BUSINESS SWEDEN

THE SWEDISH TRADE & INVEST COUNCIL

CREATING A GREEN FUTURE

Sustainability trends and the innovations and potential of Sweden's food and creative industries

INTRO

The global climate challenge, the Covid pandemic, and an increased awareness of the environmental impact of actions made by individuals and companies are radically shifting not only how products and services are made and delivered, but what is being produced.

The lifestyle industry has long been in the climate spotlight, with many of the different sectors coming under heavy scrutiny and criticism from consumers and climate activists, triggering a flurry of new trends to meet evolving demands and environmental legislation and targets. From food production and packaging to clothing manufacturing and interior design concepts, to the data that is used by gaming and music streaming services, there is no part of the Western lifestyle that is immune to the sustainability microscope.

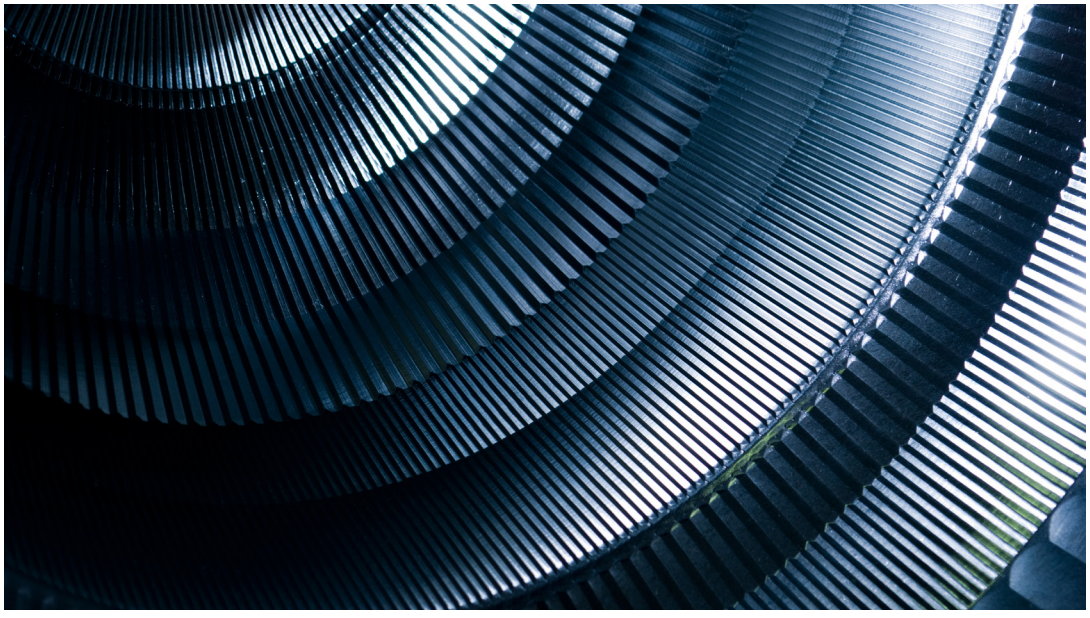
The calls to produce more sustainably, consume more ethically, reduce, reuse, recycle, and recover are loud and have been a catalyst for innovative solutions and product development.

While the immediate consumer shift is not consistent across segments or customer groups, the long-term imperative is clear: to be competitive in the future, companies will need to be sustainable. And this sustainability is not just limited to the impact on the environment but cover social and legal sustainability also.

For some lifestyle segments, this shift will be monumental, with industries being transformed across the entire supply chain. For others, there will be a complete phase out of certain products and methods, while at the same time there will be emergence of whole new product segments and new production processes that will replace traditional products and practices.

The potential within the lifestyle and creative industries segment is attracting attention – and Sweden is inspiring change, scaling-up long-established recycling practices, and initiating development of new products, and championing circular production.

This trend guide will example the key local and global trends that are influencing the creative industries' sector, what initiatives and innovations Swedish companies are contributing to the meet the climate challenge, and the opportunities and potential for sustainable growth within an evolving consumer landscape.



