

# Business models for sustainable consumption

Inspirational examples from the furniture and home textiles sectors

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# Preface

This report has been produced within the research programme Mistra Sustainable Consumption - From Niche to Mainstream, which engages researchers from various scientific disciplines and social partners from the public sector, business, and civil society. The purpose of the programme is to stimulate a transition to more sustainable consumption in Sweden. The research is funded by Mistra, the Foundation for Strategic Environmental Research, with co-funding from all participating universities and community partners.

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# Summary

The furnishings sector (furniture and textiles) plays a key role in the EU economy, and is ripe for opportunities to reduce its substantial environmental impacts. It is also a sector in which many exciting examples of business model innovation can be seen, including circular business models, leasing and renting, as well as sharing business models. These examples are emerging in both the business-to-consumer (B2C) and business-to-business (B2B) markets. Some of these models are developed by producers of furnishing products, while others are devised by other actors, including public sector organisations, interior design agencies, or start-up companies that we call gap exploiters. All these diverse business models offer novel value to consumers and enable sustainable consumption practices of end-users.

The goal of this report is twofold: 1) to present the status of and challenges faced by the furnishings sector when transitioning to business models for sustainable consumption, to improve understanding of the reasons behind and opportunities for business model innovation; and 2) to identify promising trends and offer inspiration to companies and other actors, such as the public sector, by demonstrating a broad spectrum of activities and new business models that aspire to address sustainable consumption challenges in the furnishings sector.

We start by briefly describing the furnishings sector to demonstrate its significance, environmental impacts, and opportunities for change. We then proceed to unveiling barriers that these business models are facing in the world with largely linear thinking. We categorise the barriers reported by practitioners and in academic studies into six classes: organisational, technical, financial, value chain, consumer, and regulatory. The purpose is not to discourage companies from pursuing innovative business models, but to raise awareness of the realities of shifting to or developing sustainable businesses in a linear world.

In the next two chapters we provide examples from companies that have managed to successfully develop business models for sustainable consumption in the furnishings sector. The examples provided in this report focus on business models that have the potential to increase resource efficiency and reduce environmental impacts in companies and society at large. We present examples where companies have innovated not only with respect to their products and processes, but also where new services have been developed that have implications for consumption practices and consumer behaviours.

We divided the examples into two categories. The first category presents examples of innovative business models developed by producers of furnishings. We focus on two types of business models here: circular business models and leasing and renting business models, or what we call "access over ownership". The second category focuses on business models devised by actors

other than producers in the furnishing sector, and includes three types of business models: circular business models, leasing and renting, and sharing business models.

This report is part of the MISTRA programme that aims to stimulate a transition to sustainable consumption practices in Sweden, with a particular, although not exclusive, focus on Swedish companies.

We conclude the report by identifying a number of trends that can further support the development and implementation of business models for sustainable consumption in the furnishings sector.

Although developing and implementing business models for sustainable consumption in the furnishings sector is not without its challenges, a number of companies have successfully done so. These companies, along with broader trends pointing to increased interest in repair, refurbishing, leasing, and re-use, can serve as inspiration to others and help mainstream these business models in furnishing and other sectors.

# Sammanfattning

Inredningssektorn (möbler och textilier) spelar en nyckelroll i EU:s ekonomi och har många möjligheter att minska sin betydande miljöpåverkan. Det är också en sektor där många spännande exempel på affärsmodellinnovation förekommer, inklusive cirkulära affärsmodeller, leasing och uthyrning samt delning. Dessa exempel dyker upp både på B2C-marknaden (business-to-consumer) och B2B-marknaden (business-to-business). Några av dessa modeller är utvecklade av tillverkare av möbelprodukter, medan andra är utformade av andra aktörer, inklusive offentliga organisationer, inredningsbyråer eller nystartade företag. Alla dessa olika affärsmodeller erbjuder nytt värde för konsumenterna och möjliggör hållbara konsumtionsmetoder för slutanvändare.

Målet med denna rapport är: 1) att presentera status för och utmaningar som inredningssektorn står inför när man går över till affärsmodeller för hållbar konsumtion, för att bättre förstå orsakerna bakom och möjligheterna till innovation av affärsmodeller; och 2) att identifiera lovande trender och erbjuda inspiration till företag och andra aktörer, såsom den offentliga sektorn, genom att demonstrera ett brett spektrum av aktiviteter och nya affärsmodeller som strävar efter att ta itu med hållbara konsumtionsutmaningar inom inredning.

Vi börjar med att kort beskriva inredningssektorn för att visa dess betydelse, miljöpåverkan och möjligheter till förändring. Vi fortsätter sedan med att identifiera hinder som innovativa affärsmodeller står inför i världen med i stort sett linjärt tänkande. Vi kategoriserar de hinder som rapporterats av utövare och i akademiska studier i sex klasser, inklusive: organisatoriska, tekniska, ekonomiska, och relaterade till värdekedjor, konsumenter och regler. Syftet är inte att avskräcka företag från att utveckla innovativa affärsmodeller, utan att öka medvetenheten om verkligheten kring att utveckla hållbara affärsmodeller i en linjär värld.

Sedan ger vi exempel från företag som lyckats framgångsrikt att utveckla affärsmodeller för hållbar konsumtion inom inredning. Exempelen i denna rapport fokuserar på affärsmodeller som har potential att öka resurseffektiviteten och sänka miljöpåverkan i företag och samhället i stort. Således presenterar vi exempel där företag inte bara har utvecklat nya produkter och processer utan också där nya tjänster har utvecklats som har konsekvenser för konsumtionsmönster och konsumentbeteende. Vi delade exemplen upp i två kategorier. Den första presenterar exempel på innovativa affärsmodeller som utvecklats av inredningsproducenter. Vi fokuserar på två typer av affärsmodeller här: cirkulära affärsmodeller och leasing och uthyrning, eller vad vi kallar för "tillgång över ägande". Den andra kategorin fokuserar på affärsmodeller som tagits fram av andra aktörer än producenter inom möbelindustrin och inkluderar tre typer av affärsmodeller: cirkulära affärsmodeller, leasing och uthyrning och delning av affärsmodeller.

Denna rapport är en del av MISTRA-programmet som syftar till att stimulera en övergång till hållbara konsumtionsmönster i Sverige. Det finns ett särskilt, men inte exklusivt, fokus på svenska företag.

Vi avslutar rapporten med att identifiera ett antal trender som ytterligare kan stödja utvecklingen och implementeringen av affärsmodeller för hållbar konsumtion inom möbler.

Som denna rapport illustrerar, har utvecklingen och implementeringen av affärsmodeller för hållbar konsumtion inom inredningssektorn inte varit utan utmaningar, men ett antal företag har lyckats med att ta fram innovativa affärsmodeller. Dessa företag, tillsammans med bredare trender som pekar på ökat intresse för reparation, renovering, leasing och återanvändning, kan tjäna som inspiration för andra och hjälpa till att integrera dessa affärsmodeller i inredning och andra sektorer.

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# 1 Introduction

The Industrial Revolution led to the creation of a business model in which products were produced en masse and sold to consumers, thereby generating revenue for producers and suppliers. For a couple of centuries, the majority of companies followed this business model. In the post-industrial society, the economy has undergone a transition from the production of goods to the production and delivery of services or product-service combinations. New ways of capitalising on innovative offers needed to be found, and business models themselves have become the focus of innovation. This was especially visible in the early 1990s, when the Internet and information and communication technologies – the so-called post-industrial technologies – emerged and became catalysers of novel "organisational architectures and governance structures" drastically different from those observed in traditional manufacturing companies [1]. For example, platform business models do not create new products to be sold through traditional channels but instead focus on innovative ways of delivering the value of existing products, such as by offering a platform where economic and social transactions between peers or companies can take place [2].

Globalisation also means that companies find themselves in fierce competition with businesses from around the globe that operate in different regulatory and social contexts and that often have different barriers to entry and codes of conduct. This competition drives companies to find new sources of competitive advantage that are hard to imitate. Since business models are intangible, many of their elements and their combinations are difficult to copy. Increasing competition on the global market has led to an unprecedented scale and speed of innovation, reconfiguration, and experimentation of business models in the last couple of decades. According to a recent survey, as cited in Casadesus-Masanell and Ricart [3], 98% of companies are adjusting their current business models, while 70% of companies are trying to design new ones.

