g. Hockerts & Wüstenhagen, 2010). The analysis of the organic cotton transformation of the clothing market in Germany, however, shows that not only lower-level standards (i.e. “improved cotton”) but also the highest level (i.e. organic cotton) is being diffused in and by incumbents. This should not hide the fact that still many differences can exist with regard to pioneering and incumbent companies. For example, while pioneer Hess Natur used a rigorous control of the entire textile value chain, incumbents differ in their ambition. Depending on the specific certification standard the control is often limited to fibre quality (e.g. OE 100) and does not account for chemical treatments during fabric and clothing production (and thus – ironically – cannot say anything about the ecological and health characteristics of the end product). We also did not explicitly examine the social standards in the value chain besides those already integrated in the considered certification systems. Further research should investigate the contingencies involved in which specific organic (and social) standards are adopted by incumbents.

The change from conventional to organic cotton presents an industry transformation case for strategic innovation of large German clothing retailers as they are challenged to (a) address new customers segments or develop the consciousness of their existing customers), (b) develop new competencies for the tighter coordination of the upstream supply chain (particularly regarding the organic quality of fibres through a chain of custody) and (c) develop strategic partnerships with NGOs, multi-stakeholder initiatives or industry initiatives for developing the organic and other forms of more sustainable cotton supply. This reflects the move from anonymous price-based to negotiation-based coordination mechanisms in the supply chain, at least for the time that sustainable cotton fibres are scarce (Golbach et al., 2003).

Overall, our study shows the relevance of a dynamic, evolutionary view of the transformation of the economy, its industries and companies. Single company case studies and the analysis of public politics are important and help to analyse some aspects of sustainability management. However, these studies miss the market dynamics which is crucial to better understand sustainability transformation from an entrepreneurial perspective. The examples clearly show that both pioneer companies and incumbents are equally necessary for the sustainability-oriented transformation of industries, even if both forms of sustainable entrepreneurship react to the challenges of sustainability with different strategies and actions. Overall – though this is limited to the four analysed large retailers – we do not see the incumbents’ “destruction”, but rather their “transformation” by mimicry of sustainability practices of pioneers (Geels & Schot, 2007).

The clothing industry, for example, does not become “sustainable” through the exclusive use of organic cotton; other ecological improvements are also necessary, such as in dyeing or the cultivation and further optimization of pesticides and water use by means of integrated production. Moreover, new brand manufacturers are emerging – manomama in Germany (Plieth et al., 2012), Switcher in Switzerland or American Clothing in the USA – they operate with innovative business models based on regional value creation through vertical integration and thereby offer entirely different solutions to broader social (and ecological) problems.

6.2 Implications for practice

The findings based on the sustainable entrepreneurship based analysis of the German clothing market may have implications for corporate sustainability management in currently “sleeping” markets which largely ignore sustainability issues or in markets that are just starting to become more sustainable.
Sustainability and top managers may want to carefully analyse the pioneers in their sector and, through imitation, cooperation or takeover, gather experiences for new sustainability dynamics in their markets. Timing also plays an important strategic role. If conventional companies commit themselves to sustainability too quickly and radically, they may be asking too much of their customers, employees, and investors. If on the other hand they wait too long, then market shares may be lost or even the existence of the company itself may be endangered. Pioneer companies can also learn from such a sustainable entrepreneurship-oriented market analysis by observing developments in the market and the strategies of larger conventional companies in the mass market. After all, having once achieved pioneer status does not protect a company from more intense competition from newly transforming conventional companies. And mass-market companies setting out to transform themselves may also be able to copy pioneer achievements and then offer products and services on more competitive terms. Sustainability pioneers have then sufficient stimuli to develop new niche markets and become the spearhead of further sustainable market change.

Literature


