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Mapping of platforms, data infrastructures and data-driven opportunities within the CCSI

Uses of Data Case Book for the Sustainable Transformation Driven by the CCSI

CRAFT IT 4 SD

Craft Revitalization Action for Future-proofing the Transition to Innovative Technologies for Sustainable Development

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List of Acronyms

AI	Artificial Intelligence
AR	Augmented Reality
AWS	Amazon Web Services
BI	Business Intelligence
CCSI	Cultural and Creative Industry and Sectors
CDP	Customer Data Platform
CPU	Central Processing Unit
CRM	Customer Relationship Management
DPP	Digital Product Passport
EF	Environmental Footprint
EU	European Union
FLAG	Forest, Land and Agriculture
GDPR	General Data Protection Regulation
GHG	Greenhouse Gas
GPU	Graphics Processing Unit
IoT	Internet of Things
LCA	Life Cycle Assessment
LCI	Life Cycle Inventory
MIT	Massachusetts Institute of Technology
NFC	Near Field Communication
NFT	Non-Fungible Token
NVMe	Non-Volatile Memory
OER	Open Educational Resources
PEF	Product Environmental Footprint
PSU	Power Supply Unit
RAM	Random-access Memory
SEO	Search Engine Optimization
SME	Small and Medium-sized Enterprise
SSD	Solid State Drive
TBW	Terabytes Written
TDP	Thermal Design Power
VR	Virtual Reality
VRAM	Video Random-access Memory
WALDB	World Apparel & Footwear Life Cycle Assessment Database

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Executive Summary

This report, developed as part of the CRAFT-IT4SD project, explores how data and digital platforms can drive sustainable transformation within the Cultural and Creative Sectors and Industries (CCSI), with a particular focus on fashion and craftsmanship. It provides a comprehensive overview of tools, platforms, and practices that small and medium-sized enterprises (SMEs) can adopt to enhance sustainability, innovation, and competitiveness in a rapidly evolving digital landscape.

The document maps the current and emerging uses of data across four key domains: customer engagement, business operations, knowledge sharing, and data infrastructure. It highlights how technologies such as Artificial Intelligence (AI), blockchain, cloud computing, and open data can support sustainable practices, from eco-design and lifecycle assessment to digital product passports and traceability. In the realm of customer data and Customer Relationship Management (CRM), analytics and visualization tools help SMEs understand customer behaviour, personalize services, and improve decision-making. Business and marketing functions are enhanced through AI-powered content creation, Search Engine Optimization (SEO) tools, and blockchain platforms that improve transparency and brand value. Knowledge sharing is facilitated by networks, content platforms, and Creative Commons resources that foster collaboration, learning, and cultural preservation. Meanwhile, data infrastructure—through cloud services, server renting, and power-efficient computing—supports scalable, sustainable digital operations.

The report also evaluates the value and sustainability of these tools, considering environmental impacts, ethical data governance, and regulatory compliance. It emphasizes the importance of intentional, balanced adoption of digital technologies, especially in light of upcoming EU regulations such as the Digital Product Passport (DPP) and sustainability reporting requirements. By offering practical insights, platform listings, and strategic recommendations, this case book serves as a valuable guide for SMEs, policymakers, and stakeholders aiming to align digital transformation with sustainability goals in the CCSI.

KEYWORDS:
Artificial Intelligence, Blockchain Traceability, Cultural and Creative Sectors, Customer Relationship Management, Digital Platforms, Digital Product Passport, Eco-design and Life Cycle Assessment, Open Data and Data Infrastructure, Small and Medium-sized Enterprises, Sustainable Transformation

1. Introduction

This chapter introduces the focus of Deliverable 3.1, which explores the role of data and digital platforms in driving sustainable transformation within the CCSI, with a particular emphasis on fashion and craftsmanship. It outlines the objectives, scope, methods, and structure of the report, providing a foundation for understanding how data infrastructures can support innovation, sustainability, and value creation in these sectors.

The task at hand involves mapping notable uses of data within CCSI—specifically in fashion and design, gaming, immersive media, arts, and crafts—with respect to recent and emerging business models. The report assesses the value of these data-driven practices in the context of a sustainable transition within Europe. It identifies key platforms and data infrastructures already in use by actors in four pilot sites, as well as more broadly across the European landscape. Special attention is given to the use of open data and its role in inspiring new business models and innovation across the value chain.

1.1. Data and Platforms for the Sustainable Transformation

CCSI encompasses a wide range of fields, including fashion, design, visual arts, and craftsmanship. These sectors are characterized by creativity, cultural expression, and economic potential. However, they also face challenges related to digitalization, sustainability, and resource constraints. This report narrows its focus to fashion, design and craftsmanship, examining how SMEs can leverage data and platforms to enhance their competitiveness and sustainability.

Supportive forces such as industry collaborations, open-source tools, and knowledge-sharing communities are helping to democratize access to data-driven innovation. Initiatives by institutions like the European Union, including Creative Commons licensing and collaborative research projects, are fostering experimentation and sustainable development. Policy actions such as the European Green Deal, the European Clothing Action Plan, and the Strategy for Sustainable and Circular Textiles provide a regulatory and strategic framework for greener practices in fashion and crafts.

Digital platforms and data infrastructures are increasingly central to this transformation. These systems enable the collection, storage, analysis, and sharing of data, which are essential for understanding consumer behaviour, forecasting trends, and optimizing production processes. In fashion and craftsmanship, data-driven technologies—such as AI, Internet of Things (IoT), and digital design tools—offer new opportunities for personalization, efficiency, and environmental responsibility.

Key technological enablers include advancements in cloud computing, processor efficiency, data networking, and AI-powered platforms. These developments are making data tools more accessible and cost-effective, particularly for SMEs. Cloud-based services, supported by robust networking environments, facilitate remote collaboration, reducing travel-related emissions and enhancing productivity. The growing availability of skilled data professionals and the evolution of data governance frameworks further support the implementation of these infrastructures.

1.2. Objectives

This report aims to evaluate the usability and value of selected data platforms and tools for SMEs operating in the fashion, design and craftsmanship sectors. It explores how data-driven approaches can support sustainable practices and contribute to the green transition, particularly in contexts where resources are limited but the potential for innovation is significant. The report also identifies key challenges and opportunities associated with adopting digital infrastructures within the CCSI.

Primarily intended to support SMEs, the report offers practical insights and strategic recommendations to facilitate the implementation of data-centric solutions. It also provides valuable guidance for policymakers, industry stakeholders, researchers, and digital solution providers. By focusing on fashion and craftsmanship, the findings present a scalable framework that may be applicable across other areas within CCSI, promoting broader digital transformation and sustainability goals.

1.3. Methods, Evaluation of Value and Sustainability

The methodology underpinning this report reflects a multi-faceted approach tailored to the European context, where SMEs and entrepreneurs often operate with limited resources and funding. Data was collected through a combination of desk research, participation in relevant seminars and webinars, and structured interviews with data experts from diverse organizations. A standardized data collection sheet, completed by project partners, enabled consistent documentation and comparison of selected platforms and tools. This approach ensured that the evaluation was grounded in both expert knowledge and practical, sector-specific insights.

The evaluation focused on the usability, value, and sustainability potential of selected digital platforms and tools, with particular attention to their relevance for SMEs in the fashion, design and craftsmanship sectors. Each tool was assessed across a range of criteria, including cost savings, time efficiency, support for creativity, business development opportunities, and contributions to environmental, energy, and social sustainability. Additional qualitative aspects—such as ease of use, interoperability, community support, and pedagogical value—were also considered. Where available, open-source solutions were highlighted, recognizing their importance for SMEs seeking cost-effective and adaptable digital infrastructure. By integrating these methods and evaluation criteria, the report provides a robust analysis of digital tools that can support the green transition in resource-constrained environments. The findings offer actionable insights for SMEs and broader stakeholders, identifying both high-impact tools and areas where further caution and consideration is needed.

1.4. Report Structure

The structure of the report is designed to provide a clear, practical, and accessible guide for SMEs in the fashion, design and craftsmanship sectors, focusing on the role of data and digital platforms in supporting sustainable transformation. The report begins with an executive summary and an introduction that outlines the context, objectives, and methodology. It then proceeds through thematic chapters

that explore specific domains of data use, including customer data, business and marketing, search data, knowledge sharing, and data infrastructures.
Each chapter presents selected platforms and tools using a consistent format to ensure clarity and comparability. Data is presented in the following structure: Platform/tool name, followed by comments on platform functionality and usage, cost information, value and sustainability considerations, and a link to the platform. This format allows readers to quickly assess the relevance and applicability of each tool to their specific needs. The report also highlights open-source options where available, recognizing their importance for resource-constrained SMEs.

1.4.1. Disclaimers

This report is an overview and introduction to the various topics. Content has been selected for presentation. There are several more tools and platforms available.
Pricing information of the platforms and tools are subject to change. The pricing presented in the report are sometimes approximations and marked in United States dollars ($) or euros (€). Always check the current prices for entrepreneurs from the service providers. Detailed content descriptions of each platform subscription plans are left beyond the scope of the document. Users can find and compare different plans at the platform websites.

2. People and Customers – Collected Data

Businesses can collect data of their customers and use it in various ways. In this chapter the idea and methods of data collection are introduced. In addition, several tools and platforms are presented for customer CRM, data analytics and data visualization.

2.1. Collection of Data

2.1.1. What is Data and Data Collection?

Data is a collection of facts, figures, objects and events from different sources. Organizations collect data using various methods to make better decisions. Without data, it would be difficult to make appropriate decisions, so data is often collected from different audiences at various times. Data is a valuable asset for every organization. Therefore, it must be analysed or processed to achieve the desired results. For example, an organization must collect data on product demand, customer preferences and competitors before launching the new product. If the data is not collected beforehand, the organization's newly launched product may fail for many reasons, such as inability to meet customer needs.
Data collection or data gathering is the process of gathering and measuring information on targeted variables in an established system, which can enable one to answer relevant questions and evaluate outcomes. The goal for all data collection is to capture evidence that allows data analysis to lead to the formulation of credible answers to the questions that have been posed.

Data is collected at various stages of processes and transactions, which has the potential to improve the way we work significantly. However, to fully realize the value of data analysis, this data must be analysed to gain valuable insights into improving products and services.

2.1.2. What is Data Mining and Why is it Important

A company gathers information on sales, clients, production, personnel, marketing initiatives, and more as part of everyday operations. That is why businesses may use data mining techniques to increase the value of this important corporate asset.
Data mining is the process of systematically discovering and extracting valuable patterns, trends, correlations, or knowledge from large datasets, often using a combination of statistical and computational techniques. The data mining process involves exploring and analysing data to uncover hidden insights and make informed decisions, typically to solve specific problems, improve decision-making, or gain a deeper understanding of a subject.
Data mining methods can find meaningful patterns and trends in both structured and unstructured data, like sales records and customer reviews, which helps businesses make better decisions. Finding hidden, unplanned, and previously unidentified but legitimate correlations in the data is the primary goal of data mining.

2.1.3. Data Mining Techniques

Data may be mined using various techniques for various data science applications. Anomaly detection, which tries to find outlier values in huge data sets, and pattern recognition are common data mining use cases made possible by various techniques.
Various methods are used to create models that suit the expected results depending on the company's data mining results. The models may be used to explain present data, forecast future trends, or help identify abnormalities in the data. *Classification* is one of the most complicated data mining techniques that requires one to put different attributes into clear categories. This method is used to get information about data and metadata that is important and useful and helps set data into other groups. *Clustering* is a lot like classification but involves combining chunks of data based on their similarities. It is a way to find groups of data that are similar. This process helps you see how the data is different and the same. *Tracking patterns* is one of the most basic ways to mine data. It means finding and keeping an eye on trends or patterns in data to draw intelligent conclusions about business outcomes. Once a company sees a trend in its sales data, it has a reason to take action to make the most of that information. *Associating* is like tracking patterns but more specific to variables that depend on each other. This data mining technique helps find the link between two or more things. It finds a way that was hidden in the data set. *Outer detection, also called outlier analysis or outlier mining,* involves observing data items in the data set that do not match the expected pattern or behaviour. You can use this technique to identify intrusion and fraud. *Regression* identifies and analyses the relationship between variables. You can use it to determine the likelihood of a specific variable occurring based on the presence of other variables. Regression helps you to

uncover the exact relationship between variables in each data set. You can use *prediction*, one of the most valuable data mining techniques, to project the types of data you'll see in the future. Prediction combines data mining techniques like trends, sequential patterns, clustering, classification, and others. It analyses past events or instances in sequence to predict a future event. It can also help you to identify target customers for a new launch.

Organizations can gain insights into customer behaviour, market trends and operational performance, enabling them to make better choices that are supported by evidence rather than relying on intuition alone. It also allows businesses to identify new opportunities for growth, product development or marketing expansion. Data analytics helps identify potential challenges or risks. Organizations can identify inefficiencies and bottlenecks by analysing processes and performance data, leading to process optimization and improved productivity. Data analytics enables businesses to understand their customers better. With this understanding, organizations can offer the customers more personalized products and services, enhancing customer satisfaction and loyalty.

By analysing data, businesses can identify unique insights and trends that better understand the market and their competitors, helping them stay ahead of the competition. Data analytics can be used for predictive modelling, helping organizations forecast future trends and outcomes. This is valuable for financial planning, demand forecasting, risk management, and proactive decision-making. Data analytics can fuel innovation by providing insights that lead to the development of new products, services, or business models. Innovations based on data analysis can lead to groundbreaking advancements and disruption in various industries. Data analytics can be used to detect anomalies and patterns indicative of fraudulent activities. In many industries, regulations and laws are mandatory. Data analytics can help organizations ensure that they meet these compliance requirements by tracking and auditing relevant data.

2.2. Customer Relationship Management (CRM)

CRM is a strategic process that organizations use to manage, analyse, and improve their interactions with customers. By leveraging data-driven insights, CRM helps businesses optimize communication, enhance customer satisfaction, and drive sustainable growth.