Start-ups and entrepreneurs are devising new business models that are transforming entire industries and, indirectly, the whole of society. Incumbent companies also feel compelled to adjust their traditional business models to new economic and social realities and to find new sources of revenue beyond their traditional linear offers [4]. They realise that many traditional business models are viable today only because of under-priced natural resources and externalised environmental costs. For many companies, value is no longer defined only in economic terms and in serving the interest of their immediate shareholders. Rather, companies are increasingly interested in value creation through environmentally and socially sound practices. Business model innovation opens up opportunities for organising business activities to support environmental and social improvements of products and services, processes and organisational

structures, and to offer innovative ways of delivering value to the market and a broad range of stakeholders [5].

New business models are also needed to respond to the growing environmental and social awareness and demand from both consumers and business customers, who increasingly value and are willing to pay for offers that respond to their sustainability aspirations together with satisfying their wants and needs. In one of the first reports from the MISTRA programme, we collected examples of practices that have the potential to reduce the adverse effects of consumption, specifically related to furniture and home textiles [6]. These so-called sustainable consumption practices include leasing, renting, repairing, remanufacturing, upcycling, sharing, and purchasing second-hand products [6]. They relate to different aspects of consumption, including acquisition, use, and disposal of products. From a sustainability perspective, these practices can lead to a reduction in the volume or frequency of purchases, an extension of product lifetimes, and can keep products out of the waste stream. However, most of them are only taking place on a small scale. To enable, support, and incentivise such practices, new business models need to be designed, implemented, and scaled up.

In many consumer-goods sectors, production volumes and sales are increasing, while the utilisation rate of the goods is declining. For example, the pace of fashion is growing not only in the clothing sector but also in the interior design and furniture sectors. Emerging business models build on ideas of providing access over ownership and utilising the idling capacity of physical assets that can be shared among multiple consumers. Business model innovation is paramount for the 'out of the box thinking' needed to make these sectors more sustainable.

The three main types of business models in focus in this report are circular business models, product-service systems, and sharing. We define circular business models as business models that aim to preserve the value of material resources in society by slowing and closing resource flows through take-back of resources, reuse, repair, refurbishing, and recycling. Product-service systems aim to preserve the value of material resources in society by extending producers' or providers' responsibility and ownership of a product throughout a product's life and offering access over ownership to consumers, thereby incentivising the design and production of durable, easily repairable, and recyclable products. Sharing business models aim to preserve the value of material resources in society by establishing systems for shared use of underutilised products, thereby increasing the intensity of product use, extending product useful life, and encouraging use of a product by multiple users.

In this report, we turn our attention to the supply side, namely how producers and providers design, offer, and deliver products and services for sustainable consumption practices through various business models. Our focus is on the furnishings sector (furniture and textiles), which, as described in chapter 2, plays a key role in the EU economy and is ripe for opportunities to reduce

its substantial environmental impacts. It is also a sector in which many exciting examples of business model innovation are occurring. This includes not only traditional for-profit business models but also value-creation models of a range of actors who provide social and environmental value to the public and society, in both the business-to-consumer (B2C) and business-to-business (B2B) markets.

The examples provided in this report focus on business models that have the potential to increase resource efficiency and reduce environmental impacts in companies and society at large. Although environmental strategies for resource efficiency and circular material loops have been employed in industry and studied in academia for many years, understanding their business case and the development of business models that help capitalise on such strategies is a relatively new field of study. Many of the strategies for resource efficiency and circularity, e.g., cleaner production or eco-design, do not require drastic changes in companies' business models, but rather entail incremental improvements in the way products are designed or processes shaped. In contrast, in this report, we collect examples where companies have innovated not only with respect to their products and processes, but also where new services have been developed that have implications for consumption practices and consumer behaviours. Because the MISTRA programme aims to stimulate a transition to sustainable consumption practices within Sweden, there is a particular, although not exclusive, focus on Swedish companies.

The goals of this report are twofold: 1) to present the status of and challenges faced by the furnishings sector when transitioning to business models for sustainable consumption, to improve understanding of the reasons behind and opportunities for business model innovation; and 2) to identify promising trends and offer inspiration to companies and other actors, such as the public sector, by demonstrating a broad spectrum of activities and new business models that aspire to address sustainable consumption challenges in the furnishings sector.

The report is structured as follows. In the next chapter, we briefly describe the furnishings sector to demonstrate its significance, environmental impacts, and opportunities for change. In Chapter 3, we provide an overview of challenges facing companies seeking to shift to business models that enable sustainable consumption. Chapter 4 provides a kaleidoscope of examples from producers of furniture and textiles that have overcome some of these challenges and have developed new business models for sustainable consumption. This range of examples is expanded in Chapter 5 with illustrations from actors other than producers. Finally, in Chapter 6, we discuss some promising trends that may further encourage and support new business models.

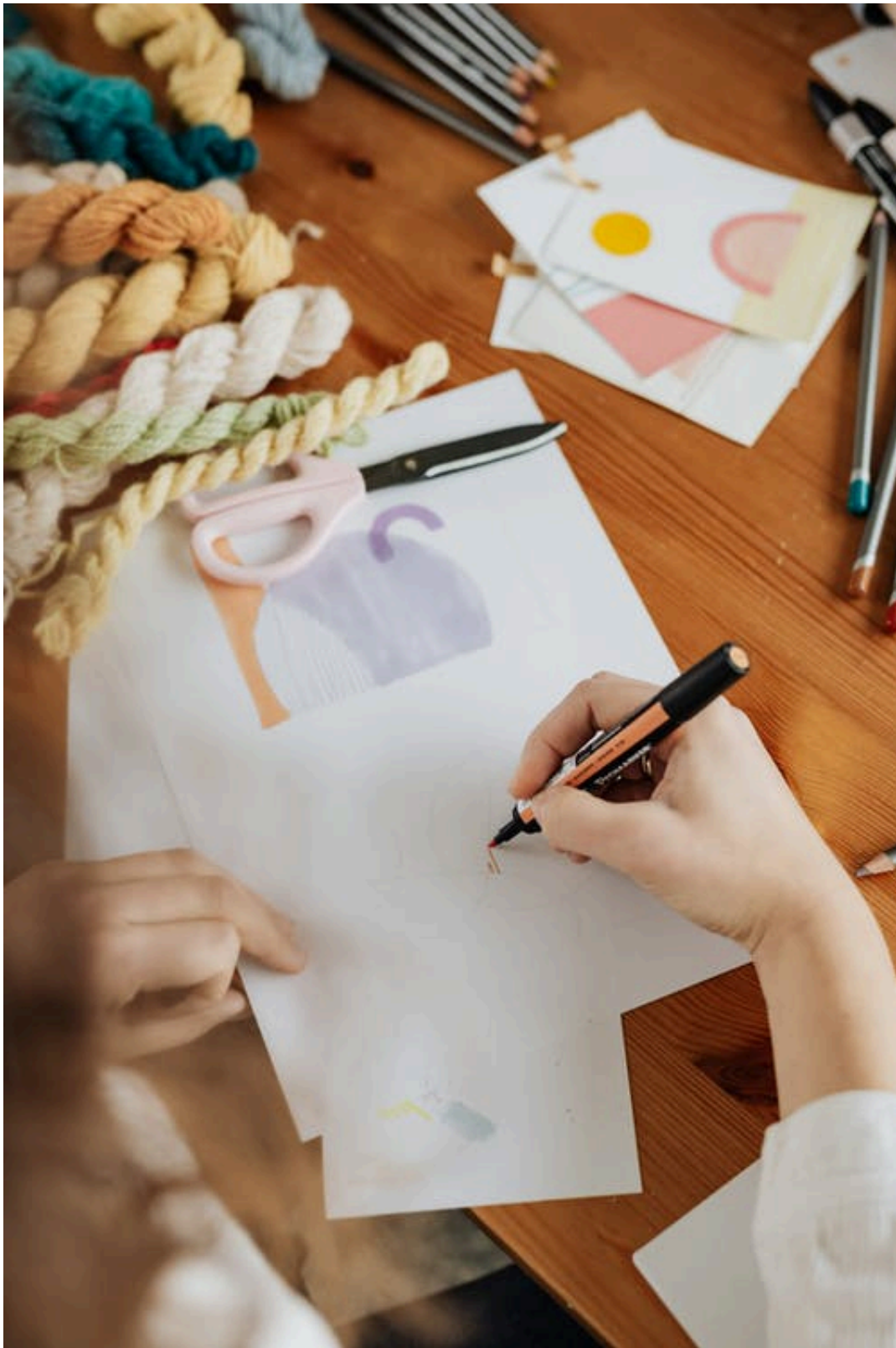


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## 2 Characteristics and impacts of the furnishings sector

To put the furnishings sector into context, in this chapter we start by positioning the EU furniture and textile markets in the global economy, discussing both their differences and significance. We then discuss the environmental impacts generated by these products and the opportunity for new business models to help reduce these impacts. Finally, as new business models can be both supported and hindered by policy, we discuss the current policy landscape as it pertains to furnishings.