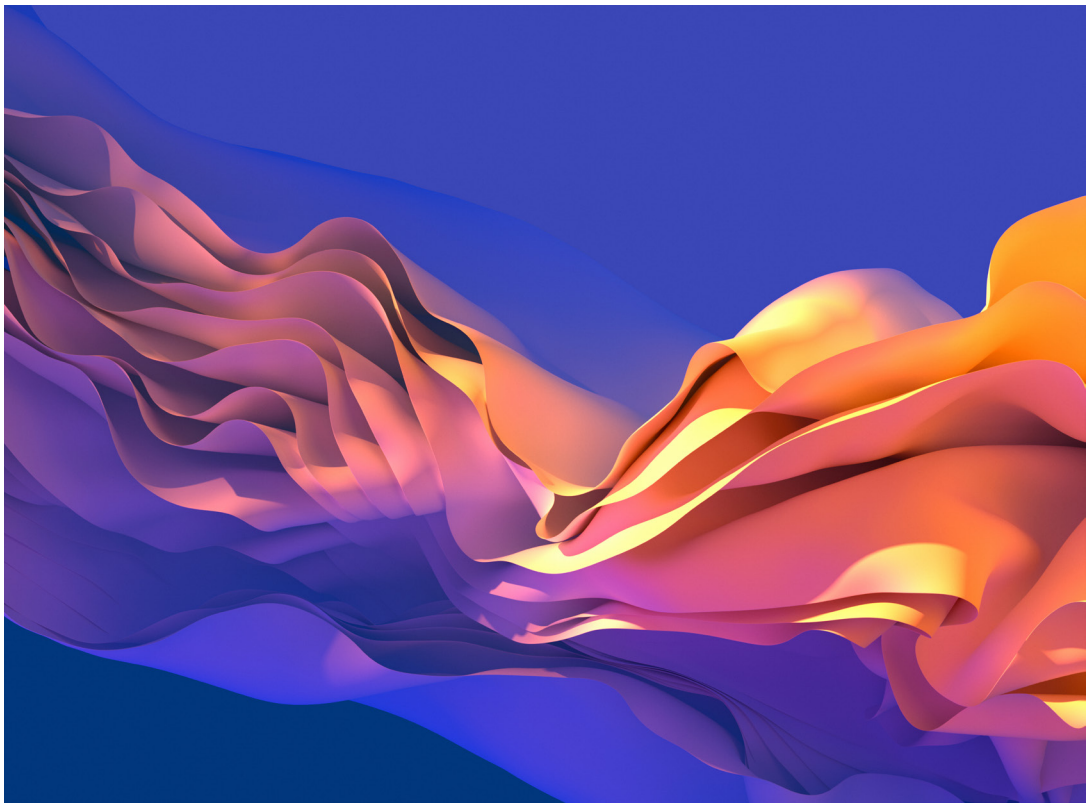
GLOBAL DRIVERS, LOCAL SOLUTIONS

In some areas, Sweden is already ahead of the curve, with innovative companies at the forefront of new materials and production methods in response to not only the environmental impact, but the need and desire to produce in a more socially ethically way. The UN's Sustainable Development Goals have set a blueprint for change, and this has inspired, and continues to inspire innovative, propelling change forward to create a more equitable and sustainable future.

Swedish companies and consumers have embraced digitalisation, willing to explore and test new products, and value sustainability. These local conditions have created a testbed for solutions that address the global challenges facing the creative industries, and a platform for both Swedish and international companies to scale-up globally.

Global and Swedish climate targets, as well as the UN Sustainable Development Goals are a critical part of the creative industries' focus, with the principles of reduce, reuse, recycle, and recover at the core of many companies' innovations.

Sweden's goal to become the first climate neutral welfare state by 2045 impacts on every industry, and this ambitious goal is proving to be a catalyst for exciting and ground-breaking change in the creative, sustainable lifestyle sector.



ALTERNATIVE PROTEINS

THE CHALLENGE

The human diet and health rely on protein consumption, but how this is produced and what is consumed is having an increasingly negative impact on the planet's natural resources. Agriculture and diets have changed beyond recognition in the past century with mass production, industrialisation, and technology profoundly shaping global patters of protein consumption.