CRM systems compile data from a range of different communication channels including a company's website, telephone, email, live chat, marketing materials and more recently, social media. They allow businesses to learn more about their target audiences and how to better cater to their needs, thus retaining customers and driving sales growth. CRM may be used with past, present or potential customers. The concepts, procedures, and rules that a corporation follows when communicating with its consumers are referred to as CRM. This complete connection covers direct contact with customers, such as sales and service-related operations, forecasting, and the analysis of consumer patterns and behaviours, from the perspective of the company.

With CRM systems, customers are served on the day-to-day process. With more reliable information, their demand for self-service from companies will decrease. The less the customer is required to interact with the company for different problems, the more the customer satisfaction level is expected to increase. These central benefits of CRM will be connected hypothetically to the three kinds of equity, which are relationship, value, and brand, and in the end to customer equity. Eight benefits were recognized to provide value drivers:

1. Enhanced ability to target profitable customers.
2. Integrated assistance across channels.
3. Enhanced sales force efficiency and effectiveness.
4. Improved pricing.
5. Customized products and services.
6. Improved customer service efficiency and effectiveness.
7. Individualized marketing messages are also called campaigns.
8. Connect customers and all channels on a single platform.

Hubspot CRM

- HubSpot is an AI-powered customer platform with tools for marketing, sales, and customer service. The platform includes tracking and analytics features.
- Free basic plan. Marketing Hub Starter at 9 €/month/seat, Marketing Hub Professional at 792 €/month, (includes 3 Core Seats).
- Gives a unified view of the customer at every stage in their journey. Cloud-based platform enables remote teamwork and reduces paper use.
- https://www.hubspot.com

Zoho CRM

- Platform for customer relationship management, lead tracking, and automation.
- Free version with limitations. Standard plan at 20 €/user/month, Professional at 35 €/user/month.
- Offers AI-powered insights. Digital collaboration reduces travel emissions.
- https://www.zoho.com/crm/

Salesforce CRM

- Comprehensive CRM for sales and marketing with custom integrations.
- Small business Starter Suite at 25 €/user/month, Pro Suite at 100 €/user/month.
- Excellent scalability supports large organizations.
- https://www.salesforce.com/eu/

Dynamics 365 Business Central

- Platform for finance management, sales and marketing, project management and supply chain planning.
- Essentials plan at 70 $/user/month in United States. Pricing in Europe not listed.
- https://www.microsoft.com/en-us/dynamics-365/products/business-central

2.3. Data Analytics and Data Visualization

Data analytics software helps the business to collect, organize, and understand the information that the business already generates, such as sales figures, customer feedback, website traffic, and inventory levels. Data visualization turns this information into charts, graphs, and dashboards, so that it is easier to spot trends, track progress, and make better business decisions. Many of the platforms integrate AI in some ways. One can also test generating analytics and visualizations using AI large language models such as ChatGPT. One must remember that there may be errors in AI generated answers.

Power BI

- Power BI provides cloud-based BI (business intelligence) services, known as "Power BI Services", along with a desktop-based interface, called "Power BI Desktop". The platform can be used for business analytics and visualization through reports and dashboards. It provides data warehouse capabilities including data preparation, data mining, and interactive dashboards.
- Free account version is available, but the free version can´t be shared to the cloud. Power BI Pro plan at 13.10 €/user/month, Premium at 22.50 €/user/month (paid yearly).
- Easy to use if you are trained and if you understand mathematics and statistics; it requires practice.
- https://www.microsoft.com/en-us/power-platform/products/power-bi#tabs-pill-bar-ocb9d418_tab1

Power Query

- Power Query is a raw data preprocessing tool. The processed data can be transferred to the Power Bi tool for processing.
- Power Query is a free extension of Excel and Power BI, so there's no direct cost associated with using it for data manipulation or transformation. However, if you're using Power BI, which includes Power Query, then the costs depend on the Power BI service license you have.
- Integrated in Power BI and Excel platforms; easy to use if you are trained in mathematics and statistics; it requires practice.
- https://powerquery.how/

Tableau

- Cloud platform for data visualization and analytics. User can implement trusted AI for data and analytics use cases with Salesforce Einstein, which extends deep within the semantic layer and workflows.
- Tableau Creator plan at 75 $/user/month (billed annually).
- Supports eco-conscious projects of the business through insightful visual analytics. Powerful platform, but it has a steep learning curve for beginners.
- https://www.tableau.com/en-gb/products/tableau

Matomo

- Google analytics alternative. Focus on protected data-privacy. Platform software is used to track online visits to websites. Includes graph and visualization tools.
- Free and open-source software for On-Premise installation. Hosted Business plan at 22 €/month and up based on hits metric.

- User has 100 % data ownership if Matomo platform software is hosted on business's own servers. User chooses what happens to it and where the data is stored. On paid plans data is stored on European servers.
- https://matomo.org/

Looker Studio (Google Data Studio)

- Platform for data linking and visualization. User can build interactive reports and dashboards with Looker Studio's web-based reporting tools.
- Free version available, supported through Google Cloud. Pricing of paid plans not visible.
- https://lookerstudio.google.com/overview

Databox

- Data analytics platform. User can connect data from multiple apps and visualize metrics with no-code dashboards. Has forecasting features.
- Free version with 3 data sources and limited functionality. Starter plan at 59 $/month.
- https://databox.com/

Google Analytics

- Data analytics platform to see how people use company's website and apps.
- Free version available.
- Learning curve can be high if there is no previous experience on the topic. Google may use the input data in some form.
- https://marketingplatform.google.com/about/analytics/

Kumu

- Data visualization platform with functionality for social network analysis
- Free public projects. Private projects 9 $/project/month, Pro workspace 10 $/project/month.
- https://kumu.io/

2.4. Value and Sustainability

In the fashion and craft industries, small and medium-sized businesses are increasingly recognizing the importance of data-driven tools for enhancing business value, and for supporting sustainability goals. Businesses can integrate CRM systems, data analytics, and data visualization platforms to their operations to make decisions and engage with their customers.

2.4.1. Value

From a value perspective, data analytics offers a powerful way to understand customer behaviour and preferences. This deeper insight allows businesses to tailor their products and services more effectively, leading to improved customer satisfaction and loyalty. With access to real-time data, businesses can also manage inventory more efficiently, optimize pricing strategies, and make smarter

marketing and investment decisions. Visualization data helps the business to understand how the business is developing. It can be easier to see trends and progression in a dashboard or chart format than as a wall of text. Analytics tools help identify which customers are most profitable, enabling more targeted and cost-effective campaigns. Additionally, CRM platforms unify customer interactions across various channels, providing a seamless experience and improving service quality. Often the platforms providing CRM services offer multiple functionalities such as marketing tools and visualization, so that the company can do several things on a single platform.
However, the adoption of these technologies is not without its challenges. Many platforms come with a steep learning curve, especially for entrepreneurs without prior experience in data analytics. Learning to use the platform can be time-consuming and resource intensive. There are also ethical considerations around data privacy and usage. Businesses must navigate regulations like the General Data Protection Regulation (GDPR) and be transparent about how they collect and use customer data. Misuse or over-collection of data can damage trust. Moreover, while some tools are marketed as free, they may come with hidden costs, such as the monetization of user data. It is always important for a business to handle sensitive data carefully and in a secure way. This may require paid versions of the services instead of using free ones. Monthly platform costs may rise if company needs to use several different platforms for their operations. These need to be considered in the company budgeting.

2.4.2. Sustainability

Digital analytics and CRM tools offer several advantages for sustainability. Cloud-based platforms reduce the need for paper and physical storage and enable remote collaboration that cuts down on travel-related emissions. Generating forecasts helps businesses to align production more closely with actual demand. This can reduce waste and overproduction, which is particularly important in the fashion and textile sectors known for their environmental impact. Businesses can use insights to promote best-selling or eco-friendly products. It is the choice of the company to encourage customers to buy more thoughtfully. Visual dashboards can help communicate sustainability efforts to customers and stakeholders. Analytics can highlight areas where energy, materials, or time are being wasted. Based on this data targeted improvements can be made.
Still, there are sustainability-related concerns to consider. The infrastructure that supports cloud computing and data storage consumes significant energy, and not all platform providers use renewable sources. Businesses should be mindful of their digital footprint and choose technology partners that prioritize sustainability. There’s also the risk of greenwashing. Companies and platforms may use data to make sustainability claims that aren’t fully backed by action or results. Smaller businesses may not have the resources, skills or access to use advanced tools for sustainability progress.
For small and medium-sized businesses in the fashion and crafts field, the key is to approach data and sustainability with intention and balance. Starting with simple tools and gradually building expertise can make the transition more manageable. Ethical data practices and transparent communication with customers are essential for building trust. Choosing technology providers that

align with the entrepreneur's sustainability values can help ensure that the digital platforms support both profitability and sustainability.

3. Business and Marketing – Data of the Company/Entrepreneur

An entrepreneur can use several platforms and tools for business and marketing purposes. This involves using data of the entrepreneur in various ways. This chapter presents topics such as marketing management software, AI text content creation, search engine optimization, competitor analysis, demand forecasting, supply planning and showcasing. Other topics include creating media with AI tools, blockchain for traceability and authenticity, eco-design and environmental impact. Finally, the Open Connector Platform for creating added value for clothing and craft items is introduced.

3.1. Marketing Management Software

Companies and entrepreneurs leverage marketing management software to streamline campaigns, manage multiple platform accounts and use data analytics.

Hootsuite

- Social media marketing and management tool. Can add multiple social media accounts.
- Paid. Standard plan at 99 €/user/month, Advanced plan at 249 €/user/month (annual billing). Ads cost extra (credits).
- Includes OwlyWriter AI post and caption creation. Offers analytics AI insights from data and conversations.
- https://www.hootsuite.com/

Meta Business Suite/Manager

- Manage content, marketing and ads on Meta Platforms: Facebook, Instagram and Messenger. Used for social media marketing.
- Free. Verification service is subscription based. Ads cost extra.
- Central management of accounts is made easier for the user.
- https://business.facebook.com/

Google Business Profile

- Creates a page for the business on Google Maps. Boosts company visibility.
- Free.
- https://business.google.com/us/business-profile/

Google Search Console

- Improves company website visibility in Google search results. Includes search analytics.
- Free.
- https://search.google.com/search-console/about

MailChimp

- Email marketing, social media ads, landing pages, and audience management.
- Free plan for up to 500 contacts. Essentials plan at 11.46 €/month, Standard plan at 17.63 €/month.
- Supports digital-only campaigns, minimizing paper use. Strong analytics tools. Widely preferred by SMEs.
- https://mailchimp.com/?currency=EUR

ActiveCampaign

- Email marketing, content creation, CRM.
- Starter plan at 15 $/month, Plus plan at 49 $/month.
- https://www.activecampaign.com

Hubspot Marketing Hub

- Advanced, suitable also for bigger companies. All-in-one marketing automation, including email campaigns, lead generation, and analytics.
- Free plan available. Marketing Hub Starter plan at 15 €/month.
- Offers remote collaboration features, reducing the need for physical resources and travel. Highly user-friendly. Integrates with CRM tools and supports small businesses.
- https://www.hubspot.com/products/marketing

Salesforce Marketing Cloud

- Advanced marketing automation, personalization, and customer journey tracking.
- Paid. Starter Suite at 25 €/user/month, Pro Suite at 100 €/user/month.
- Cloud-based infrastructure contributes to reduced on-site energy use. Powerful integration with Salesforce CRM but has a steep learning curve.
- https://www.salesforce.com/marketing/

Zapier

- No-code workflow automatization platform. Uses data sources and has AI functionality.
- Free for basic functionality. Professional plan at 26.87 €/month.
- Can be used for example in automating social media posts and filling forms from websites.
- https://zapier.com/

Make

- No-code workflow automation platform. Includes AI tools.
- Free basic account. Core plan at 10.59 $/month, Pro plan at 18.82 $/month.
- https://www.make.com/

3.2. Business Development and Marketing

SMEs and CCSI increasingly adopt digital tools to enhance efficiency, visibility, and engagement. This section outlines key applications in AI-driven content creation, SEO, demand forecasting, and showcasing.

3.2.1. AI Text Content Creation

AI text generation tools are increasingly used across creative, cultural, and business sectors to enhance productivity, creativity, and personalization. In SMEs and CCSI, these tools support marketing, content creation, business development, customer communication, and documentation. Common use cases include generating campaign texts, blog posts, product descriptions, emails, and funding application drafts, as well as crafting customer personas and customized user journeys. AI assistants can analyse source materials such as PDFs, images, or graphs, summarize key insights, and even brainstorm ideas or plans based on strategic goals. Tools like ChatGPT, Gemini, Claude, and Copilot offer scalable solutions with integrations for productivity software, while platforms like Poe or Jacquard enable specific applications like automated customer support or tailored brand messaging. Used thoughtfully, these tools can save time, reduce repetitive work, and improve creative outcomes—especially when human oversight ensures relevance, quality, and ethical alignment.

ChatGPT (OpenAI)

- Text generation and bots. Generate: campaign posts, ideas, plans, interpretations of source materials (images, docs). GPT4o image interpretation – input graphs and ask to interpret. Versatile tool for generating marketing strategies, blog posts, and demand forecasts.
- Free tier, ChatGPT Plus at 20 $/month.
- Aids in reducing inefficiencies in content production. On personal accounts input data may be used in AI training (users can disable). Highly adaptable and supports various use cases with plugins and integrations.
- https://chatgpt.com/

Google Gemini

- Similar features than on ChatGPT. Integrates to Google Workspace.
- Free tier, Google AI Pro at 23 €/month. Custom paid for API access.
- https://gemini.google.com/

Claude AI

- Focused on text generation, generate or optimize prompts. AI assistant. Can process large amounts of information, brainstorm ideas, generate text and code, help you understand subjects, coach you through difficult situations, simplify your busywork.
- Free basic tier. 20 $/month for Pro.
- https://claude.ai/

Microsoft Copilot

- Similar features than on ChatGPT.
- Free version with no 365 integrations. Paid version 20 $/month.