### 2.1 Sector size, composition, and significance

The European Union represents about 25% of the global furniture market [7], corresponding to a value of EUR84 billion. It has the highest per capita furniture consumption in the world, together with North America, totalling approximately 10.5 million tonnes of furniture per year [8]. About 90% of the furniture bought within the EU is also produced in Europe. Sweden is an important country in the furniture sector, ranking ninth among the top 10 furniture exporting countries [9] and producing approximately SEK23 billion (EUR2.2 billion) of furniture products annually [10].

The European Union also plays a substantial role in the global textile market. The EU is the second largest exporter of textiles, representing 23.5% of the global market and an export value of USD74 billion (EUR63 billion), behind China's 37.6% and USD119 (EUR102 billion) [11]. Another source reports that in 2017 the textiles and clothing sectors in the EU had a turnover of EUR181 billion and exported EUR48 billion worth of products [12].<sup>1</sup> Despite the EU being the second largest exporter of textiles in the world, 80% of Swedish imports of textile products originate outside the EU. Because clothing and home textiles are usually grouped together, it is not possible to determine what proportion of these numbers relate specifically to home textiles.

The European furniture sector consists predominantly of small and medium-sized enterprises, although 30% of the headquarters of the 200 largest furniture companies in the world are also located in Europe [13]. In total, Europe is home to about 121,500 furniture manufacturing companies [13]. In comparison, there were more than 176,400 mainly SMEs textile and clothing companies in the EU in 2017 [12], with 70% being from the clothing sector and 30% belonging to the textile sector [14]. The furniture and textile sectors are essential employers, with furniture providing jobs to one million European workers and the textile sector employing over 1.7 million workers in the EU [12].

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<sup>1</sup> Because of differences in how the textile market is defined in different publications, statistics about the market vary.



Globalisation puts pressure on the furniture and textile sectors, both in terms of availability of high-quality finite raw materials and in terms of skills required in global supply chains and new ways of delivering value to individual consumers and business customers. The development of new business models has been identified as an essential factor and skill in a globalised production system that can increase European competitiveness [9]. Also, Swedish actors suggest that new business models, such as sharing, swapping, leasing and renting, are needed in the textiles sector to reduce its impacts [15].

The furniture and textile sectors are essential in the European and Swedish economy, but in different ways. The EU and Sweden play crucial roles as producers of furniture, so have a high degree of control over products, services, and business models. They can also introduce measures to stimulate more sustainable product design, repair, refurbishing and upcycling in Europe and Sweden. In contrast, the majority of products in the textile sector are imported. This makes it harder to ensure that the textile market is sustainable, because products are produced elsewhere and retailers have limited, but growing, power to place demands on producers, e.g. demands on production processes, reporting of content, or sustainability requirements associated with production and end-of-use of textiles. This also makes it challenging to engage producers in developing take-back and recycling options. However, both sectors have witnessed the emergence of gap-exploiters, actors who are not producers, but who can capitalise on the remaining value of products or who may create added value by adding services to products that consumers and society desire or demand, e.g. repair or upcycling.

## 2.2 Environmental impacts

The highest levels of CO<sub>2</sub> emissions in the furniture life cycle come from the raw materials extraction phase [16]. In addition, being a bulky product, furniture generates high volumes of waste at the end of its life. Approximately 80-90% of the 10 million tonnes of furniture discarded in the EU annually is landfilled or incinerated, creating additional environmental impacts [8]. The amount of waste is even higher considering all the other resources associated with the furniture, including the energy, labour, and water embedded in the products.

Textiles is one of the most resource-intensive and polluting sectors in the world. Textile consumption has the fourth-highest environmental impact among European consumers after food, transport and housing [17]. In 2015, Europeans bought 6.4 million tonnes of new textiles and disposed of 5.8 million tonnes [12]. Most of this amount was incinerated or landfilled. Swedish consumption of textiles increased between 2000 and 2017, giving rise to 27% higher climate emissions from Swedish consumption [18]. Since the bulk of textiles consumed in Sweden are produced outside the EU, 79% of emissions associated with their production are emitted in other countries [18].



In addition to impacts resulting from production and disposal, the furnishings sector also generates environmental impacts due to use and reuse patterns. For example, although office furniture has a typical service life of 9-12 years [19], it rarely uses up its functionality or becomes "worn out" [20]. Instead, it often falls out of use due to outdated function, aesthetics, and fashion, or due to relocation of people and business. Home furnishings have also seen a shift towards shorter use times, and have started to resemble the fashion industry, such as with seasonal collections [21]. Only around 15-20% of the textiles that were disposed of in 2015 were reused in any way [18]. In Sweden, only 3000 tonnes of textiles are reused via second-hand shops. The remaining 74,000 tonnes are incinerated, even though the Swedish EPA has estimated that 60% of these textiles are in sufficiently good shape to be reused [18]. The loss in value and environmental and social impacts due to premature disposal of furnishings products illustrate that the linear business models prevailing in the furnishings sector are not sustainable.

A study of environmental impacts from office furniture demonstrates that new business models, such as circular business models, can potentially reduce CO<sub>2</sub> emissions associated with the furniture life cycle by 50% [22]. According to a RISE study, a new production of a wooden chair has 6 kg of CO<sub>2</sub>-eqv, while reconditioning of the same chair "costs" only 3 CO<sub>2</sub>-eqv. When it comes to a metal chair, new production costs 25 CO<sub>2</sub>-eqv, while reconditioning costs only 9 CO<sub>2</sub>-eqv [23]. Another study that compared the environmental impacts of newly produced furniture with renovated furniture showed that the climate impact of the latter could be as much as 20-40% less [20].

The costs of furniture could also be substantially reduced if, for example, refurbished and repaired furniture could be procured by the public sector, since refurbished furniture is typically sold at 50-80% of the price of new furniture [24]. However, used furniture is often not seen as worth repairing due to high repair and low resale costs [25]. In addition, there are few commercial players who today can offer opportunities for renovation and reuse, as well as the sale of used furniture on the scale and at a cost that can be commercially viable and that would suit public procurement requirements. We do see efforts on a small scale – such as repair and refurbishment taking place in repair workshops or DIY "kitchens" and reuse organised by individuals through such channels as Blocket and eBay. In addition, attempts have been made in terms of leasing of office furniture [26-8] and reuse by third-sector organisations [29]. One of the latest Swedish projects on circularity in the furniture sector offers a somewhat brighter picture of existing and ongoing efforts to mainstream circular furniture [30].

## 2.3 Policy context

Policies and policy frameworks can stimulate and support the development of new business models that may help reduce environmental impact by extending product lifetimes, increasing intensity of use, or by closing resource loops and thereby reducing the need for extraction of virgin raw materials. Current policies both hinder and support the development of more sustainable business models in the furnishings sector. Furniture and home textiles largely lack Extended Producer Responsibility (EPR) legislation, which has been developed and applied to many product groups [22]. EPR programmes incentivise product take-back, reuse, and potentially changes in product design by placing the responsibility on companies for the end of life of their products [31]. However, the circular economy package adopted by the EU in 2018 does require Member States to ensure a separate collection of textiles by 2025 [12]. It is anticipated that the market for reuse, recycling, and upcycling of textiles can be expanded once clean streams of post-use textiles will be available.

Green public procurement policies have been identified as a potential driving force for the furniture sector towards higher resource efficiency and lower environmental impact [16]. In many municipalities and regional agencies, various green criteria have been introduced for public procurement of furniture [32], including those that prioritise circularity, reuse, or rental. Sweden's National Agency for Public Procurement has been working on national guidelines for Green Public Procurement, aiming to increase the life span of furniture and intensity of its use.