Large-scale industrial animal agriculture has been recognised as causing harm to animals, human health, and the environment, but to shift the diets of those in high-income nations away from the reliance on meat, dairy, and eggs produced at scale, alternatives are needed that not only minimise the impact to the climate, but also meet dietary needs and established taste expectations. Meat, dairy, and eggs are not the only sources of natural protein, soybeans, peas, and nuts have all been traditional staples in global diets and have been the primary alternative used to tackle the increasing global demand for products from conventionally farmed animals.

THE TREND

There is rising demand from consumers for vegan and plant-based products, both in response to an understanding of the impact of the meat and animal-based food industry on the planet and the health implications of over-consumption of these products. Alternative proteins are offering solutions to the myriad of challenges facing the food production industry – while also appealing to consumers' desires for non-animal or healthy proteins. Innovations using plant-based meats and eggs, legumes, fungi, wheat, seaweed, and yeast as base ingredients to create protein rich food are creating a new global food sector that was estimated to be worth USD 14.7 billion in 2021 with a projected market value of USD 37.6 billion in 2030.[1] The industry is working to resolve issues around allergies, taste, and texture, but the appetite for alternative proteins is seeing an industry on the rise.

THE SWEDISH TAKE

Swedish grocery sales for alternative proteins reached SEK 862 million in 2019, a 16 per cent increase from 2017, showing a significant consumer demand. The demand from consumers is reflected in Swedish innovations reacting and focusing on not just the environmental benefits, but the customer experience and expectations. The sector growth has pushed the industry to look at further plant-based protein produces with a focus on using foreign raw materials.

RISE, Sweden's research institute and innovation partner, is funding research into plant-based meat analogues to try and overcome the challenge of matching meat's structure and taste, as well as their protein, calorie, and iron content. Trialling different processing and fermentation techniques, project leaders are confident they can create a veggie steak that consumers like and has the health benefits required from proteins. The production of seafood alternatives is also being explored, with feasibility studies already being carried out using seaweed as a base. While cultural challenges exist in bringing seaweed into mainstream Western diets, the environmental and health benefits are vast. Yeast is also a contender as a protein source of the future and initial feasibility studies are underway.

SEK 862 million

Value of the Swedish alternative protein market 2019, a 16 per cent increase from 2017

USD 14.7 billion

Global alternative protein market, 2021

UN Sustainable Development Goals

SMART TEXTILES

THE CHALLENGE

The clothing industry has transformed beyond recognition since the 20th century, with mass manufacturing that often includes a supply chain that begins with design in one country, production in another, and distribution to markets all over the world. The emergence of fast fashion has turned clothing into a disposable commodity. But with this increase in demand and production, there has also been a substantial increase in waste and damage to the environment and the industry as a whole is a major polluter.[2]

The traditional approaches to the clothing industry and textile economy need a major revaluation, with a focus on circular economy principles that will deliver economic returns, but also address the societal and environmental challenges that are facing the industry today. But the global reach of the textile industry requires global solutions, with systemic change that will not only reverse the damage caused by the linear textiles ecosystem but capture new opportunities and shape the industry to both influence consumer behaviour and meet global demand.

THE TREND

There are two threads to innovation within the global textile sector. First, the abundance of current textiles has been a catalyst for companies to apply reuse and recycle principles. Turning textile waste into new raw materials has quickly emerged as an industry that has the power to solve several environmental and supply challenges. Companies all around the world are working on innovations that turn textile waste into reusable materials that can be used for both the clothing industry but also textile use across industry lines. The second thread is looking to utilise materials like cellulose and bioplastics as raw materials and methods for turning them into viable commercial products.

THE SWEDISH TAKE

Current investment and innovations from Sweden are looking and how blended materials can be reclaimed from mixed-textile clothing and reincorporated into the existing textile manufacturing process. Replacing the traditional method of mechanical recycling, chemical separation enables blended materials to be returned to pure products, for example cotton or polyester. Investment in this technology is ensuring that across the recycling process, each step is both environmentally and cost-efficient, but that it also produces high quality raw material output.