- Tight integration to Microsoft 365 ecosystem.
- https://copilot.microsoft.com/

Llama (Meta)

- Text generation, visual intelligence.
- Open-source models intended for developers, researchers, enterprises.
- Allows self-hosting, so full control of the data and model.
- https://www.llama.com/

Jackquard

- AI-generated marketing copy for email campaigns, social media, and advertisements.
- Custom pricing based on usage and organization size.
- Reduces manual input, saving time and resources.
- Focuses on brand-optimized language for engagement and conversions.
- https://www.jacquard.com/

Poe

- Allows chatting with multiple different AI models. Bot generation (AI assistant). Input topic related source materials (database) and create an assistant to answer questions. Answering customer questions, making buying decision easier for customer. Asking about user manual contents (input PDF of manual).
- Free for most usage, paid subscriptions start at 5 $/month.
- Do not input sensitive information to free service.
- https://poe.com/

3.2.2. Search Engine Optimization, Competitor Analysis

Companies can use search engine optimization (SEO) to boost visibility. SEO platforms may also include competitor analysis features.

Ahrefs

- Platform with tools for competitor analysis and SEO. Study competitor websites, audit company's website for SEO issues.
- Free access to Webmaster Tools. Starter plan at 27 €/month, Lite plan at 119 €/month, Standard for 229 €/month.
- Offers insights to company's web presence. Crawls the web for data and makes it easy for a small company to access a lot of information. There is a learning curve to using the tools effectively. It may be difficult to know what tools are needed to make an impact to one's business.
- https://ahrefs.com/

Semrush

- Tools for search engine optimization. Find trending keywords, track keywords.
- Free account with limitations. SEO plans Pro at 140 $/month, Guru at 250 $/month.

- https://www.semrush.com/

Moz
- Tools for competitor analysis and SEO.
- Free account with access to SEO tools such as domain analysis, keyword explorer and competitive research. Starter plan at 49 $/month, Standard at 99 $/month.
- https://moz.com/

Ubersuggest
- Tools for competitor analysis and SEO.
- Free account with limited access to some tools. Individual plan at 29 €/month, Business plan at 49 €/month, Lifetime plans available.
- Website has in depth video training for using the various tools on the platform.
- https://neilpatel.com/ubersuggest/

Clearscope
- Content optimization and keyword analysis for search engine performance.
- Paid. Essential plan at 190 $/month, Business at 400 $/month.
- Focused on efficient digital marketing, helping reduce redundant content creation efforts.
- https://www.clearscope.io

3.2.3. Demand Forecasting, Supply Planning

Demand forecasting and supply planning can be used to improve the operational efficiency of the business. Sometimes it is best to keep stock at the store at minimum and only order stock when there is enough demand. Offering product customization features for the customers can be an option for reducing stock at the store if the custom products are manufactured elsewhere. If the products can be created in-house it may give more flexibility for the supply.

Microsoft Excel
- Has a trendline tool that is used for forecasting based on data. Copilot AI that is integrated to the software can be added for extra cost.
- Free web version with limited features. Microsoft 365 Personal at 10 €/month, Business Standard at 14.04 €/month. Microsoft 365 Copilot at 28.10 €/month. Office Home 2024 at 149 € and Business at 300 € (one-time fee).
- Prompt with Copilot: “Forecast demand for the next year with historic data in a single chart.”
- https://www.microsoft.com/en-us/microsoft-365/excel

ChatGPT
- GPT-4o model can use input data for analysis. Prompt for forecasting or supply planning. Ask additional questions and clarification.
- Free with limitations. Plus at 23 €/month.

- The success of forecasting prompts may vary drastically. The presented data may not be editable and there may be errors in the formatting and results.
- https://openai.com/chatgpt/overview/

IBM Cognos

- Data analytics and visualization software. Can be used for demand and supply planning. Has forecasting features in charts.
- Paid. Standard at 11.76 €/user/month, Premium at 47.06 €/user/month.
- Learning curve for new users, training may be needed.
- https://www.ibm.com/products/cognos-analytics

Microsoft Power Bi

- Data visualization and analytics software. Has forecasting features in Analytics panel.
- Free account with limitations. Pro at 13.10 €/user/month, Premium at 22.5 €/user/month.
- https://www.microsoft.com/en-us/power-platform/products/power-bi/

3.2.4. Showcasing

Fashion businesses can use showcasing platforms for presenting their designs or creating catalogs. One can search for alternatives of the platforms presented by asking Microsoft Copilot, ChatGPT or other AI text models.

Virtual Art Gallery

- 3D showcasing platform for presenting art and designs. Works with VR headsets and browsers. Supports images, videos and 3D models.
- 1 free exhibition space. Pro plan at 9 €/month for 10 exhibitions and analytics.
- Platform content can be viewed on many devices such as desktop, mobile and VR using the browser. This makes the platform more accessible. VR content can cause nausea to some people. Therefore, it is very good that the platform offers multiple ways to view the content.
- https://virtualartgallery.com/

Kunstmatrix

- 3D showcasing platform. 3D space that can be viewed with VR headsets.
- Free account with no public exhibition. Basic plan at 10 €/month (5 public exhibitions, 50 works of art), Regular at 25 €/month (5 public exhibitions, 250 works of art).
- Custom environments cost extra and need to be manually added by the developer team. 3D technology enables visitors to view content remotely and there is less pollution from travel.
- https://www.kunstmatrix.com/en

Open Connector Platform

- Platform for showcasing brands and designs. Supports linking additional content to clothing items through digital technology. More information available in subchapter 3.6.
- Free.
- The platform is currently in beta stage and not all planned functionality is present.
- https://portal.open-connector.com/

Dtail
- Platform with 3D showroom spaces, digital product catalogs and cloud storage of content. Supports 3D content created with CLO, Browzwear, Lectra and Optitex.
- Pricing is customized by client's needs. Platform may be expensive.
- Less physical samples and shorter sample lead time lead to sustainability benefits. https://www.dtail.com/sustainability
- https://www.dtail.com/

CLO
- Design clothing in 3D and showcase clothing in a simulation environment.
- Paid. Individual plan at 50 $/month. Custom pricing for Enterprise plan.
- Less physical samples in clothing creation. Computational resources are needed for platform upkeep and content creation.
- https://www.clo3d.com/en/

PTTRNS
- Clothing rendering platform. Builds platforms for business use. Offers immersive solutions and guidance.
- Paid. Pricing information is not available, uses custom pricing.
- https://www.pttrns.ai/

3.3. Creating Media with AI

A rapidly developing area of innovation is AI media generation, which refers to the use of AI tools to create image, video, audio and other content. A business can save time and resources in generating media with the help of AI platforms. An entrepreneur can visualize and ideate designs, generate patterns, create marketing visuals and product mocups and enhance brand storytelling with AI tools. AI media generation can be based on text commands, input images or source video and audio content. The tools presented in this report are just a small selection of the available platforms. Some platforms can generate several media types. Images can be created with different styles such as photorealistic, cartoon, line art, vectors and anime. Many platforms have monthly subscriptions, and one gets a certain amount of credits for content generation per month. AI generations may not be perfect in one try and may require editing and retries.

3.3.1. Images

AI images can be used for marketing materials, product images and inspiration. Some image generation models support reference images, such as images of a person or a background. The model tries to create an image that closely resembles the reference person or set the location of the image based on the background reference.

Krita with Krita AI Diffusion plugin

- Krita is an open-source painting program with image editing capabilities. Krita AI Diffusion plugin enables Stable Diffusion and Flux.1 Schnell based local image generation, inpainting and object removal in Krita.
- Free, open-source software.
- Runs locally on computer. User can control the electricity provider. No internet is needed after installation and setup. Graphics card with 6 GB of VRAM or more is required. Nvidia graphics cards is recommended for easy setup.
- https://krita.org/en/ and https://github.com/Acly/krita-ai-diffusion

Midjourney

- High quality image generation. Has character reference capabilities. Stock image generation for marketing (people, theme, clothing models, social media posts). Images can be upscaled on the platform.
- Monthly subscription. Standard Plan at 30 $/month, Pro Plan at 60 $/month.
- Runs on servers and the energy usage unknown. Generated images can be made private only on Pro or Mega plans.
- Midjourney is considered good quality and creative. Can make photorealistic imagery. Easy to use. Midjourney owns all licences to the generated images, which SMEs can use for commercial purposes. Modifying the images circumvents the licencing issues, since at some point it's considered as an original piece.
- https://www.midjourney.com/home

Microsoft Copilot

- Image generation using DALL·E 3 model. Can be used for background and stylized art creation.
- Free with limitations, requires login for generation. Monthly subscription at 20 $/month.
- With DALL·E prompter has the copyright to the image. Use watermark to show your company's copyright. Dated model for photorealistic content.
- https://designer.microsoft.com/image-creator or https://copilot.microsoft.com/

Leonardo

- Image generation with several features such as content, style and character references and upscaler. Includes canvas editor for image editing. Several image generation models can be used on the platform. Ability to generate a detailed prompt text based on initial text.
- Free with limitations. Apprentice plan at 12 $/month, Artisan plan at 30 $/month.
- https://leonardo.ai/

Ideogram

- Image generation service. Good at text generation. Can be used for posters and cover art. Image editing capabilities (fill, extend).
- Free with limitations. Basic at 8 $/month, plus at 20 $/month.
- https://ideogram.ai/

Adobe Firefly

- Adobe's image, video, vector & audio generation.
- Free to test, requires login. Firefly Standard at 11.58 €/month, Pro at 34.79 €/month.
- Model training data is from licensed content. Guarantee for using imagery in commercial work.
- https://firefly.adobe.com/

Fal

- Generate AI content (images, videos, audio) with multiple different AI models. Ability to rent a graphics card for AI tasks. Model selection: https://fal.ai/models
- Output-based pricing. https://fal.ai/pricing
- Pricing varies by model. One must be mindful of the cost so that there are no surprises in the billing. Easy way to test multiple generative AI models.
- https://fal.ai/

Replicate

- Platform for running generative AI models. Deploying own custom models is possible as well as graphics card renting. Model selection: https://replicate.com/explore
- Price per second or price per input/output https://replicate.com/pricing
- https://replicate.com/home

Adobe Photoshop

- Image editing application. Integrates Firefly AI image generation.
- Paid, subscription-based billing. 13.7 €/month.
- Inpainting, select regions to edit, styling options.
- https://www.adobe.com/products/photoshop.html

Canva

- Good all-around graphics design platform. AI image generation, inpainting, select regions to edit, styling options.
- Free with limitations. 12 €/month for pro.
- https://www.canva.com/

3.3.2. Videos

AI video models generate short videos. The AI models offer similar functionality to image generation, but the video generation usually takes longer and requires more computing power. Some platforms include first frame and last frame setting for video generation. The model creates a video clip based on the first and last input images.

Runway

- Video generation platform. Good for cinematic content and video effects creation. Latest model is Gen-4 for videos and images. Keyframes feature to set start and end frames for video generation based on images.
- Paid, monthly subscription. Standard plan at 15 $/month, 35 $/month for Pro and 95 $/month for Unlimited.
- Offers an unlimited plan for unlimited video generation at relaxed rate. Considered one of the best video generation models at the moment.
- https://runwayml.com/

Google Veo

- Google's AI video generation model. Veo 3 generates video with audio and speech included.
- Paid, monthly subscription. 23 €/month. Veo is accessible through Google's Gemini AI.
- Considered a high-quality video model. Availability of the latest model Veo 3 may be limited. Realistic video models can be used for misinformation purposes. Watermarks are embedded in video generations for recognition of generated content, but people may be fooled by the content.

Kling

- Video, audio, image generation. High quality video model.
- Free for limited functionality. Monthly subscription available. Standard for 10 $/month, Pro at 37 $/month.
- https://klingai.com/global/

Luma Labs

- Video generation.
- Free with limitations (no-commercial use only). Paid subscription for commercial use. Web Plus Plan at 30 $/month, Web Unlimited Plan for 95 $/month.
- https://lumalabs.ai/

Pixverse

- AI video generation from image and text. Upscaling video.
- Free to test a couple of videos. Pricing information not presented on the official website. Previously 10 $, 30 $ and 60 $ per month subscriptions were available.
- https://app.pixverse.ai/home

HeyGen

- AI avatar video generation with 175 different spoken languages.
- Free with limitations. Creator plan at 29 $/month.
- https://www.heygen.com/

Fliki
- AI video generation with AI voices on 80 different languages. Used for video avatars. Includes a video editing feature.
- Free with limitations. Standard plan at 28 $/month, Premium plan at 88 $/month.
- https://fliki.ai/

Invideo
- AI video generation and video editing tool.
- Free with limitations. 30 $ and 60 $ per month plans available.
- https://invideo.io/

AI Studios
- AI video synthesis with realistic human avatars and deepfake technology.
- Free with limitations. Personal plan for 29 $/month, Team plan for 69 $/month.
- Advanced AI features may increase energy consumption. Best for creating engaging video presentations with a futuristic touch.
- https://www.aistudios.com

Descript
- Simplifies audio and video editing, includes text-based video editing.
- Free with limitations. Hobbyist plan at 24 $/month, Creator plan 35 $/month, Business plan at 65 $/month.
- Cloud service. Enables collaborative workflows and reduces local computational demand. Known for ease of use and its integration with other apps like Google Drive.
- https://www.descript.com

3.3.3. Audio

AI audio tools in music and sound production leverage machine learning to generate, manipulate, and enhance audio content. These include systems for AI-assisted music composition, audio effects generation, sound design, and intelligent mixing and mastering. Within EU-funded projects, such tools drive innovation in creative workflows, enabling new forms of artistic expression, automation of production tasks, and expansion of digital audio capabilities in the cultural and creative sectors.