Environmental labels for furniture have also been developed, including the Nordic region's Nordic Swan and Sweden's Möbelfakta. In addition, a law introduced in Sweden in 2017 amended the VAT Act (2015:748), reducing VAT from 25% to 12% for repairs of bicycles, shoes, leather goods, clothing, and household linen. The intention is to stimulate and support entrepreneurs that are interested in offering repair services.



Photo: Cottonbro (Creative Commons, Pexels)

# 3 Challenges for business models for sustainable consumption

Designing and implementing business models for sustainable consumption is a challenging task for both large established companies already operating in the furnishings sector and for small-scale, young start-ups that are exploring new types of value or new ways of delivering and capitalising on that value. Companies face a number of different barriers both within and beyond their organisations, which we describe in this chapter.

The purpose of this chapter is not to discourage companies from pursuing innovative business models, but to raise awareness of the realities of shifting to or developing sustainable businesses in an unsustainable world. As the next chapters illustrate, a number of companies have managed to successfully develop business models for sustainable consumption in the home furnishings sector.

In describing the barriers, we build on secondary data coming from an extensive literature review about barriers and challenges for sustainable and circular business models, including literature on product-service systems (e.g. leasing and rental) and servitisation, complemented with interviews with a range of actors, including mainstream furnishing producers, start-ups, and gap-exploiters. We divide the barriers into six categories that are linked to the actors that have agency to act to reduce them. The six categories – organisational, technical, financial, value chain, consumer, and regulatory – form a continuum from internal barriers faced by a focal company to external barriers, addressing which requires engagement with other actors, such as consumers and policy makers.

## 3.1 Organisational

The majority of innovative business models in the inspirational examples in Chapters 4 and 5 include a combination of circular thinking with the extension of product life through servitisation. Some of the most critical barriers to such innovative business models are the predominant linear thinking [33] and lack of alignment with existing corporate strategy [34], especially in established companies. Incumbent companies often need to spend a significant amount of time convincing many departments that circular or leasing business models are more sustainable and profitable in the long term [35]. In addition, focus on profit maximisation may delay investment decisions in the company, considering lock-ins and technical path dependency of long-term investments [36]. Start-ups that are built on ideas of sustainability or circularity face these barriers to a lesser extent.

Lack of knowledge and expertise in organisations has also been identified as one of the main barriers to circular and innovative business models [34,36]. This can lead to unclear internal responsibilities and difficulties of establishing cross-functional and cross-departmental cooperation in the organisation. Companies may need to acquire or develop new capabilities, including managing return product flows, repair and refurbishing of products [37,38], and designing new products suitable for leasing, reuse, and remanufacturing [39,40]. Sales personnel may need new skills for selling services and solutions compared with their traditional role of selling products [41]. Managing information flows and collaborations between various departments and making synergistic changes in the entire organisation to suit the requirements of the new ways of delivering value to consumers can be time-consuming and costly.

## 3.2 Technical

Companies and literature also report technical barriers. For example, the majority of furnishing products are not designed for reuse by multiple consumers or for easy repair and refurbishment [26]. Often, only high-quality furniture is suitable for repair and refurbishment. This is why furniture refurbishers work more commonly with the public sector, which has started setting requirements for quality and durability of furniture, and introducing possibilities to buy refurbished and reused office furniture [42].

Making products more suitable for circular use requires new expertise, and is often associated with choosing new components and materials. There is also a problem of limited knowledge about the material and chemical content of older products, which can create difficulties for repair and refurbishing [42]. The lack of methods for tracing chemical content in refurbished furniture can also be a barrier, especially considering the ever-stricter demands of policies about chemical content. Designing products to be more circular also involves trade-offs, such as between ease of disassembly or repair and robustness and product durability [43]. Trade-offs are also found when demand for using recycled materials jeopardises desired quality or longevity in a product [44] or when environmentally superior materials are inferior in terms of long-term functionality, such as glues.

Internal processes in companies also need changing when a decision is made to shift to new business models, including IT and production facilities, production processes, and supporting practices [35]. With circular and leasing models, barriers arise regarding take-back of products for repair or refurbishing, including estimating return flows [19], developing a robust process for collecting furniture to preserve its state, and transportation costs (Interview with a start-up). The relatively few companies that do develop more sustainable, novel, and circular business models means that there is a lack of design and process standards for designing, producing, and

refurbishing furnishing products. There is also a lack of design tools for circular furnishing products and lack of training on how to make furnishing products more sustainable [35].

### 3.3 Economic/Financial

Financial and economic barriers are as prevalent among furnishing companies as in other sectors. For example, barriers for leasing models include the large amount of capital needed for developing and implementing these models, as leased products remain on the balance sheet of the company, which leads to reduced liquidity [34]. Leasing arrangements are often associated with cash flow uncertainties and risks stemming from payments being spread over long use periods instead of being paid for at the point of sale [45]; this can be especially problematic for start-ups and small and medium-sized enterprises [26]. However, our interviews with start-up companies indicate that new mechanisms for funding provision and insurance are being developed in the banking and insurance sectors, which may greatly facilitate leasing and circular business models. Offering leasing or selling reused furnishing products has also been associated with the risk of cannibalising sales of new furnishing products [42] and thereby potentially reducing the profitability of companies [19,34].

Since refurbishment and repair activities are often less automated and standardised and, at the same time, more labour intensive than original manufacturing processes, their economic feasibility remains case dependent [8,26,38]. High transaction costs may arise, both financial and others, when enhancing human resource capabilities [34,46]. Developing systems for reverse logistics, tracking products and components, and keeping an inventory of their condition, can also be costly. With the integration of artificial intelligence (AI) and ubiquitous digital technology with furnishing products, these costs may decrease in the future. However, these are still early days (Interview with a start-up).

### 3.4 Value chain

In linear business models, companies rely on extensive supply chains that deliver resources and spare parts. When companies shift toward models in which products are returned for repair, refurbishment, and reuse, they may need to develop quite complex networks of actors to help facilitate their business models. For example, other actors might provide repair and refurbishment services, or manage aspects of reverse logistics and storage for returned goods. Identifying potential partners in the value chain, developing routines and practices that maintain and deliver quality service to end consumers, and establishing trusting relations with all the players, can incur additional costs and uncertainties [33]. Questions of allocation of responsibilities between different actors and new capabilities needed to manage information, product and financial flows between the different actors also pose challenges [38,39].



For many companies, strong ties with existing suppliers of virgin raw materials may serve as a barrier for more circular business models [8]. Companies may need to raise awareness about the new business models among potential value chain partners and demonstrate the advantages of reusing products and materials. Understanding the concept of circularity or leasing with repair strategies makes it easier to form successful partnerships and alliances [35].

### 3.5 Consumer

One of the oft-cited barriers to circular and leasing business models is a lack of end-user demand for reused and repaired furniture [19]. In both the B2B and B2C sectors, a high rate of innovation significantly limits the potential of product reuse and take-back because end-users want to stay up-to-date with the latest changes on the market [47]. Although furnishings have not traditionally been products with short innovation or fashion cycles, in recent years they have taken after the fashion industry and exhibited increasingly shorter use cycles [21]. Faster fashion cycles also reduce end-user willingness to use second-hand or reused products.

Within the B2C sector, studies have found a tendency for ownership to be a critical barrier for access-based business models [48]. Such business models often include new ways of engaging with consumers, followed by new payment schemes, such as subscriptions, pay-per-use, and different types of contracts. Consumers may find it overwhelming to shift from the traditional pay-per-product schemes to payments per month or per use occasion, where an understanding of lifetime costs of products and differences between fixed and variable costs are needed [37,49-51]. Some consumers also find the ownership of products to be more flexible and convenient than renting or leasing them [52], in part due to concerns about liability for damage of non-owned products. Some authors suggest that companies need to be better at explaining the benefits of the new business models to consumers as well as the payment schemes they include [40,53]. This could help consumers overcome low trust in the new business models, where value is provided by a complex constellation of products, services and actors [54].