The production of sustainable fibres is showing promise, with Swedish research in wet and dry-jet wet spinning showing that making new fibres from bio-based raw materials can be commercially viable. Further development of new fibres is exploring not limited to traditional clothing, but textiles with a specific functionality like electrical conductivity, piezoelectricity, temperature control, flame resistance, dirt resistance, and antibacterial properties.[3]

Many Swedish fashion brands have come together to form The Swedish Textile Initiative for Climate Action [4] to lead global change in the industry.

CLOSING THE LOOP
Source: Sympatex

50

Swedish and Nordic fashion companies are members of *The Swedish Textile Initiative for Climate Action*

30%

reduction in emissions by 2030 – goal set by the *UN Climate Action in Fashion Initiative*

TREND 3

AGTECH AND SUSTAINABLE FARMING

THE CHALLENGE

Food production is one of the biggest environmental challenges facing the world today. With increased populations comes a higher demand for food, which in turn demands water and energy, both of which come with their own set of unique challenges. Currently, food production accounts for over a quarter of all global greenhouse gas emissions, while over half of the world's habitable land is used for agriculture.[5] While the resources used to produce food are vast, in 2020, 811 million people suffered from hunger, an increase of 20% from 2019.[6]

For everyone in the world to have access to healthy and nutritious food and clean water, the global food production industry needs to innovate and implement sustainable food production practices to reduce the overall environment impact, improve animal welfare, and protect plant health. The current practices, techniques, and methods used by the food and agriculture industries are not sustainable, and if continued unchecked, the targets of the Paris Agreement and the UN Sustainable Development Goals, specifically eliminating hunger, good health and wellbeing, clean water and sanitation, sustainable cities and communities, and responsible consumption and production will not be met. The *EU's Farm to Fork Strategy*[7] outlines key actions that need to be taken to achieve wide-scale sustainable food production both in the EU and globally.

THE TREND

Lessons from the pandemic showed that the reliance on overly centralised supply chains is a risk to food security. Vertical farming and regenerative farming are making their way to the fore as local production becomes part of the solution to sustainability and resource challenges. Local production alone is not a magic bullet but part of a wider solution that will see traditional farming methods replaced by farming that maximises space and contributes to the long-term protection of the environment through regeneration of land and biodiversity. The application of regenerative farming which places a premium on building up soil health, conserving water, and contributing to biodiversity, while also embracing community well-being and sustaining essential resources is seen as critical in meeting many of the related UN Sustainable Development Goals.

Digitalisation is improving crop management and yields with technology including harvest robots, autonomous tractors, Geographic Information Systems (GIS), and IoT smart farming solutions using sensors to detect light, humidity, temperature, soil moisture, and crop health all making farming more efficient and reducing the amount of farmland required. AI is helping farmers with water management helping them to locate irrigation leaks, optimise irrigation systems, and measure the effectiveness of crop irrigation.

SEK 200 million

the ten year budget for Agtech 2030 to foster agriculture innovation

THE SWEDISH TAKE

Sweden's geographical position and climate has traditionally meant food production has primarily been focused in the south of the country with pork, poultry, dairy, and grains dominating. But an expanding and more globalised population, demand for sustainable locally produced and grown food, and the need to strengthen domestic production for food security, the sector is in a transformational state. Swedish research and development institutes are exploring the development of new proteins, lab-grown sources for protein, indoor vertical farming, land-based fish farming and the use of digital technology and automation. Sweden is home to Europe's largest indoor vertical farm, a project developed by tech startup Grönska, which is now extending testing and development to scaleup urban farming in other regions.