ElevenLabs
- Voice, music and audio effects generation.
- Free to test, paid tiers start at 5 $ and offer better audio quality and longer inputs.
- Free tier requires attribution and does not have commercial licensing.
- https://elevenlabs.io/

Suno
- Music generation.

- Free tier. Pro plan 10 $/month, Premier Plan 30 $/month. Paid tiers have increased credits.
- Commercial use requires Pro or Premier plans. Free tier can be used for non-commercial purposes.
- https://suno.com/home

Udio

- Music generation.
- Free tier. Standard plan 10 $/month, Pro plan 30 $/month. Paid tiers have increased generation limits.
- Users own the content they produce. Songs made in free tier requires attribution.
- https://www.udio.com/

Resemble.AI

- Voice generation, deepfake detection.
- Try for free. Voice generation Creator plan at 19 $/month.
- All content in all tiers are available for commercial use.
- https://www.resemble.ai/

3.3.4. Subtitles/Transcription

Subtitle and transcription tools use AI to automatically convert spoken language in audio or video into written text, enabling efficient creation of subtitles and transcripts. These tools support multiple languages, speaker identification, and timecode alignment. These tools promote digital accessibility and social inclusion by making content available to diverse audiences, including the hearing-impaired and non-native speakers.

Subtitle Edit

- Subtitle creation, automatic subtitles generation with Whisper AI.
- Free, open source.
- AI runs locally on computer, does not require expensive hardware.
- https://www.nikse.dk/subtitleedit

Riverside

- Transcriptions, Captions, Video editing.
- Free to test. 15 $ and 24 $ plans available.
- https://riverside.fm/transcription

Submagic

- Captions, visuals, automatic short making for social media.
- Free to test. 12 €, 23 € and 41 € plans available with increasing benefits.
- https://www.submagic.co/

3.3.5. Miscellaneous

Otter

- Generates transcripts, summaries and action items.

- Free to try. 8 $ and 20 $ plans available with increasing benefits.
- https://otter.ai/

Read
- Similar functionality with Otter.
- Free for small use. 15 $ and 22.5 $ plans available with increasing usage.
- https://www.read.ai/

3.4. Blockchain for Traceability and Authenticity

Blockchain is a decentralized digital ledger used to securely record transactions across distributed networks. In supply chain applications, blockchain can be used to verify and trace materials from the point of origin—such as a manufacturer—all the way through the supply chain to the end user. This increases transparency, reduces fraud, and supports sustainable sourcing and circular economy models. Energy usage varies significantly by platform. Some blockchain networks operate on renewable energy, while others—particularly those using "proof of work"—are energy-intensive. Also, source of the energy is not always transparent to the user. Common consensus mechanisms:
- Proof of Work (PoW): Requires computational power to mine tokens; very energy inefficient.
- Proof of Space (PoSpace): Uses pre-calculated data stored on hardware; less intensive than PoW but still requires physical hardware.
- Proof of Stake (PoS): Validators stake tokens to secure the network; energy-efficient and fast, but centralization risks exist if only few actors hold most of the tokens.

Note on Non-Fungible Tokens (NFT) and cryptocurrencies: Bitcoin has limited utility in areas like NFTs. Platforms like Ethereum are more advanced and widely adopted for such applications. Most blockchain transactions and tokens are traceable from origin to current holder, enhancing accountability.
Regulatory note: The EU has raised concerns about privacy with transparent (public) blockchains. Upcoming frameworks may mandate the ability to modify or delete data in line with GDPR, which conflicts with blockchain's immutability.

TrackGood
- Blockchain platform to track a product's journey from raw materials to finished goods, focusing on fashion and design.
- SaaS model with tailored pricing.
- Raises awareness about material choices and the social and environmental impact of products. User-friendly and suitable for small to medium-sized businesses in the design sector.
- https://trackgood.io

Provenance
- Assists brands in tracking product journeys, ensuring authenticity, and communicating sustainability efforts to consumers.
- Subscription-based pricing model.

- Supports social and environmental sustainability by improving supply chain transparency. Clear consumer-facing communication tools for sustainability claims.
- https://www.provenance.org

EON

- Assigns a digital identity to each design item on the blockchain for authentication and lifecycle tracking.
- Pricing depends on the scope of integration.
- Supports recycling and waste reduction by enabling circular economy models. Widely used by fashion and design companies for transparency initiatives.
- https://www.eongroup.co

VeChain ToolChain

- Allows businesses to implement traceability and transparency solutions, particularly for high-value or sensitive goods.
- Pay-as-you-go pricing based on transactions.
- Focuses on enhancing product lifecycle transparency to promote sustainability. Offers flexibility and scalability for businesses of various sizes.
- https://vechain.org

3.5. Eco-design and Environmental Impact

Eco-design, also known as environmentally conscious design, is a strategic approach that minimizes a product's environmental impact throughout its entire lifecycle. It involves considering sustainability and environmental impacts from product design and manufacturing to end-of-life disposal, aiming to reduce waste, resource consumption, and emissions.
Environmental impact refers to the consequences of human actions on the natural world, encompassing changes in landforms, water, air, ecosystems, and biodiversity. These impacts can be positive or negative, affecting the environment and human well-being. Businesses can use Life Cycle Assessments (LCA) to analyse environmental impacts of their products.

Ecochain

- These tools assess the environmental impact across a product's lifecycle using LCAs, focusing on reducing the impact in areas like materials, manufacturing, and transportation.
- Pricing depends on the complexity of the assessment. Starting from 275 €/month based on an annual subscription (Professional). Starting from 610 €/month based on an annual subscription (Business).
- Offers clear data visualization and tailored sustainability insights for decision-making. Targets CO_2 reduction, energy efficiency, and material recycling.
- https://ecochain.com

GreenStory

- Focuses on measuring and reducing the carbon footprint of fashion supply chains and communicating impact to consumers. Easy-to-use platform with strong visualization for storytelling.
- Flexible pricing for different levels of service.
- Provides actionable insights to reduce emissions and water usage.
- https://www.greenstory.io

Carbonfact Platform

- Sustainability platform for apparel and footwear to measure, report and reduce environmental impacts. Claims to be "the only carbon management platform built for fashion and footwear" and claims to run "fast and scalable Life Cycle Assesement (LCA) for all your products". Covers a product's full life cycle, from the material extraction to its end-of-life.
- Annual subscription fee based on Add-ons and Services.
- CO_2 emission calculation based on ISO14040 and Product Environmental Footprint (PEF) standards at product level.
- https://www.carbonfact.com/platform

eQosphere + WALDB

- Access to the World Apparel & Footwear Life Cycle Assessment Database (WALDB), containing 700+ levels, regionalized for the 7 most relevant textile producing countries and 28 geographies, including more than 50 processing steps along the apparel/footwear supply chain (e.g. fibre production, yarn, fabric, finishing, leather, shoe production). With regards to raw materials if they include Cotton (datasets from 11 different Countries), organic and not; Wool, Viscose, Silk, Synthetics (recycled and not), Leather.
- Fee based on demand.
- Broad environmental scope; it includes 16 impact categories required by PEF (EU-wide life cycle assessment standardization guidelines) and emissions type granularity required by Greenhouse Gas (GHG) protocol, including forest, land and agriculture (FLAG) emissions.
- https://quantis.com/who-we-guide/our-impact/sustainability-initiatives/waldb/

Water Footprint of the Cotton-Textile Value Chain

- Web tool for the calculation of the water scarcity and water quality footprint of cotton production and textile manufacturing, including region specific data and different specification options, e.g., irrigation type and cotton certification.
- Free of charge, database behind the tool not regularly updated.
- Focus on water related impacts: water scarcity, water eutrophication and human toxicity effects. Very useful for comparing different scenarios, e.g., cotton with different origin, certification and/or irrigation type.
- https://wf-tools.see.tu-berlin.de/wf-tools/inoCotton/#/

SULCA

- Software tool to perform product carbon footprint and life cycle assessment studies. It can be used with the Ecoinvent database, which includes 230 datasets for textiles.
- 1 year: 1 user: 1 500 €; 20 users: 5 000 €.
- Comprehensive but easy-to-use LCA software. It requires some previous knowledge in LCA or willingness to participate in specific training. Includes several impact assessment methods and impact categories, e.g. the PEF compliant method EF 3.1.
- https://www.semantum.fi/products/SULCA/

SimaPro

- Software tool to perform product carbon footprint and life cycle assessment studies. It can be used with the Ecoinvent database, which includes 230 datasets for textiles, and other databases: Agri-footprint, EU and Danish Input Output database, US Life Cycle Inventory database, as well as various data from industry associations in the Industry data 2.0 library.
- 1 year for business clients: 5 900 € - 7 500 €.
- Comprehensive and technically demanding LCA tool. Its use requires previous knowledge of LCA and intensive training. Environmental, according to several impact assessment methods and impact categories, e.g. the PEF compliant method EF 3.1. Social LCA using the Social Hotspot database possible as well.
- https://simapro.com/

Sphera

- Software tool to perform product carbon footprint and life cycle assessment studies. It can be used with the Ecoinvent database. Usable with Sphera Database.
- No transparent pricing available.
- Comprehensive and technically demanding LCA tool. Its use requires previous knowledge of LCA and intensive training. Environmental, according to several impact assessment methods and impact categories, e.g. the PEF compliant method EF 3.1. Unclear if other sustainability aspects are included.
- https://sphera.com/solutions/product-stewardship/life-cycle-assessment-software-and-data/

OpenLCA

- Software tool to perform product carbon footprint and life cycle assessment studies. It can be used with the Ecoinvent database, which includes 230 datasets for textiles.
- Open LCA is an open source and free software. Can be combined with LCA databases like Ecoinvent and others (licence needed).
- Comprehensive but easy-to-use LCA software. It requires some previous knowledge in LCA or willingness to participate in specific training.
- https://www.openlca.org/

3.6. Open Connector Platform

3.6.1. Platform Introduction

Open Connector Platform https://portal.open-connector.com/ is an open platform that connects designers, manufacturers and consumers. The Open Connector Platform can serve as a hub for a clothing company brand. One can add clothing or other items under that brand. On the item page, information about the product's care and maintenance can be added. In addition, perks can be created for each item. The perks act as additional bonus content that is linked to the item. With perks businesses can create additional value and content for their clothing and craft items. The platform takes advantage of physical Near Field Communication (NFC) tags. These are small chips which are encoded with link data. The NFC tag is attached to the clothing item. The tag contains a unique item link. You read the NFC tag with your mobile phone and are then redirected to the additional perk

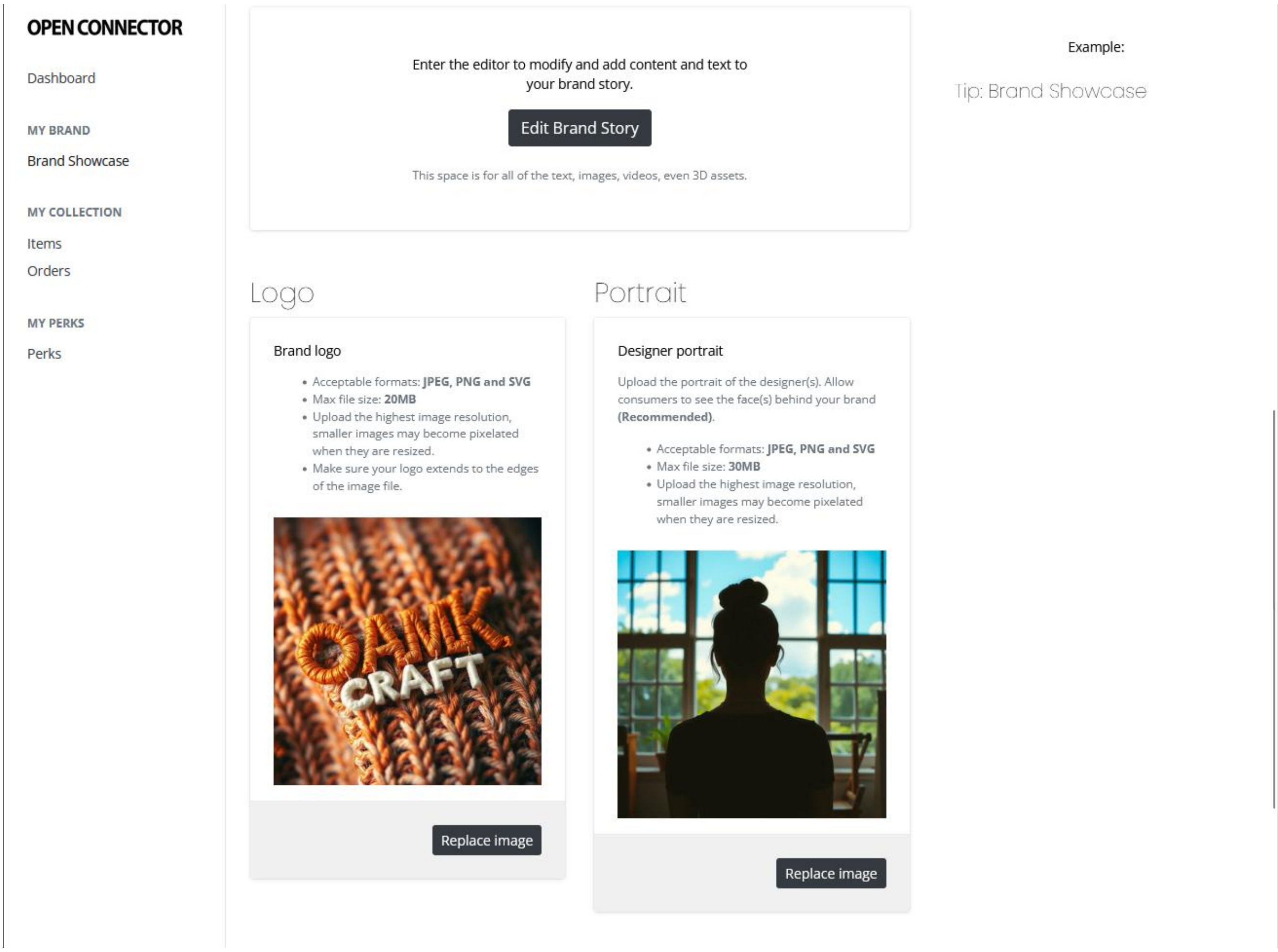

FIGURE 1: SCREENSHOT OF THE OPEN CONNECTOR PLATFORM BRAND SHOWCASE EDITOR

Source: https://portal.open-connector.com/

content linked to the item on the Open Connector Platform. The perk content linked to the item can be updated and changed. This functionality opens opportunities for subscription style content that is linked to the item.
Open Connector Platform supports fashion and textile industry value chains to develop new business opportunities and complying with the upcoming regulations on DPP traceability and trackability and the life cycle of products. Currently the platform is in beta stage. New features such as orders, and the compliance with the DPP will be added in the future. In the meantime, it is already possible to familiarise with how the platform functions such as adding the items, generating individual links to be coded into NFC tags, and generating digital perks for products.
One can already address the basics of DPP by writing down the following information in the product item's "Description" field:

- List of components
- Material of components
- Place of origin of components
- Place of assembly of product

A free application for writing data to NFC tags is called NFC Tools (https://www.wakdev.com/en/). The software works on mobile and PC devices. PC device use requires additional NFC tag reader gear.