Some authors suggest that governments could help normalise renting and reuse of furnishings by showing the way in their public procurement processes [19]. Increasing environmental awareness about the impacts of furnishing may positively influence consumer propensity to choose reuse, repair, or leasing options. However, at the moment, environmental concerns do not seem to be a primary driver of decisions on furnishings. For example, only a small proportion of consumers, 19% and 11%, choose access-based business models for environmental reasons in surveys of Swedish [55] and millennial US consumers [56], respectively. Elzinga et al. [57] explain these low numbers by noting that consumers do not associate leasing with environmentally sound activities to the same extent as options such as using take-back schemes for products.

### 3.6 Institutional/Regulatory

Regulatory and institutional mechanisms also serve as barriers to furnishings business models that include renting, leasing, repair, and refurbishment. These include policies that enable and have helped institutionalise linear economic models, such as those that make resources and new products cheap, but repair and refurbishment services expensive. These policies range from the green tax reform that has only been partially implemented to waste policies that favour recycling over re-use and repair, or that by maintaining high price of labour make repairs a costly affair. There are policies that keep, for example, repair markets closed to actors other than producers or accredited repair companies, who can potentially bring repair costs down. There are other policies that keep warranty periods unreasonably short, thereby encouraging planned and premature obsolescence [58].

In addition, extending product lifetimes through repair and reuse can conflict with policies that make standards stricter over time, e.g. if it is not possible to ensure that chemicals used in the original production of a product comply with current standards. This may prevent even second-hand and charity organisations from reselling used or repaired furniture [19].

The lack of Extended Producer Responsibility policies for bulky waste is also a barrier, as furniture manufacturers lack incentives to develop reverse logistics systems to receive their products back at the end of their functional life, nor are they required to contribute to the costs of repair or recycling of furnishings. The Ahrend furnishings company takes a firm view that *“producers should be responsible for the entire furniture life cycle. By redeploying materials and products, unnecessary production of new products might be avoided”* [35].





Photo: Cottonbro (Creative Commons, Pexels)

# 4 Inspirational examples from producers of furnishings

Despite the challenges discussed in the previous chapter, a number of companies have successfully developed more sustainable business models in the furnishings sector. In this chapter and the next, we present inspirational examples of many companies and their pioneering work on business models for sustainable consumption. We begin with examples from producers of furnishings, moving on to other furnishings actors in Chapter 5. The examples are grouped by business model type, including circular, access over ownership (leasing and rental) and, in the case of non-producers, sharing models. These examples were collected through a review of academic and practitioner literature, and interactions with partners in MISTRA programmes and other pioneering companies.

The goal of this chapter is to inspire other companies to engage with deliberately designing, implementing, and scaling up business models for sustainable consumption in the furnishings sector. A kaleidoscope of inspirational examples covers examples from business-to-business, business-to-consumer, and public sectors.

## 4.1 CIRCULAR BUSINESS MODELS

Circular business models seek to close material loops through reuse, repair, refurbishing, remanufacturing, and recycling.

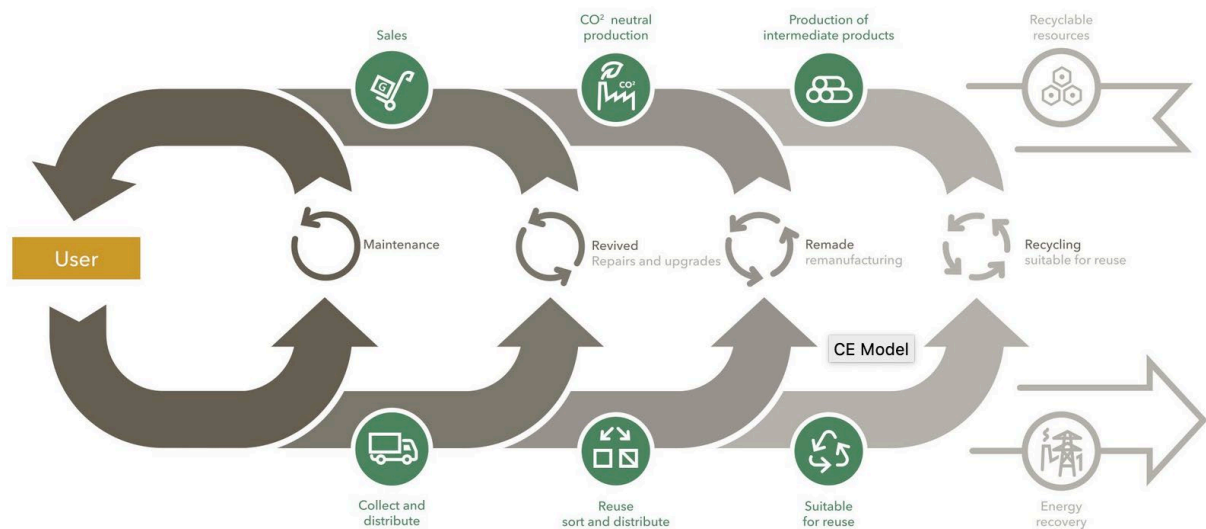
### 4.1.1 Gispen (NL) – circular approach to furniture

Gispen is a company that produces furniture for the office, educational, healthcare, and hospitality sectors. The company has developed and implemented a comprehensive programme for engaging with the circular economy, both strategically and operatively. The goal is to prolong product lifecycles, which is achieved through reuse, upgrading product function during the use phase, remanufacturing, and recycling. The framework comprises seven themes that reflect the seven phases in Gispen products, ranging from manufacturing to use, remanufacturing and recycling. Gispen's products are often designed in modules, which helps keep long product lifecycles. Products are also easy to dis- and re-assemble due to non-glue connections of different parts, which facilitates reuse.



Based on the framework and the circular processes the company developed, it designed special furniture collections depending on how much repair-refurbishment-remanufacturing was involved in producing the collection. For example, the Gispen Revived collection includes products that have been refurbished including both repair and upgrade and their original function

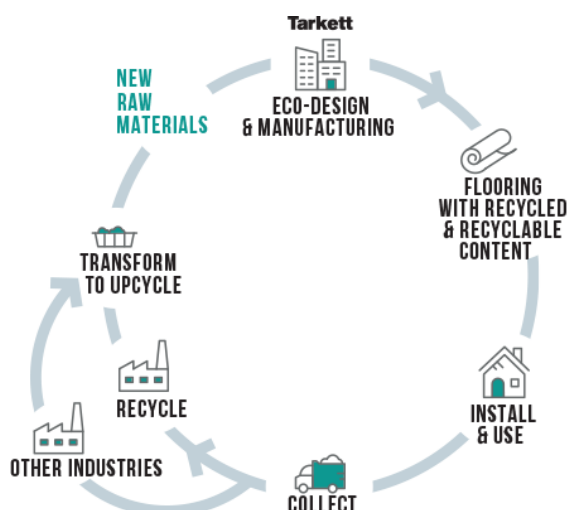
has been preserved, while the Gispén Remade collection consists of products that have been remanufactured.



<https://www.gispén.com/>

#### 4.1.2 Tarkett (FR) – circular flooring solutions

Tarkett is one of the world's largest manufacturers of floors, with revenue of USD3.2 billion. The company develops flooring and carpet solutions for various office and public environments, including in the maritime, aviation and holiday industries. Tarkett strives to make high quality, sustainable flooring to help customers create healthier and people-friendly spaces. The company has been working on recyclability and reuse of its products formally since 2009, and has been applying Cradle to Cradle® principles since 2011. In 2013 the company was one of the first to join the "Circular Economy 100" programme founded by the Ellen MacArthur



Foundation. The entire value chain of flooring is considered in terms of recycling resources, starting from the design and production phases to use and recovery stages. For example, in 2018, Tarkett used 134,000 tonnes of recycled materials as raw materials. This represents 10% of all raw materials purchased. Some of the flooring contains 20-30% recycled content. Tarkett developed a modular system that extends flooring life and makes it easier to install, maintain, repair, and recycle parts of flooring. Modular flooring systems also offer more design choices

to customers, and help the company keep up with the fluid tastes of its customers from the hotel and retail industries, who regularly update their interiors. The company also developed the ReStart® take-back programme, in which post-installation and post-consumer flooring is

collected and recycled. By 2020, Tarkett had aimed to send zero industrial waste to landfill, and 10 out of 13 European production sites have already achieved this objective. The company is not unique, but is undoubtedly one of the leaders in its sector in sustainability by developing such a comprehensive system where product design and process innovation are combined with transformations in business models, profit centres, and value chain constellations and collaborations.