Precision agriculture and cultivation is helping to intensify food production with the goal to increase yield by around 20 per cent, while simultaneously optimising energy, fertiliser, and seed usage. By adapting cultivation to specific conditions using satellites, autonomous drones, and sensors, farmers can analyse soil and crop data to both maximise output and minimise waste. Post cultivation, technology is being used to evaluate when to harvest, how to avoid the formation of mycotoxins in cereals after harvest, optimising logistics from field to arm, and methods for analysis of hygienic and nutritional quality. Swedish farmers have proven to be early adopters in automation and monitoring systems in a bid to offset high input and labour costs, and these approaches are being tested across Sweden as well in a testbed for digitalised agriculture.[8]

Source: European Commission

SUSTAINABLE AQUACULTURE

THE CHALLENGE

The fishing industry is a key player in the food production ecosystem with global seafood consumption doubling in the past 50 years [9], but it has created and is facing specific environmental challenges. Destruction of marine habitats, overfishing, dependency on freshwater sites for production, and fish and water health in ocean-based farming continue to challenge the industry's shift to become sustainable. Techniques such as bottom trawling have caused considerable damage to the seabed and coral species, often impacting areas vast distances away. The UN has estimated that up to 95 per cent of global ocean damage is a direct result of bottom trawling. [10]

Overfishing impacts both the short- and long-term viability of fish population sizes, leads to damage to the ocean ecosystem, and leads to reduce catch sizes for the fishing industry. The impact of both freshwater and ocean-based farm fishing on the wild fish populations surrounding them are being scrutinised, with biosecurity, disease management, and fish health all challenges that the industry has yet to overcome. But the critical overarching challenge is how to transform an industry into one that is environmentally sustainable, meets consumption demands, and continues to provide economic certainty for the individuals and communities that rely on it.

THE TREND

The fishing industry and fishery management has been able to reverse some of the impacts from historical exploitation, and since the 1980s when many stocks around the world were fished beyond their limits, some stocks have been rebuilt. Fisheries are, and should be, seen as a renewable source. The reliance on seafood as a staple food source has not, and will not diminish, so techniques used to farm and fish seafood must support marine life conservation and renewal of both the physical environment and fish stocks.

Outside-of-the-box thinking is seeing land-based aquaculture using both recirculating aquaculture systems (RAS) and flow-through systems. These techniques offer production and growth benefits at scale. Technology is also playing a part with AI being applied to enable farms to better plan their sales, prevent over- or underproduction, and optimise biosecurity and fish health. The need to feed farmed fish has created a demand for fish oil and fishmeal that is set to exceed the demand for fish itself. Researchers are exploring how to replace traditional fish food with plant-based alternatives, insect-based substitutes, algae food products, or food waste to meet demand.

THE SWEDISH TAKE

Seafood plays a large role in Sweden's cultural identity, with prawns, salmon, crayfish, herring, and lobsters all featuring heavily on menus and on tables at national celebrations. While this cultural association with seafood would suggest a high consumption of seafood, consumers are barely eating the dietary recommended intake. This trend is slowly being reversed as Swedes' increase their daily consumption of fish driven by both health and sustainability concerns. Given that currently 75 per cent of what is consumed is imported, 20 per cent from domestic fisheries, and only five per cent from aquaculture [11], there is a need to meet the increasing demand with sustainably sourced or farmed stock. [12]

In 2020, the Swedish government allocated SEK 48 million to Blue Food – Centre for future seafood, with the goal of making Sweden a leading producer of sustainable seafood. Collaborations will aim to create better conditions for the cultivation of fish, shellfish, algae, and other edible species, and by making better use of underutilised species and wild-caught fish. [13] Other research projects funded and delivered by RISE are exploring the use of seaweed as an ingredient and a wider value chain perspective. [14]

SEK 48 million

allocated by the Swedish government to Blue Food – Centre for future seafood in 2020

BUSINESS SWEDEN – WHAT CAN WE OFFER?

Business Sweden works with both Swedish companies and international companies to accelerate sustainable production of food and beverages, scale-up regenerative production methods, and promote circularity across value chains.

Our global perspective, coupled with local knowledge and teams on the ground in over 40 markets can:

- Connect companies and other stakeholders in international markets to support business, investment, and R&D collaboration opportunities
- Identify new segments and sales potential in export markets which offer scalable options for sustainable investments in Swedish food production
- Support Swedish companies to expand in globally with solutions and innovations that can accelereat sustainable consumption and production

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We help Swedish companies grow global sales and international companies invest and expand in Sweden.

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