3.6.2. Usage Experiences

The CRAFT-IT4SD project team at Oulu University of Applied Sciences (OAMK) tested out the Open Connector Platform beta version. In the project's first pilot, OAMK team created dancer's dresses made partially of fish skin and old fishing net materials. Additionally, a mobile game called "From Fish to Wonder", that teaches how to tan fish skin and create accessories, was created and linked to the dresses through an NFC tag.
A brand page for OAMK CRAFT was created on the Open Connector platform. Brand story was added. It contained text and images. The story editor on the Open Connector Platform was used to design the story site layouts. Item page for the dancer's dress was added as well as the Item Story, where the first pilot creation was detailed with images from the making of process. A perk was created for the dress item. The perk is planned to contain a link to the mobile game "From Fish to Wonder". At the time of writing this report the perk functionality is not yet fully functional. It was very valuable for the Open Connector Platform development to put the platform to a real test and the OAMK team was happy to help with the process.
Another example of the Open Connector Platform usage is the "Masquerade Bomber Jacket Project 425" that was designed by PIECES* c/o African Youth https://flair.fashion/pp/1074/19253/56176dbbbdd94328a6b947d8614047f8

3.6.3. Future Aspects

The Open Connector Platform is being actively developed. Here are some future aspects for the platform:

- Digital Product Passport integration is planned by the end of the year 2025.
- NFC app is prepared to be published in 2025. It functions as the link between the NFC tag and the platform.

- Environmental footprint (EF) related functionality may be added at some form in the future.
- Functionality such as adding links and 3d models to the perks and story pages may become available as the platform development continues.

3.6.4. Sustainability and Analytics

The Open Connector Platform is hosted on Glesys https://glesys.com/ which is a green server park in Sweden. Glesys is certified according to ISO 14001 – an international standard that specifies requirements for an effective environmental management system.
Open Connector Platform will support sustainability due diligence reporting. Reporting requires list of materials, origins of components and place of assembly. The platform tracks and traces materials, components and products and may generate a report. The first step is with the companies and partners to register the products and list the components and materials.
Regarding data-analytics, on-demand forecasting is planned and on-demand live tracking, that shows where the product is on-demand and needs to be shipped in which time. On-demand live tracking will be part of logistics feature.

3.7. Value and Sustainability

Digital technologies are playing an increasingly central role in the business and marketing practices of small and medium-sized enterprises in the fashion, craft, and textile sectors. Tools such as marketing management software, AI-driven content creation platforms, blockchain systems, and eco-design solutions offer significant potential to enhance operational efficiency, customer engagement, and sustainability. However, their adoption also presents challenges that require careful consideration of technical, ethical, and regulatory factors.

3.7.1. Value

From a value creation perspective, digital platforms can provide SMEs with powerful tools to streamline operations, enhance customer engagement, and improve market visibility. Marketing management software enables entrepreneurs to efficiently manage multiple social media accounts and campaigns, often through centralized dashboards that incorporate data analytics and automation features. These tools facilitate the generation of targeted content, optimize email marketing strategies, and support the creation of personalized customer journeys. AI technologies enable automated production of marketing texts, images, videos, and audio content. This not only reduces the time and cost associated with content creation but also enhances creative output and brand storytelling. AI can be good for idea creation and brainstorming. Human oversight of AI generations helps to ensure relevance, quality, and ethical integrity. There are several free or low-cost platforms and tools available for business development and marketing, and this lowers the threshold of adapting the technologies.
Moreover, AI-driven platforms support business development through functionalities such as demand forecasting, supply planning, search engine optimization and competitor analysis. These capabilities allow businesses to

make informed strategic decisions, adapt to market trends, and allocate resources more effectively. Platforms that crawl the web for data make it easy for SMEs to access a lot of information. The use of blockchain technology can create additional value by enhancing transparency and traceability within supply chains. This is particularly relevant in the context of the fashion and textile industries, where provenance and authenticity are increasingly important to consumers and regulators alike. Businesses can add value to fashion clothing by connecting digital perks to the clothing items by using a service such as the Open Connector Platform.

Eco-design tools provide ways to measure and communicate environmental impacts. Visualization of the environmental data and the gained sustainability insights help the company's decision-making process. Eco-design tools such as Ecochain, Carbonfact, and SULCA help identify emission-intensive stages in production through LCA. OpenLCA offers free, scientifically grounded assessments accessible to small operators. These tools support responsible production, efficient resource use, and consumer awareness.

Despite many advantages, the implementation of digital technologies is not without limitations. The effectiveness of AI-generated content can vary, often requiring human oversight and iterative refinement. There is also a risk of over-reliance on AI without verifying the accuracy of answers or sources. The cost structure of digital platforms, especially those offering advanced AI models, can be complex or add up to significant monthly sums. This poses financial risks for smaller businesses. Because of the rapid development of AI content generation tools, a monthly paid option can be flexible for the business. If a new platform arises to replace the old platform with better functionality, monthly option makes it easier to change services.

The steep learning curve associated with some tools and platforms may hinder their effective use, particularly in organizations with limited technical expertise. There are also significant concerns regarding data privacy, intellectual property rights, and the ethical use of AI-generated content. Misuse of AI, including the creation of deepfakes or the unauthorized use of personal data or artist designs, underscores the need for user attention and education. It is important for entrepreneurs to check if used AI models allow commercial use of the generated content. When the generated content is altered enough, it will be interpreted as original work. Using watermarks is a way to inform others of the company's copyrights to content. It is a good idea to not input sensitive data to free services, as those may process the information in a way that is not in line with EU's privacy laws.

3.7.2. Sustainability

In terms of sustainability, digital technologies offer both opportunities and challenges. Cloud-based infrastructures support remote collaboration and reduce the need for physical resources at the business location, thereby lowering the environmental footprint associated with travel and paper use. Platforms that support environmental impact reporting contribute to circular economy models by promoting recycling, waste reduction, and responsible sourcing. Some platforms facilitate eco-design by enabling life cycle assessments, which help businesses evaluate the environmental impact of their products from design to disposal. Digital clothing design can reduce the need of physical samples.

AI tools can promote inclusion by offering translations and caption capabilities to companies and individuals. Visuals can be interpreted to text and vice-versa. On many showcasing platforms, content can be viewed on several devices such as desktop, mobile and virtual reality (VR) using the browser. This makes the platform more accessible. 3D technologies enable visitors to view the content remotely and there is less pollution from travel.

However, the environmental and social implications of digital technologies must be carefully considered. The energy consumption associated with training and operating large AI models, as well as maintaining blockchain networks, can be substantial. While some providers claim to use renewable energy, the transparency and consistency of these claims vary. Major AI content platforms (e.g., Google, Microsoft) don't currently run on clean energy 24/7. While it's true that training large AI models like GPT-4 or Gemini requires significant computational resources, the energy cost per use becomes lower after the training is finished, especially for text-based tasks.

The production and disposal of computer hardware required for digital operations contribute to environmental degradation through mineral extraction and electronic waste. Additionally, AI content generation tool advancements may impact and transform jobs in the CCSI field, as there will be more use of generated content and prompted photography.

The complexity of LCA tools and the technical expertise required to use them effectively may limit their accessibility for SMEs. Implementing eco-design principles can be a difficult task and may require significant changes in the way company's products are designed and manufactured. In addition, consumers may not always understand or appreciate the benefits of eco-designed fashion and crafts products, which can negatively impact the market demand for sustainable items.

Regulatory developments, such as the European Union's Digital Product Passport initiative, are likely to increase the demand for traceability and sustainability reporting. Platforms that support these requirements can provide a competitive advantage, but they also necessitate initial investments in data collection and platform integration. Ensuring compliance with data protection regulations, such as the GDPR, is another critical consideration. Blockchain's immutability may conflict with privacy laws requiring data modification.

In conclusion, the adoption of digital business and marketing technologies presents a dual opportunity for SMEs: to enhance operational efficiency and market competitiveness, and to advance sustainability goals. Realizing these benefits requires a balanced approach that considers the technical, financial, and ethical dimensions of using the various digital platforms.

4. Search Data

This chapter looks at various ways a business can search for data and presents sources of open data. Especially with AI-powered search tools entrepreneurs can look for useful information such as like trends, customer preferences, materials, and market insights.

4.1. Search Engines

Search engines are used for finding data on various topics.

Google

- General web search, scholarly articles and specific websites.
- Free. Contains ads in search results.
- Search data may be collected by default.
- https://www.google.com/ and https://scholar.google.com/

DuckDuckGo

- Similar to Google, but more focused on privacy.
- Free.
- Doesn't track search results. Advertisements can be turned off in search results.
- https://duckduckgo.com/

Microsoft Bing

- Microsoft's search engine. Includes Copilot AI option for searching data.
- Free. Search results may contain ads.
- Search data and AI input may be collected by default.
- https://www.bing.com/

4.2. AI-Powered Search Tools

AI large language models that have access to the internet can search for current data. Detailed answers and conversational search options are available. Some search platforms can conduct deep research that tries to find multiple sources for the relevant data and cross-reference the sources to verify the results. Some AI tools enable searching based on visual input such as images. Also, text files may be used as a source input for searching and data analysis. One can ask the AI model to clarify answers or define a role for the AI so that it can answer from a different perspective. For example: "You are a data visualization expert. Give examples how to use data visualization to an entrepreneur that has little experience in the topic." Also, one can search for sustainable materials or suppliers or ask the AI model how to make the business more sustainable.

ChatGPT (OpenAI)

- AI prompting. Best for generating summaries, explanation, brainstorming and ideas. Has visual, file and deep research capabilities. Can create own custom GPTs.
- Free. Paid options with more functionality, 20 $/month for Plus.
- User input data may be collected and used to model training by default. Option to turn off data collection. Large language models run on big servers and use a lot of computing power to function.
- https://chatgpt.com/

Microsoft Copilot

- Similar to ChatGPT. Has deep research functionality.

- Free. Paid options for more functionality, 20 $/month for Pro.
- Does not use company information for model training on enterprise account subscriptions. https://learn.microsoft.com/en-us/copilot/microsoft-365/enterprise-data-protection
- https://copilot.microsoft.com/

Perplexity
- Real-time search with AI-powered summaries and source linking. User can define the content type that the search uses for sources, for example scholarly articles only.
- Free at small usage. 20 $/month for Pro.
- Source critical AI models think about the answer on some level before presenting it to the user. This may help in creating more valid answers.
- https://www.perplexity.ai/

Google Gemini
- Similar to ChatGPt, but it integrates Google search results. Includes research and writing assistant NotebookLM and video generation Veo 3.
- Free. 23 €/month for advanced functionality.
- https://gemini.google.com/

4.3. Open Data

Open data refers to data that is freely available for anyone to use, reuse, and share. For SMEs and stakeholders in the textile and fashion industries, open data enables innovation, evidence-based decision-making, supply chain transparency, and compliance with emerging sustainability regulations like the Digital Product Passport (DPP).

Textile Exchange – Life Cycle Inventory Library (textiles)
- Provides life cycle inventory (LCI) datasets for various textile fibres and processes.
- Useful for conducting environmental impact assessments and comparing materials.
- https://textileexchange.org/lci-library/

PubChem
- Open chemistry database maintained by the U.S. National Institutes of Health.
- Offers data on chemicals, their properties, and uses—useful for material safety and regulatory checks.
- https://pubchem.ncbi.nlm.nih.gov/

OER (Open Educational Resources)
- Repository of free educational materials, including courses, teaching tools, and training content.
- Supports workforce training, sustainability education, and SME capacity-building.

- https://oercommons.org/

European data

- Official EU data portal covering thousands of datasets across sustainability, supply chains, SMEs, and circular economy.
- Authoritative EU-wide datasets for sustainability, digital product passports, and SME innovation.
- https://data.europa.eu/en

4.4. Value and Sustainability

As businesses increasingly turn to digital tools for growth, the ability to search for, analyze, and apply data has become a competitive advantage. From simple search engines to advanced AI-driven platforms and open data sources, entrepreneurs can now access a vast array of information to inform their decisions. Whether identifying sustainable materials, understanding customer behavior, or ensuring regulatory compliance, these tools support smarter and faster decision-making. However, they also come with trade-offs that must be considered—especially around accuracy, privacy, cost, and environmental impact.