<https://www.tarkett.com/>

#### **4.1.3 DSM-Niaga (NL) – reuse and recycling of mattresses and carpets**

DSM-Niaga is a relatively young company, set up as a joint venture between the Dutch multinational DSM and two entrepreneurs. Niaga is the word 'again' spelled backwards. It demonstrates that the company designs new production and product technologies that make medium-life bulky products such as mattresses, furniture, and carpets recyclable into the same products. No value is lost, and products are not downgraded in any way. One such solution is an adhesive that decouples on demand. Since these products usually comprise several layers and are made of many chemicals, it is vital to be able to dismantle them into separate layers or chemicals to enable recycling or reuse of materials. Products are also designed to be modular, which supports easy maintenance.



<https://www.dsm-niaga.com/>

#### **4.1.4 Arcadia Design (IT) - modular children's furniture**

Arcadia Design by Progetto Arcadia is an Italian sustainable design studio that builds modular children's furniture following circular principles. The furniture is made of solid wood, thereby eliminating the need for chemical adhesives that are usually used in fibreboards. The paint on the modules is water-based, and the varnish is non-toxic. This makes it easy to remodel and ensures safe disposal. The goal is to extend useful furniture life as the child grows, and grows out of it. The modular design makes it easy for a family to replace parts that have been damaged through wear and tear. Additional parts can be purchased to address the evolving needs of growing children. It also makes the furniture easy to disassemble and repurpose the pieces into other interior design items, such as photo frames, desks, or flower beds.



<https://www.arcadiya.net/>

#### **4.1.5 Vitsoe (NL) – sufficiency and long-lived products**

Vitsoe is a small furniture manufacturer that makes long-lasting furniture, such as shelving and storage solutions for private customers and businesses. The company's motto is "Living better, with less, that lasts longer". It aims to produce furniture "striving to be better rather than newer". Vitsoe designs products that do not have built-in obsolescence, that are long-term in their appearance, and that are flexible, adaptable, and durable. Reparability is one key feature, to



ensure a longer life. This means that most Vitsoe furniture is systemic in its design. The company uses recyclable aluminium and steel and compostable wood. Products can 'evolve' – they are designed in modules that can easily fit together and produce different functionalities. The furniture is assembled with mechanical joints and is not welded, making it easy to repair and dismantle at the end of furniture life. The company also prioritises reuse over recycling in its furniture as well as in its transportation system, i.e., wooden stillages used for transporting aluminium parts that have been in use for 20 years. Vitsoe also has a strong ethos of sufficiency, selling just enough, and avoiding commissions for sales personnel and seasonal sales, as well as charging honest prices to customers – prices that have not been initially inflated.

<https://www.vitsoe.com/rw>

#### **4.1.6 Albin i Hyssna (SE) – repair services for durable furniture**

Albin i Hyssna is a small 100-year-old company that designs durable wooden furniture. To help prolong furniture life the company offers upholstery services to its customers, both for products that are still in production, as well as for older products. To facilitate repair, the company offers furniture for rent during the time that consumer furniture is being repaired or refurbished. The majority of furniture is approved by the Swedish quality, environment, and social responsibility label *Möbelfakta*, and operations comply with the ISO 9001 and 14001 standards.

<https://www.albinhyssna.se/>



## **4.2 ACCESS OVER OWNERSHIP**

Access over ownership business models are based on pay per use, renting, and operational leasing.

#### **4.2.1 Kinnarps (SE) - leasing furniture and add-on services**

Kinnarps is a traditional Swedish furniture producer that offers an entire range of furniture-related services. One is operational leasing, where the furniture stays in ownership of the company and is only used by customers for a certain period of time. Leasing makes furniture function flexible, meaning that the leased furniture package can be adjusted to new customer needs. Besides furniture, the packages also include carpets, textiles, and light solutions. Adding to its systems approach around furnishing, the company also provides interior design services, with a particular focus, if needed, on acoustics and light interior designs. Kinnarp also offers cleaning services for its furniture, and provides pick-up, reuse, and recycling services to its customers, including moving service and storage space. Reuse services extend furniture life, while recycling of materials closes resource loops. On the business side, each leasing contract is backed up with an insurance contract. Instead of investing capital in furnishing, customers report furniture leasing as running costs and are eligible for tax



deductions on the entire sum of leasing. At the end of the leasing period, customers can either extend the contract or buy the furniture item.

<https://www.kinnarps.se/>

#### **4.2.2 IKEA – testing rental and buyback**

In early 2019, IKEA announced a roll-out of 30 pilot projects for renting its furniture, driven by consumer concerns over climate change, the rise in e-commerce, and changing consumption patterns. Nowadays, consumers change homes more frequently but cannot afford new furniture every time they move. Therefore, the company is developing its offers, aiming to fulfil three goals: affordable, convenient, and environmentally sound furnishings. It follows the recent upsurge in leasing and renting business models that have emerged in different sectors.



IKEA is also testing buyback or sell-back services in IKEA Retail Japan, Canada, Australia, Switzerland, Sweden, and Norway. It is also revamping its supply chain to accommodate the flow of its second-hand products. The buyback is offered for IKEA furniture that is still in good condition but no longer needed by a customer: if furnishings "are outdated, unwanted or cluttering your home". The items are exchanged for in-store credit to be spent in IKEA stores. During 2018, more than 3,400 items were sold back to IKEA Retail Japan. In June 2018, IKEA also launched a buyback programme specifically for new parents who are buying baby furniture and can receive some of the money back when they return the furniture to IKEA.

IKEA retailers are also testing new business models in Switzerland, the Netherlands, Poland, and Sweden, called the furniture-as-a-service model. It is a furniture subscription service that provides consumers with more affordable access to furniture without ownership, with the furniture maintained, repaired, and refurbished. These tests generate insights about the types of circular capabilities IKEA needs in order to efficiently maintain products and extend their lives. After many cycles, the materials and components are recycled. All these efforts can be seen as steps towards launching a wide circular and leasing programme for IKEA furniture.

<https://www.ikea.se/>

#### **4.2.3 Ahrend (NL) – Furniture as a service and furniture sharing**

Royal Ahrend is a long-standing manufacturer of office furniture products, established in Amsterdam in 1896. The company strives "to create quality products, which we can reuse endlessly". The furniture is timeless and is designed in modules, easy to disassemble and repair. Each piece of furniture can undergo many upgrade cycles and modifications, extending the useful life of the furniture. To facilitate the extension of product life and to ensure the return of furniture to the original manufacturer, the company offers its





customers a furniture-as-a-service (FAAS) subscription scheme. FAAS is an operational lease, meaning that instead of buying furniture, customers pay a monthly fee and return the furniture when it is no longer needed. Products are monitored during the use phase using QR codes, information from which is logged, stored, and tracked in an internal database. The database is the cornerstone of asset management, the source of information about product functionality, the state of products, and the need for any measures.

During the FAAS period, Ahrend visits its clients every two years to check that both furniture functionality and aesthetics are at an intended level. If something is broken, the cost of repair is included in the warranty that applies throughout the term of the FAAS contract. In effect, Ahrend runs a sharing platform where the company facilitates the exchange of furniture between organisations based on supply and demand. The old furniture receives a facelift through refurbishment and is offered through the FAAS scheme to other customers. By paying monthly for furniture instead of investing capital in it, organisations can support dynamic working environments where occupancy rates and the functionality of offices fluctuate. The company clearly states that producers should be responsible for the entire furniture life cycle. By redeploying materials and products in their circular system, Ahrend has cut its CO<sub>2</sub> emissions by up to 40% per year. Ahrend also suggests that, by reusing furniture, excessive production of new products might be avoided.

<https://www.ahrend.com/en/Solutions/Furniture-as-a-service/>



Photo: Mark McCammon (Creative Commons, Pexels)



# 5 Inspirational examples from other actors in the furnishing sector

In this chapter, we present inspirational examples from furnishings actors other than producers, which were collected through a review of practitioner literature and interactions with partners in MISTRA programme and other companies and organisations. With these examples from the business-to-business, business-to-consumer, and public sectors, we seek to inspire diverse actors to engage with devising, applying, and scaling up value creation models for sustainable consumption in the furnishings sector.

## 5.1 CIRCULAR BUSINESS MODELS

Circular business models aim to close material loops in society through reuse, repair, refurbishing, remanufacturing, and recycling.