4.4.1. Value

Search engines and AI tools provide rapid access to valuable data essential for market research, customer behavior analysis, supplier discovery, and trend tracking. They empower entrepreneurs to make informed decisions faster and more efficiently. Advanced AI models like ChatGPT, Copilot, and Perplexity can process large volumes of information, generate concise summaries, explain complex concepts, and simulate expert-level advice based on user-defined prompts. These models also allow users to upload text files or images to analyze elements such as customer feedback, material specifications, or competitor offerings.

Flexibility of AI-powered tools allows entrepreneurs to define specific roles or areas of expertise for AI, tailoring outputs to their business needs, increasing productivity and insight generation. Open data platforms complement these tools by offering access to verified structured datasets that support compliance with regulations, environmental reporting, and innovation. By tapping into open data, businesses can reduce their dependence on costly commercial databases or closed-source analytics platforms. Furthermore, access to high-quality scientific, educational, and regulatory data improves transparency and enables evidence-based decisions across all areas of a business.

Despite the powerful benefits, AI tools come with limitations. One of the most significant issues is the risk of hallucinated or fabricated information. AI-generated content must be verified and cannot be blindly trusted. Many of these platforms also collect user input data by default, unless data collection settings are explicitly turned off, raising privacy concerns. Moreover, high-quality AI functionality often resides behind subscription paywalls, typically around 20 $ per month, which can be a barrier for SMEs.

General-purpose AI models often lack the domain-specific accuracy required in technical or regulated fields unless they are fine-tuned or paired with expert review. There is also a learning curve: users must understand how to construct effective prompts and interpret open datasets properly. Without this skill, there's a risk of misusing or misinterpreting the data, leading to flawed conclusions or even regulatory non-compliance.

4.4.2. Sustainability

Open data plays a significant role in promoting sustainability by making environmental impact metrics and material comparisons freely accessible. Resources such as Life Cycle Inventory (LCI) databases—like those provided by Textile Exchange—enable businesses to evaluate the ecological costs of materials and production processes. Databases such as PubChem help ensure that chemical sourcing meets safety standards and regulatory requirements. European data portals further support sustainability efforts by offering datasets aligned with circular economy goals, product passport implementation, and sustainable supply chain management.
Open Educational Resources (OER) contributes to the sustainability landscape by helping companies and their teams build knowledge in areas such as manufacturing ethics, responsible sourcing, and sustainability strategy. Publicly available data on climate, pollution, and waste provides a foundation for businesses to plan towards net-zero targets and respond proactively to regulatory changes. AI tools that use open data can also assist in validating supplier sustainability claims and benchmarking environmental performance against industry standards. However, it is important to acknowledge that large AI models, while useful for these purposes, require computing power and energy to operate. Unless they are hosted on renewable-powered infrastructure, their environmental impact in terms of carbon emissions remains substantial. Thus, businesses must balance the benefits of AI and open data with their associated energy costs.

5. Share and Learn

This chapter talks about networking, communication and sharing of knowledge and information. Tools and platforms are introduced for communication, co-work and project management. Additionally, several content platforms for video, social media, blogging and writing, and image and design are presented. There are also content channels for inspiration, news and learning that can be useful for the CCSI entrepreneur. The use of Creative Commons license for sharing content is introduced.

5.1. Networks and Communities for Sharing and Learning

Through networks and communities fashion entrepreneurs can gain support, ideas, current information and learning materials to help develop and maintain their business.

Fashion Mingle

- A global network connecting fashion industry professionals across over 200 cities and 100+ industry categories. Fashion Mingle offers resources and services to help fashion businesses.

- Free Professional membership. Portfolio plan at 10 $/month, Business plan at 20 $/month.
- Provides a platform for networking, collaboration, and access to industry resources. Fashion Mingle is a community where any fashion professional can find resources and partners.
- https://fashionmingle.com/

The Fashion Spot

- An online community where fashion enthusiasts and professionals discuss designs, collections, magazines, editorials, and more.
- Free access to forums and discussions.
- Hosts forums covering a wide range of fashion-related topics, fostering discussions and knowledge sharing.
- https://forums.thefashionspot.com/

Textile Platform

- Big networking organization for textile research and innovation in Europe. Hosts online platform, networking events and webinars. Provides EU funding opportunities for projects.
- Paid. Networking member at 200 €/year, Associate member at 500 €/year.
- https://www.textile-platform.eu/

Conscious Fashion Collective

- A community focused on sustainable fashion, providing resources, networking opportunities, and educational content for designers committed to ethical practices.
- Offers some free resources. Paid membership 147 $/quarter.
- Offers guides and a platform for sharing sustainable fashion initiatives.
- https://consciousfashion.co/community

EIT – European Institute of Innovation & Technology

- European Innovation Network that is part of Horizon Europe, the EU's Framework Programme for Research and Innovation. Provides funding for projects through funding calls. Includes the Cultural & Creative Sectors & Industries community.
- Free Associate membership. Paid plans for Community Participant.
- https://eit.europa.eu/ and Cultural & Creative Sectors & Industries https://eit-culture-creativity.eu/

Neoecotex

- New matchmaking tool for innovators and innovations. A company, who needs innovation can post and an innovator can answer. The platform matches them, and they can start collaborating. The target group of the platform is the textile industry in Western Europe.
- Free to try, paid options may be released later.
- If the platform grows, it may create eco-innovations for the textile industry.
- https://www.neoecotex.com/

EU Textiles Ecosystem Platform

- EU's new textile ecosystem that supports stakeholders in sustainability, digitalization, and resilience. Shares news for the ecosystem and provides information about events, legislation, funding and networks.
- Free EU Login.
- https://transition-pathways.europa.eu/textiles-ecosystem

5.2. Communication and Co-Work Tools

Effective collaboration and communication tools are essential in hybrid, remote, and cross-disciplinary teams. These tools support everything from ideation to file sharing, task management, and stakeholder updates. Below is a breakdown of widely used platforms for communication, project management, and creative co-work.

5.2.1. General Communication

These tools are used for meetings, daily messaging, stakeholder updates, and informal collaboration. They help reduce email overload and support both synchronous and asynchronous communication styles.

Teams

- Combines chat, video meetings, file sharing, and Office 365 collaboration. Useful for organizations already using Microsoft tools.
- Paid. Essentials plan at 4 $/user/month, Business Standard at 12.5 $/user/month.
- Integrated Planner and task management.
- https://www.microsoft.com/en-us/microsoft-teams/group-chat-software

Zoom

- Primary used for video meetings, webinars and screen sharing.
- Popular for formal remote meetings and presentations.
- Free for quick small meetings, paid plans start at 12.5 €/user/month.
- https://www.zoom.com/

Discord

- Originally built for gamers, now widely used by creative and tech communities.
- Supports voice, video, and real-time text chat in topic-specific channels.
- Good for informal communication and team culture building.
- Bot integrations for roles, moderation, and task reminders.
- Mostly free. Some more advanced features are locked behind 3 €/month and 10 €/month plans.
- https://discord.com/

Slack

- A messaging platform designed for team communication, offering channels, direct messaging, and integrations with various tools. It is widely used for coordinating projects and sharing information within teams.

- Provides a free version with limited features; paid plans offer additional functionalities.
- Slack's integration capabilities with other tools make it a central hub for team communication and project management.
- https://slack.com/

5.2.2. Project Management Tools

Organizing and tracking tasks, deadlines, milestones, and team responsibilities.

Trello

- Kanban-style project boards with customizable cards and lists.
- Simple and visual interface ideal for small teams and creative planning.
- Integrates with Google Drive, Slack, and more.
- Free for small use, paid plans start at $5/user/month.
- https://trello.com/

Clickup

- Highly customizable tool combining tasks, documents, wikis, and time tracking.
- Useful for both agile teams and creatives who need flexibility.
- Includes automation and dashboard features.
- Free for personal use or small teams. Paid 7 $/user/month and 12 $/user/month.
- https://clickup.com/

Basecamp

- All-in-one project collaboration tool with to-dos, chat, files, and schedules.
- Simple pricing, free version available for one project, 15 $/user/month or 299 $/month for whole organization.
- Intuitive layout for client-involving projects.
- Strong for teams who need lightweight structure and communication in one place.
- https://basecamp.com/

Asana

- Offers robust task and project tracking with multiple views (list, board, timeline); suitable for teams that need more complex workflow customization.
- Designed for larger teams and complex projects with dependencies.
- Limited version available for free. 7 - 12 $/user/month unlimited tier.
- https://asana.com/

5.2.3. Co-work tools

Shared tools for real-time or asynchronous collaboration: designing, planning, co-editing, or visualizing projects across teams and locations.

Microsoft 365

- A comprehensive suite of productivity and collaboration tools including Word, Excel, PowerPoint, OneNote, Outlook, and cloud services like OneDrive and SharePoint. Enables real-time document co-editing, shared calendars, secure file storage, and email communication — all synced across devices.
- Complex pricing depending on user's needs. Starts at around 5 $/user/month.
- Integrates with Microsoft Teams for messaging, video calls, and task coordination. Offers enterprise-grade security, access control, and compliance tools for professional environments. Suitable for both everyday work and more structured project-based collaboration.
- https://www.microsoft.com/en/microsoft-365

Miroboard

- Digital whiteboard platform for brainstorming, strategy mapping, and workshops. Real-time collaboration with sticky notes, templates, and diagrams.
- Limited functionality with free plan, 8 - 16 $/user/month plans available.
- Ideal for ideation, user journey mapping, and stakeholder engagement.
- https://miro.com/

Github

- Platform for version control and collaborative coding, based on Git.
- Supports project documentation, issue tracking, and team contributions.
- Especially useful for tech or design teams developing web tools, apps, or data projects.
- Free basic version, 4 $/user/month and 21 $/user/month.
- https://github.com/

Google workspace

- Includes Docs, Sheets, Slides, and shared Drive — all co-editable in real time.
- Calendar and Gmail integration streamline scheduling and communication.
- Easy for cross-team and external collaboration with permissions control.
- 6.8 - 33.8 €/user/month plans available.
- https://workspace.google.com/

Figma

- A web-based design tool that allows for real-time collaboration on vector graphics and interface designs. While primarily used for UI/UX design, its collaborative features are beneficial for fashion design teams working on digital sketches and prototypes.
- Offers a free tier with basic features; premium plans are available for advanced functionalities.

- Figma's real-time collaboration capabilities make it a valuable tool for design teams, allowing multiple users to work simultaneously on the same project.
- https://www.figma.com/

5.3. Content Platforms

Content platforms are digital tools and services that allow users to create, share, and engage with various types of media - such as videos, images, blogs, and interactive content. These platforms are essential for professionals in the craft, textile, and fashion sectors to showcase their work, creativity and techniques, build communities, connect with audiences, and to share practices and skills.

5.3.1. Video

Video platforms can be used for entertainment, education, information and marketing purposes.

YouTube

- Free video-sharing service that supports high-quality and 360-degree videos.
- Fashion designers, textile artists, and crafters use YouTube to publish tutorials, behind-the-scenes footage, and fashion shows.
- Ideal for building a subscriber base and monetizing through ads.
- http://www.youtube.com

Vimeo

- Known for its high-quality video playback and creative community, Vimeo is often used by professionals to share polished portfolios, fashion films, and textile documentaries.
- While free accounts have space limits, the platform is ad-free and supports 360-degree videos.
- http://vimeo.com

Twitch

- Originally focused on gaming and e-sports, Twitch has expanded to include all kinds of live streaming.
- Free.
- Textile and fashion creators use it for live sewing sessions, Q&A streams, or real-time crafting tutorials, allowing for direct interaction with viewers.
- https://www.twitch.tv/

5.3.2. Social Media

Social media platforms are tools for sharing creative work, building a brand, and engaging with audiences. Certain social media platforms are useful for engaging with younger audiences. Social media, however, has a large digital carbon footprint, and is addictive in nature.

Snapchat

- Short form video and image sharing. These can be used to share quick, informal updates and behind-the-scenes moments.
- Free.
- Has augmented reality (AR) filters. Used mainly with a phone app. AR filters can be used to experiment with virtual try-ons or product previews.
- https://www.snapchat.com/

TikTok

- Short form video and image sharing. These can be used to share quick, informal updates and behind-the-scenes moments.
- Free.
- It has augmented reality filters. Used mainly with a phone app. Music, effects, and AR filters can be used to make content more entertaining and discoverable.
- TikTok's algorithm is designed to maximize engagement, often by promoting emotionally charged or addictive content. It creates personalized content feeds, but users have little control or transparency over how these are generated. The platform collects extensive user data, including location, device info, and browsing behavior. There are also concerns about how this data is stored and who may have access to it, especially for younger users.
- https://www.tiktok.com/

Instagram

- Short form video and image sharing. These can be used to share quick, informal updates and behind-the-scenes moments.
- Free.
- It has augmented reality filters. Used mainly with a phone app. Music, effects, and AR filters can be used to make content more entertaining and discoverable.
- https://www.instagram.com/

X (formerly Twitter)

- Short form text, image and video sharing.
- Has a free version and three paid tiers with more features. Login needed for viewing content.
- Platform X (formerly Twitter) has become more politically polarized since its ownership changed. Relaxed content moderation has raised concerns about misinformation and hate speech. Some users see it as a platform for free speech, while others worry about bias and censorship. These shifts have sparked debate about X's influence on public discourse and democracy.
- https://x.com/

5.3.3. Blogging and Writing

Craft, textile, and design SMEs can use blogging and writing platforms like WordPress, Medium, or Substack to share their expertise, tell the stories behind their work, promote products, and build a loyal community.