### 5.1.1 White Architects (SE) - reusing furniture in interior design

For many years, the architecture company White Architects has worked on reusing furniture in interior design assignments. The market is asking for a certain percentage of reused furniture in interior design projects.



One of the beacons of White's work is the Telia Company's premises in Luleå that houses 700 employees in a 7200-square metre building. Eighty-six percent of the furniture is refurbished. The company had to initiate cross-sector cooperation with a range of experts, including external furniture suppliers, carpenters, and project managers. The team had to select, refurbish, and install the chosen furnishing carefully. The result received approval not only from the customer, Telia, but the project also received a nomination for an award as Sweden's most attractive office in 2017. The result is also a unique workplace, with customer front office, activity-based office space, lounges, and dining room, and the cost is 20% lower than a new interior.

<https://whitearkitekter.com/se/>

### 5.1.2 Sajkla (SE) - refurbishing interior design items for public environments

Sajkla is a company that refurbishes furniture and interior design items for public environments. The goal is to make choosing stylish and recycled furniture and furnishings an easier and more obvious choice than buying new ones. Sajkla offers to make an inventory of furniture for its clients, showing what is suitable for redesign and reuse using an A-C classification. Sajkla gives an estimate of costs for reconditioning and recommendations for reduced



environmental impacts, which can lead to savings. Sajakla reconditions furniture in wood, metal, and upholstery in collaboration with furniture manufacturers who are used to handling large volumes of furnishings. This helps reduce economic costs and ensures a high quality of reconditioning.

<https://sajakla.se/>

### 5.1.3 Rekomo (SE) – furnishing offices with recycled furniture

Rekomo's motto is "We are furnishing the office of the future with yesterday's furniture". The company is driven by the idea of producing as little as possible, so it sells, buys, and rents office furniture in Sweden.



Unlike many other examples featured in this report, Rekomo is not a start-up, but a company that has been offering recycled and affordable office furniture since 1992. They provide a holistic solution for furnishing offices, from drawing the new office layout to having a fully furnished and functioning office. They also buy and remove the old office furniture and offer furniture for hire, targeting customers with office expansion plans.

<https://www.rekomo.se/>

### 5.1.4 ReTuna (SE) – shopping mall for reused, refurbished, and recycled products

Retuna Recycling Gallery is one of the first shopping malls in the world to sell only reused, refurbished, and recycled products. It was opened in August 2015 in Eskilstuna, where it is strategically positioned next to Retuna Recycling Centre. About 50 people are employed there. Both organisations are run by the municipality-owned company, Eskilstuna Energi och Miljö. The gallery uses its location for attracting customers, who come to deposit waste items at the recycling centre and leave reusable furniture, clothing, interior decorations, and technological devices in the Gallery's depot, Returen.



At Returen the material is received by staff from AMA (Eskilstuna Municipality's resource unit for Activity, Motivation and Work), who do the initial sorting. The items are then distributed to the stores in the mall, which decide what items they want to repair, refurbish, upcycle, and sell. In 2018, the reused products were sold for SEK 11.7 million. Besides selling reused items, the mall is also a place for a variety of events, workshops,

and lectures with a focus on sustainability.

<https://www.retuna.se/english/>

## 5.2 ACCESS OVER OWNERSHIP

Access over ownership are business models based on pay per use, renting and leasing.

### 5.2.1 Beleco (SE) - pay-per-use furniture for special events

Beleco is an up-and-coming company whose

motto is "Sharing furniture for your event /

workspace / store / home". Its value is created by

providing access to "thousands of pieces of design furniture and interior design details" and

services of interior designers, advisers, and home stagers. The company does not own furniture

but instead creates customised packages of furniture by bringing together products of its partners

- asset providers (e.g. furniture producers and retailers) and users. More than 95% of the partners

are organisations such as event organisers, real estate companies, scenographers, adventure

agencies, and other public or private organisations, i.e. everyone who needs furniture for a short

time. Revenue comes from a "pay-per-use" model, where users of Beleco services pay to stream

furniture for different periods (1-60 days, stream per month with or without a fixed subscription). In

time, the company projects that private individuals will also become an important customer

segment. The company has an innovative business model, which requires changes in some of the

established institutions, including financial backing of furniture subscription and securities for

asset providers. The company financed the development of a tool that allows customers to

compare CO2 emissions every time they rent furniture to buying it.

<https://www.beleco.com/>

The logo for Beleco, featuring the word "BELECO" in a bold, black, sans-serif font.

### 5.2.2 L2GO (SE) – streaming bathroom textiles and bedlinen at home

L2GO is a company that creates value by offering "room service" at home.

This means that L2GO streams clean and ironed bathroom textiles and

bedlinen and combines it with cleaning services. The idea the company is

selling is that "You don't need to own bed linen and bathroom textiles". L2GO

owns, rents, washes, and irons them. Textiles are estimated to last 700

washes. L2GO aims to "... enable behavioural changes that contribute to

reduced greenhouse gas emissions as the needs of new production decrease, while also

managing our natural resources better, such as drastically reduced water consumption"

(Homepage, L2GO). The primary customer segment is households, but a pilot is ongoing with a

large hotel in Stockholm. All bedding is made with high-quality eco-certified cotton, sometimes in

combination with polyester. Handling and washing of the bedding are also labelled with Nordic

Ecolabel and is done by professional players locally in Stockholm. The value is captured through

a subscription fee and payment per service. The company aims to prolong the useful life of home

textiles, reduce their idling time, and increase the intensity of their use. To provide its service, the

company had to find a new business model. It faces significant institutional barriers because

private individuals are not used to renting bed linen and bathroom textiles.

<https://l2go.com/om-l2go/>



### 5.2.3 Hemmlis (SE) – renting furniture packages to students

Hemmlis is a small start-up run by alumni of Lund University. The company rents furniture to students who need to furnish their rooms or flats for the duration of their studies. The company has developed



a collection of furniture packages that comprise six basic pieces of furniture according to different design concepts. The choice of furniture is customised to a student room of 15-20 square metres. The company currently has 50 different collections to suit different tastes and needs. The collections consist of second-hand, vintage, and new pieces. Hemmlis bought second-hand pieces of furniture from Erikshjälpen and Emmaus – two large second-hand chains, who struggle with large volumes of second-hand furniture that no one is interested in buying. Hemmlis also brings in upcycling when second-hand or vintage furniture needs an upgrade. They are also experimenting with functional design solutions for limited living spaces. Revenue comes when students sign a subscription of 5 or 10 months and get the furniture delivered to their home. The company is addressing an acute problem for many students by developing a renting business model.

<http://hemmlis.se/>

## 5.3 SHARING BUSINESS MODELS

Sharing business models are based on borrowing, loaning, giving away, getting for free, and sequential use of products

### 5.3.1 Off2Off (SE) - a marketplace for furniture reuse

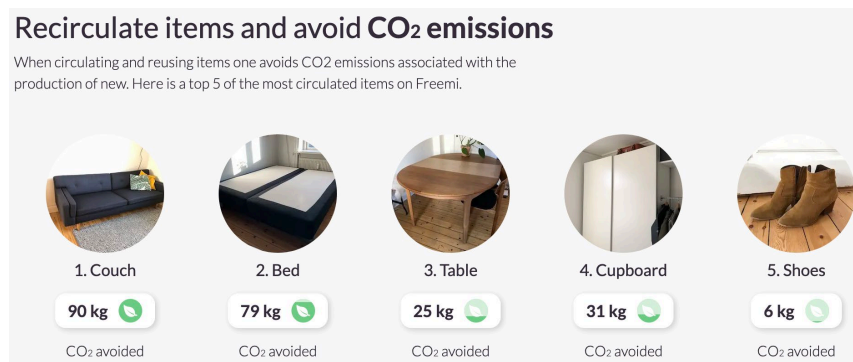
Off2Off offers and develops platforms for organisations in the public sector in Sweden on which asset holders can find potential customers in other organisations in the public sector for their second-hand assets. The motto of the company is "We make use possible". The company is a strong advocate of reuse over recycling ideology. The Off2Off business model extends the useful life of products by creating new opportunities for their use, repair, repurpose, and upcycle by users. It also avoids the need to store surplus resources by allowing other organisations to use and reuse them. Public organisations use the Off2Off platform to exchange information about goods and resources that they require or have a surplus of. They can also add information about the possibility and need for transportation, repair, and recondition. Similar online platforms exist on a peer-to-peer market (e.g. eBay, blocket.se), but Off2Off is a genuinely novel business model that capitalises on idling and second-hand products of the large public sector in Sweden.



<http://www.off2off.se/>

### 5.3.2 Freemi (DK&NE) - freeconomy' marketplace for circulating and reusing goods

Freemi is a Freecycling app with more than 200,000 users in Denmark and the Netherlands. The platform creates a 'freeconomy' marketplace to help people reduce waste, prolong product life, and combat throwaway culture by making it more convenient to give things away than to throw them out. Circulating and reusing items avoid CO<sub>2</sub> emissions associated with the production of new items. The company claims that "Freemi... successfully recirculates 4 out of 5 items" (<https://freemi.app/en/about/>) and calculates CO<sub>2</sub> savings for its most circulated items (picture below).



Source: Freemi website <https://freemi.app/en/>  
<https://freemi.app/about/>

### 5.3.3 Freegle (UK) – a marketplace for gift-based exchange and reuse networks

Freegle is a UK-based network of 442 online gift-based exchange and reuse networks that has been in operation since 2003. It matches people with assets they would like to donate or give it away with people who would like to find things. Freegle belongs to the so-called 'gift economy' and its networks are run by volunteers. Freegle's goal is to extend product life and its networks result in fewer items ending in landfills and more people gaining access to what they need free of charge.

<https://www.ilovefreegle.org/>





Photo: Ksenia Chernaya (Creative Commons, Pexels)



# 6 Signs of hope: enabling business models for sustainable consumption

In addition to the particular inspiring examples presented in the previous chapters, we see a number of trends that can further support the development and implementation of business models for sustainable consumption in the furnishings sector.

In many cases, business-to-business markets are developing faster than business-to-consumer markets when introducing innovative business models, such as product-service systems or circular models. We therefore find inspiration for the future development of B2C furnishing markets by tracing trends in the B2B market. For example, evidence is emerging that public procurers are warming up to the idea of exploring alternative ways of furnishing offices in the public sector in Sweden. In a survey conducted by the Legal, Financial and Administrative Services Agency (Kammarkollegiet) in 2018, 45% of public procurement officers said they would consider buying second-hand furniture, and 20% were interested in exploring the possibility of leasing furniture for offices instead of buying it [59]. Both Kammarkollegiet and the SKI-SKL Kommentus Inköpscentral (an organisation that provides services of sourcing/purchasing and human resources management to Swedish municipalities and regions) are preparing public contracts that facilitate circularity in the furniture sector [30]. Public sector organisations are also developing new functions and roles associated with procuring and managing second-hand or leased furniture, such as new inventory templates for new and reused furniture, and new websites listing surplus furniture that can be shared between different parts of the public sector, such as Malvin or Off2Off examples.

Companies that refurbish furniture and operate on B2B markets have previously reported difficulties with matching requirements of volumes, quality, and uniformity of supply coming from public procurers and the small size of the refurbishing companies that cannot meet these demands [42]. However, as illustrated by some of the inspirational examples, companies are emerging to tackle these challenges. In addition, in B2C markets, individual consumers do not pose such demands on furniture refurbishers, so these types of matching problems are unlikely to arise. On the contrary, the uniqueness of repaired, refurbished, and upcycled furnishing pieces might be the very features that will attract consumers who value individuality, exclusivity, customisation, and inimitability.

Traditionally, furniture manufacturers have seen refurbishing businesses and other gap-exploiters as competitors, but interest in collaboration between these types of companies, as well as between gap-exploiters of different types, has been recently observed [42]. A study in which refurbishing companies were interviewed demonstrated that, to scale up the market for refurbished and repaired furniture, gap-exploiters need to cooperate more and to invest in marketing their services to consumers to a much larger extent [42]. One important realisation that can be important for winning consumers over is that refurbishing furnishings creates local jobs and develops skills.

A new approach is not only to repair and refurbish products, thereby restoring their value to the original level, but to go further and refurbish products to a level that outstrips the original value – also known as upcycling. So far, upcycling initiatives are mainly taking place at start-up or grassroots levels [60]. However, the principles and logic behind upcycling can potentially be applied by producers of furniture and home textiles.

There is also a growing understanding in both the B2B and B2C furnishing markets that reuse has to be prioritised over recycling. Some pioneering companies in the furnishings sector have started realising and capitalising on reuse and leasing of their products, reflecting Walter Stahel's observation that: "the goods of today are the resources of tomorrow at yesterday's resource prices". To further support reuse, waste management businesses need to be seen as resource managers rather than being the final station for many products that end up in landfills or incinerators. Policies at the national and EU levels could also help to prioritise reuse.

For markets of home textiles, we find inspiration in fashion markets where leading companies have started offering take-back services for their products. We anticipate that, with time, we will see take-back systems for home textiles, potentially organised by retailers, producers and gap-exploiters, or even more centralised waste management systems run by municipalities, which will recognise the value of reusing and recycling these products over discarding them.

From a technical perspective, there are also some promising developments on the way that can enable and facilitate reuse and refurbishing of furnishing products. For example, digitally enhanced physical products are appearing in furniture markets (and even in textiles, e.g. wearable electronics), that allow monitoring of performance, timely servicing of products that are malfunctioning, and allocating responsibility when a product is broken (Interview with a start-up). The development of tags of components and provenance tracking, such as QR codes, can also help track materials in furnishing products [61].

In terms of logistics, one enabling factor for leasing and reuse will be the management of fluid inventories where product and service providers will be managing modular, flexible, and continuously moving assets. The role of logistics will be critical in this regard, as we now witness



with the explosion of online retailing. Three areas are becoming exceedingly important: 1) managing products during transport, repackaging, repair, and reuse, 2) developing agile circular logistics processes that would optimise flows of products, and 3) refurbishing and servicing products to extend their lives, adjust for use by multiple customers, and adapt to continuously changing consumer needs for furnishings use considering the fluidity of daily home and work life (Interviews).

Broader societal trends can also support new business models in the furnishings sector. For example, co-living and co-working spaces often seek to reduce the amount of space needed by individuals, combining smaller individual spaces with shared common areas that in turn can reduce the amount of furniture and other home goods each person needs. Often these spaces also include shared household items, such as tools, kitchen items, bicycles, and garden equipment. The Sege Park project currently under development in Malmö, Sweden, is built around sharing and sustainability, and will include a repair hub in which tenants can fix and refurbish everything from clothes to electronics to furniture.

Last but not least, we see that the UN Sustainable Development Goals (SDGs) are a driving force and enabler of new business models. Many businesses and other actors cite the SDGs when describing their work. For example, initiatives addressing SDG 12 (Responsible Consumption and Production) include developing new production technologies; designing products that are long-lived, durable, and/or easy to repair, reuse and recycle; and creating new business models, including access-based, circular, sharing and sufficiency-based models that can help extend product lifetimes and reduce the need for new production. Some companies actively work with strategies to avoid over-selling, and many, including gap-exploiters, are working to prevent unnecessary purchasing and premature disposal of products by providing repair, refurbishing, and remanufacturing. In addition, companies are contributing to SDG 3 (Good Health and Well-Being) by choosing sustainable materials for their products, to SDG 10 (Reduced Inequalities) by developing platforms to enable the exchange of goods free of charge, and to SDG 11 (Sustainable Cities and Communities) by developing co-housing projects that provide shared spaces and goods while also increasing social cohesion. Companies are collaborating with numerous other actors, exemplifying SDG 17 (Partnerships for the Goals).

As this report illustrates, although developing and implementing business models for sustainable consumption in the furnishings sector is not without its challenges, a number of companies have successfully done so. These companies, along with broader trends pointing to increased interest in repair, refurbishing, leasing, and re-use, can serve as inspiration to others and help to increase the prevalence of these models even further.



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## About the research programme

*Mistra Sustainable Consumption* – from niche to mainstream is a research programme consisting of researchers from: KTH Royal Institute of Technology, Chalmers University of Technology, Lund University, University of Gothenburg, Karolinska Institutet, Luleå University of Technology, The Swedish University of Agricultural Sciences and Statistics Sweden. KTH is the programme host. The research is conducted in cooperation with societal partners from businesses, public authorities and non-governmental organisations.

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