Medium

- Community-driven platform for storytelling and journalism.
- Free. The paid version gives access to member-only stories and supports creators.
- https://medium.com/

Substack

- Newsletter platform for individual writers and journalists.
- Mostly free. Writers can set up a subscription plan for their articles.
- https://substack.com/

Wordpress

- Blogging and website creation tool with extensive customization.
- Free with a basic plan. The different tiers of paid plans give the user more options such as more storage, ad-free sites, advanced SEO tools, and business features, depending on the tier of the plan.
- Supports H5P content via plugin.
- https://wordpress.com/

Ghost

- Open-source publishing platform for writers. It is ideal for blogging, newsletters, and long-form content with a clean, distraction-free writing interface.
- Creators can grow and manage their audience with built-in email newsletters, subscriptions, and member management.
- Ghost supports paid memberships, letting creators earn directly from their content without third-party platforms.
- With themes and full code access, creators can tailor their site's look and feel to match their brand.
- Starts from 9 $/month.
- https://ghost.org/

5.3.4. Image and Design

Craft, textile, and design SMEs can use image and design platforms to showcase their work, build professional portfolios, and connect with global audiences.

Pinterest

- Image discovery and sharing, used for inspiration boards.
- Images (Pins) are saved to themed collections called Boards. Many Pins link directly to products that can be purchased.
- Creators and brands can use it to share content and drive traffic to websites.

- Free.
- https://fi.pinterest.com/

Behance

- Showcase portfolios for designers and artists. Easy hiring for freelancers.
- Creators can showcase their work in polished, project-based portfolios.
- Businesses can discover talent by browsing curated galleries and using search filters.
- Creators can gain exposure through featured spots and community engagement.
- It integrates with Adobe tools, making it easy to publish directly from Creative Cloud.
- Free, pro tier available for creators.
- https://www.behance.net/#

DeviantArt

- A large, diverse art community where creators can share and sell their work.
- Businesses can discover artists through categories, tags, and curated collections.
- Creators can monetize through print sales, commissions, and DeviantArt's Core Membership.
- It's community-driven, with strong engagement through comments, groups, and fan interactions.
- Free, paid plans enhance creative exposure, tools and monetization options.
- https://www.deviantart.com/

Dribbble

- Platform for UI/UX designers and illustrators to share work. Easy ways to contact a designer.
- Free, paid plans enhance creative exposure.
- Businesses can hire talent through the job board or by browsing portfolios and contacting designers directly.
- Creators can gain visibility, get freelance opportunities, and connect with a design-focused community.
- https://dribbble.com/

ArtStation

- 3D art platform, where users can create a personal portfolio page to display their artwork.
- Free version. Paid version from 9.95 $/month upwards.
- Supports high-resolution images, 3D models and videos.
- ArtStation Learning offers video tutorials and courses on various art techniques and software.
- Artists can sell digital products like brushes, textures, tutorials, and 3D assets.

- https://www.artstation.com

CGarchitect

- Creators can build detailed portfolios, gain exposure, and apply for jobs in the architecture and 3D visualization industries.
- Free.
- Businesses can post job listings, discover skilled professionals, and stay updated on industry trends and tools through articles and forums.
- https://www.cgarchitect.com/

5.3.5. Miscellaneous

H5P, Lumi, and Reddit are diverse digital platforms that support content creation, learning, and community engagement.

H5P

- Interactive content creation type (HTML5, h5p file). Interactive content is added to websites and viewed with the browser. Content examples: Interactive video, Course Presentation, Branching Scenario, 360 Tour, AR Scavenger, Quiz.
- Free.
- H5P is added to WordPress sites via plugin. Support for Moodle, Drupal and several other educational platforms.
- https://h5p.org/content-types-and-applications

Lumi H5P Desktop Editor

- H5P editor. Create H5P content offline/online. Windows, Mac & Linux supported.
- Free.
- Can create H5P content without a learning platform or WordPress. Currently content types Interactive video, branching scenario and course presentation are missing.
- https://lumi.education/en/

Lumi Cloud

- H5P content hosting and creation platform.
- 15 MB per file 6 €/month, 500 MB per file 10 €/month.
- Create links to H5P content, embeddable, password protection possible.
- https://lumi.education/en/lumi-h5p-cloud/

Reddit

- Diverse online platform where users share, discuss, and vote on content across thousands of topic-specific communities.
- Free.
- https://www.reddit.com/

5.4. Content Channels for Inspiration, News and Learning

These platforms support continuous learning, creative inspiration, and staying updated with trends. They are valuable for fashion, design, marketing, and sustainability professionals. Many combine curated content, expert insight, and user-driven discovery.

Business of Fashion

- Delivers news, analysis, and educational content on global fashion industry developments.
- Provides free content. Subscription-based premium articles and courses. Analysis & Advice plan at 29 €/month.
- Regularly publishes content on sustainable fashion and ethical business practices. Provides in-depth industry insights.
- https://www.businessoffashion.com/

University of Fashion

- Provides online, on-demand fashion design lessons covering various disciplines.
- Paid. Free membership with access to three lessons. Subscription at 22.95 $/month.
- Offers lessons on fashion design and practices. A comprehensive educational resource for aspiring and professional fashion designers.
- https://www.universityoffashion.com/

Domestika

- An online learning platform offering courses in fashion design, illustration, and other creative fields.
- Paid. Courses are individually priced. Plus plan at 30.90 €/month or 99.50 €/year.
- Includes courses focused on sustainable fashion and eco-friendly design practices. Features courses taught by industry professionals, providing practical skills and inspiration.
- https://www.domestika.org/en

KOBAKANT

- A resource website for e-textiles. Hosts do-it-yourself wearable technology documentation.
- Free.
- Suitable for designers interested in e-textile prototyping and development.
- https://www.kobakant.at/DIY/

OHSC - Oxford Home Study Centre

- Offers courses on various topics. Includes some free fashion design online courses.
- Free course content available. Individual pricing for paid courses.
- https://www.oxfordhomestudy.com/free-online-courses-with-certificates

Massachusetts Insitute of Technology (MIT)

- Open educational resources from MIT. Offers course materials for entrepreneurship, marketing management, math and several other topics.
- Free.
- https://ocw.mit.edu/

Kaggle
- Offers data science courses.
- Free.
- https://www.kaggle.com/learn

Favoree
- Helps users find high-quality content from YouTube based on personalized interests.
- Free.
- Great for sourcing tutorials, case studies, and trend insights across multiple channels.
- https://www.favoree.io/

Curious Refuge
- AI news. New AI media creation tools presented. Focus on image, video and audio creation. Cinematic storytelling and commercial aspects.
- Free, YouTube displays ads. Contains sponsored segments.
- An easy way to stay informed on developments in the AI content creation scene. AI media creation tools can be used for business marketing materials and promotional content.
- https://www.youtube.com/@curiousrefuge

Theoretically Media
- Channel explores the latest AI video, image and audio tools.
- Free, YouTube displays ads. Contains sponsored segments.
- https://www.youtube.com/@TheoreticallyMedia

Futurepedia
- Channel presents news, comparisons and usage tips of AI text, image, video and audio tools.
- Free, YouTube displays ads. Contains sponsored segments.
- https://www.youtube.com/@futurepedia_io

Artificial Analysis
- Website that compares AI model performance and presents rankings of the models. Can be used to check AI model development and discover popular AI models.
- Free.
- https://artificialanalysis.ai/

5.5. Creative Commons, Stock Content

Creative Commons is a licensing model for sharing content such as images, audio, 3D-models and textures. Businesses can use Creative Commons licensed materials for free in their designs and media productions according to the license terms. A business can also release content with a creative commons license. There are several options for licenses and some of them are not for commercial use.

Here are guidelines for Creative Commons content.

- Use the license chooser to check or choose the license type https://creativecommons.org/chooser/. Logos downloads https://creativecommons.org/mission/downloads/.
- All creative commons licences except the CC0 license require attribution. This means one needs to give credit to the original designer or photographer and include the license and source link of the materials in some form that is suitable for the product.
- For commercial work CC BY (Attribution) and CC0 (No Copyright) are suitable licenses. CC BY-SA (Attribution-ShareAlike) can also be used commercially but the end results must be shared with the same license.
- Licenses with terms NC (NonCommercial) and ND (NoDerivatives) are not suitable for commercial applications. For example, ND content cannot be used in videos or podcasts as one is not allowed to make derivatives of the original content.
- If one publishes own videos or images under a Creative Commons license, the materials used must be compatible with that license (e.g., Commercial vs. NonCommercial).
- Remember source criticism of licensed materials. It is important to check that the media material sources are reliable.
- Stock image and video sites (e.g., Pixabay, Unsplash, Pexels) have their own licenses that may not be compatible with Creative Commons licenses.

Here are some stock sources for media creation projects.

Openverse

- Image and audio search for Creative Commons licensed and public domain content.
- Free. Attribution is required according to license terms.
- Creative commons can offer a sustainable and open way to share media materials with the whole world.
- https://openverse.org/

StockSnap

- CC0 licensed images.
- Free. No attribution required.
- https://stocksnap.io/

Pexels

- Provides a vast collection of free stock photos and videos, including a substantial selection related to fashion design.

- Free to use for personal and commercial purposes under the Pexels license.
- Stock resources can be utilized to highlight sustainable fashion initiatives.
- https://www.pexels.com/

Pixabay
- Hosts images related to many topics, including fashion design. Suitable for various creative projects.
- All images are free for use under the Pixabay License.
- https://pixabay.com/

Freepik
- Offers a wide array of free graphic resources, including vectors, stock photos, and PSD files. High-quality images suitable for various design needs. Includes AI assistant (ChatGPT 4o).
- Free resources available (requires attribution for stock images, AI for non-commercial purposes); Premium content requires a subscription, at 8 - 36 € per month (no attribution required from Premium and up, AI for commercial purposes). AI generations use credits.
- https://www.freepik.com/

5.6. Value and Sustainability

The “Share and Learn” chapter highlights a range of digital platforms and tools that offer significant opportunities for SMEs in the fashion, textile, and craftsmanship sectors. These platforms facilitate access to professional networks, collaborative environments, and content-sharing resources that support business growth, innovation, and global engagement.

5.6.1. Value

Platforms such as Fashion Mingle and Conscious Fashion Collective provide SMEs with valuable networking opportunities, industry-specific knowledge, and visibility within the fashion ecosystem. Online communities like The Fashion Spot foster peer learning and vibrant discussions. Creative Commons and stock content platforms offer accessible resources for content creation. AI-powered media tools further enhance productivity by enabling efficient generation of marketing materials. These tools empower SMEs to share their narratives, promote sustainable practices, and connect with broader audiences.
However, challenges such as steep learning curves, continuous content creation demands, data privacy concerns, and licensing complexities must be carefully managed. Additionally, the cumulative cost of using multiple platforms and the digital divide may pose barriers for some businesses.

5.6.2. Sustainability

The featured platforms contribute to sustainability across environmental and social dimensions. Environmentally, digital collaboration tools reduce reliance on travel and printed materials, supporting digital-first communication strategies. Stock resources and Creative Commons content can be leveraged to promote sustainable fashion initiatives, provided licensing terms are respected. From a social sustainability perspective, these platforms foster inclusion, knowledge sharing, and cultural preservation. Networks like Fashion Mingle and Conscious Fashion Collective enhance access to industry resources and amplify underrepresented voices. Forums such as The Fashion Spot encourage open dialogue and community learning, while educational and content-sharing platforms help bridge gaps in training and professional development, particularly for SMEs in remote or underserved regions.

However, environmentally the continuous use of digital platforms for content sharing, video conferencing, and media hosting contributes to increased energy consumption and data storage demands, which in turn elevate the carbon footprint of these activities. The frequent need for high-resolution content and multimedia uploads further exacerbates this issue. On the social side, these platforms often require consistent engagement and content production, which can strain small teams and lead to unsustainable workloads. The emphasis on visibility and digital presence may inadvertently favor users with greater resources or digital fluency, marginalizing SMEs in less connected or lower-income regions. Additionally, while these platforms aim to democratize access to knowledge, algorithm-driven content curation can reinforce echo chambers or prioritize popular voices over diverse, local, or emerging voices. Free social media platforms gather user information, and it is important to take this into consideration when dealing with sensitive company or customer information. Social media platforms can cause addiction and anonymity of commenting can create spamming and toxic behavior. Without careful moderation and inclusive design, platforms for sharing and learning risk perpetuating inequalities rather than bridging them.

To make sure the use of these platforms and tools are as inclusive, ethical and sustainable as possible, the users should:

- Leverage networks and professional unions for knowledge, news, and support.
- Recognize that growing platforms may foster eco-innovation in the textile industry.
- Check Creative Commons license terms, give credit to original sources, and ensure compatibility with commercial use.
- Use AI media tools thoughtfully to enhance storytelling and marketing while staying informed on their environmental implications.

6. Data Infrastructures

This chapter deals with cloud data storage, server renting and power efficient content creation computers. These subjects are part of the data infrastructures that the CCSI entrepreneurs may use.

6.1. Cloud Data Storage

Cloud storage is used for media and text content backups and work files. Customer and product data may be stored on a cloud service.

Infor CloudSuite Fashion

- A cloud service that offers industry-specific capabilities for apparel, footwear, and fashion accessories companies. Services include data storage, product lifecycle management, and supply chain optimization.
- Pricing is customized based on business requirements and scale.
- Infor's cloud solution supports efficient resource management and reduced environmental impact through optimized operations. Having a platform that does multiple tasks for the business, simplifies the service structure needed for running a business.
- https://www.infor.com/products/cloudsuite-fashion

Microsoft Azure

- Provides Azure Blob Storage for unstructured data and Azure Files for fully managed file shares, supporting various data storage needs in the fashion industry. Offers enterprise-grade security. Suitable for fashion businesses of all sizes. There may be a learning curve for using the platform.
- Some always-free services. Various pricing options including pay-as-you-go models.
- Microsoft has pledged to be carbon negative by 2030. This is a positive commitment to sustainability.
- https://azure.microsoft.com/

Amazon Web Services (AWS)

- Provides a suite of cloud storage solutions. It includes Amazon S3 for scalable object storage and Amazon EFS for file storage. These services support data management needs such as storing design files, customer data, and inventory information.
- Some free services. Pay-as-you-go pricing model. Businesses pay only for the storage they use.
- AWS is committed to achieving 100% renewable energy usage for its global infrastructure.
- https://aws.amazon.com/

Microsoft OneDrive

- Cloud storage and file sharing service. Subscription includes Microsoft Office apps that are widely used by businesses. Copilot AI features cost extra.
- Free basic personal account. Subscription pricing at 6 - 14 € /user/month for businesses.
- https://www.microsoft.com/en-us/microsoft-365/onedrive/onedrive-for-business

Google Workspace

- Cloud storage and file sharing service. Subscription includes Google's office applications such as Docs and AI features depending on subscription tier (Gemini AI assistant, AI research assistant NotebookLM Plus).
- Subscription pricing at 7 - 34 €/user/month.

- https://workspace.google.com/intl/en_uk/features/

Dropbox

- Cloud storage service. Team use is possible.
- Subscription pricing at 10 - 21.5 €/user/month. Annual options.
- https://www.dropbox.com/

Box

- Cloud storage service. Box AI content generation.
- Subscription pricing at 13.5 - 45 €/user/month. Annual options.
- https://www.box.com/home

6.2. Server Renting

Servers are used to host content such as websites or store databases and run data analytics services. GPU servers can be rented for AI tasks. Business has the option of choosing a server provider that is committed to environmental sustainability. Servers often use open-source operating systems based on Linux.

OVHcloud

- Offers dedicated servers and cloud solutions with a focus on performance and security. The service is suitable for hosting e-commerce platforms, website hosting and large databases. French company.
- Paid by hour or month. Various plans to accommodate different business sizes.
- OVHcloud is committed to energy efficiency. Water-cooling technology is used to reduce energy consumption. The server options are customizable and allow fashion businesses to optimize resources based on specific requirements.
- https://www.ovhcloud.com/

IBM Cloud Virtual Servers

- Provides virtual servers with high-performance capabilities. Supports various workloads including data analytics and application hosting.
- Hourly and monthly billing options, providing flexibility in cost management.
- IBM is aiming for net-zero greenhouse gas emissions by 2030.
- https://www.ibm.com/cloud/virtual-servers

Akash Network

- A decentralized cloud computing marketplace enabling users to rent unused server capacity for applications, including blockchain hosting.
- Price per hour. Dynamic pricing based on market demand, often lower than traditional cloud services.
- Encourages resource efficiency by utilizing idle computational capacity from existing servers. A cost-effective and flexible alternative to traditional cloud providers.
- https://akash.network/

Hetzner

- A German company that offers servers, hosting and storage boxes. GPU servers are located in Europe.
- Price per month or hour.
- Energy from wind and hydropower in data centers in Finland and Germany. GDPR-compliant data centers. https://www.hetzner.com/unternehmen/nachhaltigkeit/
- https://www.hetzner.com/

Hostinger

- Service for creating and hosting websites. Additional functionality to use AI for creating a website.
- Price per month.
- Hostinger is committed to minimizing environmental impact and using renewable energy. https://www.hostinger.com/sustainability
- https://www.hostinger.com/

WordPress

- Service for creating and hosting websites. Uses the open source publishing platform WordPress.
- Free basic website. Paid options available at 4 € - 45 €/month.
- https://wordpress.com/

6.3. Power Efficient Content Creation Computers

6.3.1. General Guidelines

A computer usually consists of a Central Processing Unit (CPU), Graphics Processing Unit (GPU), Random-access Memory (RAM), motherboard, storage

FIGURE 2. AI GENERATED IMAGE OF A GRAPHICS PROSESSING UNIT (GPU)

Source: Oulu University of Applied Sciences

media and power supply. CPU does calculations and acts as a leader that issues commands to the other components of the computer. GPU does graphics related calculations and displays an output to the screen. CPU uses RAM memory to store data temporarily. When the power is turned off, RAM memory resets. Storage media such as hard drives store data in written permanent form. Motherboard is the base layer that connects all of the computer components together. Power supply transfers energy to each component of the system. Sometimes the CPU and GPU are combined to a single tiled unit. This is often done on mobile devices such as laptops, tablets and mobile phones.
To create a power efficient computer for content creation, the choice of CPU and GPU matters considerably as those components use most of the system energy and define the processing capabilities of the system. The amount of GPU and RAM memory is another thing to consider as those resources are heavily used in content creation tasks such as video editing and AI text, image, video and audio generation. Here are some general guidelines for choosing desktop and laptop devices for power efficient content creation work.

- For a small company with limited time resources, it can be an easy option to order a prebuilt computer. Several stores sell prebuilt systems and offer building services of computers. From a repair standpoint, a flexible way is to build a custom computer with standard components that can be easily replaced. Some big system integrators offer prebuilt computers that have proprietary components that require same brand replacement parts.
- GPU: Minimum of 12 GB or preferably 16 GB of GPU memory is recommended for local AI content generation and video editing work. Currently NVIDIA's GPUs seem to have better support for AI tasks. For laptops a GPU with 6-8 GB of memory or more is recommended.
- CPU: Minimum of 6 cores. 8 cores or more recommended. Currently AMD has competitive power efficiency. The thermal design power (TDP) number matters. The higher the TDP, the more power the processor consumes. The actual power draw of the processor package in heavy workloads can be higher than the TDP number.
- RAM: 16 GB or more recommended. For desktop setups 32 GB of RAM is a valid option. The operating system and running applications use RAM and if the RAM gets full, the whole system slows down.
- Storage: Minimum of 1 Tb of Solid State Drive (SSD) storage for the operating system drive. Additional drive of minimum of 1 Tb for media content. Non-Volatile Memory (NVMe) drives offer fast storage in a small form factor. Current motherboards support NVMe drives. Choose a drive with a high terabytes written (TBW) value for longevity.
- Motherboard: Support for multiple NVMe drives.
- Power supply Unit (PSU): 750 W or more depending on CPU and GPU. Choose a power supply with enough headroom for future GPU upgrades. Check the power requirements of the GPU. Use 80 Plus Gold rating or better for better power supply efficiency.
- Computer case: Good air intake. Solid front covers may prevent proper cooling airflow for the components. Enough total length to fit the GPU inside.
- Total desktop custom system cost can be for example between 1500 € - 3000 €. This consists of 32 GB of RAM (100 €), operating system (150 €),

storage 2 x 1 Tb NVMe (150 €), motherboard (200 €), CPU (350 €), (150 €) power supply, computer case (130 €), CPU cooler (35-100 €) and GPU (480 - 1000 € or 1300 €). Cost calculation is an approximation based on pricings listed on retailer website (June 2025, https://www.jimms.fi/).

6.3.2. CPU Examples

Here are some examples of current CPUs for content creation computers.

- AMD 9700X (8 cores, TDP 65 W), AMD 9800X3D (8 cores, TDP 120 W), AMD 7700 (8 cores, TDP 65 W).
- AMD 9900X (12 cores, TDP 120 W), AMD 7900 (12 cores, TDP 65 W).
- Intel Core Ultra 5 245K (6 P-cores, 8 E-cores, TDP 125 W), Intel Core Ultra 7 265K (8 P-cores, 12 E-cores, TDP 125 W).
- For Mac computers the chips starting from M2.

6.3.3. GPU Examples

Here are some examples of current GPUs for content creation.

- NVIDIA RTX 5060 Ti 16 GB (max power draw 180 W)
- NVIDIA RTX 5070 12 GB (max power draw 250 W)
- NVIDIA RTX 5070 Ti 16 GB (max power draw 300 W)
- AMD Radeon RX 9070 XT 16 GB (max power draw 304 W)

6.3.4. Computer Sustainability Considerations

In general, desktop computers are often more modular than laptops. On desktops any of the components can be changed or upgraded. Laptops often have CPU, GPU and motherboard soldered together which makes fixing more difficult or even impossible. However, laptops often use less energy than desktop computers. But powerful laptops can cost more than desktop computers that have even more processing power. For a small business the variables of cost, energy use and processing power are important things to consider. A compromise between cost and processing power may be a valid option. Here are some additional considerations regarding computer equipment sustainability:

- Flagship CPU and GPU products with maximum processing power often use a lot more energy than moderately powered devices. Increased energy use causes the components to heat more, and this may lead to cooling issues and sometimes even component degradation or power connector overheating. One example is the Nvidia RTX 5090 32 GB flagship video card that has a rated power draw of 575 W (TechPowerUp, 2025). In comparison the RTX 5070 Ti has a power draw of 300 W (TechPowerUp, 2025).
- Framework has modular laptop designs and Fairphone sells sustainably produced smartphones. These are positive examples of sustainable computer design. If a mobile device has a swappable battery, the lifespan of the device can be extended more easily.
- Repairability and longevity: It is important to choose good enough initial specifications for the computer, so that it can be used for a long period of time. Doing slow upgrades and aiming for 4-8 year update cycle saves

valuable resources, which computer chip manufacturing requires. For example Nvidia's GPUs RTX 1070 Ti and RTX 1080 from 2016-2017 are getting slow in AI tasks and the CPUs from Intel's 7th generation from that period are becoming a bottleneck. Modular computer designs make it possible to change parts when needed. Especially a GPU upgrade can extend the lifespan of the system.

- Business can consider using refurbished and customer returned computer components to build their own systems.
- Many services run on the cloud and the total carbon footprint including component building materials and energy use can be very difficult to know.
- When running AI tasks and media productions on the entrepreneur's own computer, one can choose a green energy provider.

6.4. Value and Sustainability

Data infrastructures encompass cloud data storage, server renting, and the use of power-efficient content creation computers. For SMEs, these technologies offer both opportunities and challenges in terms of business value and sustainability.

6.4.1. Value

Cloud computing and server renting have become foundational to modern business operations. For SMEs, cloud-based platforms offer a scalable and flexible alternative to traditional on-premises servers. These services allow businesses to store customer data, manage product lifecycles, and run applications without the need for in-house infrastructure maintenance. This is particularly advantageous for smaller teams with limited technical resources, as cloud service providers typically handle security, updates, and performance optimization. Server renting allows SMEs to host websites, store databases and run data analytics services or AI generative tasks. Hosting services often offer flexible billing models, which can help manage costs.

The use of cloud services also supports business continuity and collaboration. Files, media, and backups can be accessed remotely, enabling distributed teams to work efficiently. Moreover, platforms that integrate multiple business functions such as data storage, supply chain management, and AI-assisted analytics simplify the digital ecosystem and reduce the need for multiple service providers.

As an alternative to cloud services, the choice of content creation computers offers a significant way for an entrepreneur to impact both performance and sustainability of the company's content generation workflow. Open-source AI models enable offline content generation without the need of an active internet connection or content uploads to external platforms. Modular desktop systems allow for easier upgrades and repairs, extending the lifespan of the equipment. Prebuilt systems offer convenience, while custom-built computers provide flexibility and repairability. Choosing energy-efficient components and avoiding proprietary hardware can further enhance long-term value and lead to positive environmental impacts as the computer gear upgrade cycle is extended.

Despite their advantages, data infrastructures can present several challenges. Cloud services may have a steep learning curve, and pricing models can be opaque, making it difficult for entrepreneurs to predict costs accurately. Data

security and compliance with regulations such as the GDPR are critical concerns, particularly when handling sensitive customer information or using service providers that are located outside of EU.
Hardware decisions also involve trade-offs. High-performance components, such as flagship GPUs, consume significantly more energy and may suffer from thermal issues, potentially affecting their lifespan or stability. Proprietary components in prebuilt systems can hinder repairability and increase electronic waste. Additionally, global economic fluctuations can affect the availability and cost of computer components, complicating procurement and budgeting. Entrepreneurs may not always have the time or effort to investigate what components are suitable for long term computers. Data loss remains a risk in both cloud and local environments, underscoring the importance of regular backups and robust data management practices.

6.4.2. Sustainability

Sustainability is a growing concern in the deployment of digital infrastructures. Major cloud providers, including Microsoft, Amazon Web Services, and IBM, have made public commitments to achieving carbon neutrality or 100 % renewable energy usage. However, the transparency and actual impact of these pledges vary, and the energy demands of large-scale AI operations continue to rise.
Some innovative platforms utilize idle computational capacity from existing servers, promoting resource efficiency. European service providers can offer GDPR-compliant and environmentally conscious alternatives utilizing energy from wind and hydropower. The entrepreneur has the option to choose a service provider that aligns with the company's sustainability goals.
With computer hardware, sustainability can be enhanced through careful component selection. Moderately powered CPUs and GPUs often provide sufficient performance for SMEs while consuming less energy. Modular and repairable mobile systems, such as those offered by Framework and Fairphone, exemplify sustainable design by extending device lifespans and reducing electronic waste.
The environmental impact of computer manufacturing, including the extraction of rare minerals and the energy-intensive production process, highlights the importance of extending hardware lifecycles. SMEs can contribute to sustainability by choosing refurbished components, selecting good initial hardware specs for adopting longer upgrade cycles, and selecting green energy providers for their local computing operations.
Data infrastructures are essential enablers of digital transformation in the fashion, craft, and textile sectors. For SMEs, cloud services, server renting, and efficient computing hardware offer significant value in terms of flexibility, scalability, and operational efficiency. The benefits of the technologies must be balanced against challenges related to cost, complexity, and environmental impact.
By making informed choices, such as selecting sustainable service providers, investing in modular hardware, and adopting responsible data practices, SMEs can align their digital strategies with broader sustainability goals. In doing so, they contribute to a more resilient and environmentally conscious creative economy.

7. Sustainability of Platforms and Data

The transition towards sustainability in the European Union is reshaping the operational and regulatory landscape for small and medium-sized enterprises in the fashion, craft, and textile industries. As digital platforms and data infrastructures become integral to business operations, their environmental and social sustainability emerges as a critical dimension of responsible company management. This encompasses the ecological footprint of digital technologies and the ethical governance of data and transparency in supply chains.

7.1. Legal Aspects

The EU's regulatory frameworks such as the European Green Deal, EU Strategy for Sustainable and Circular Textiles and the new Circular Economy Action Plan drive the legislative efforts. One of the future legal requirements that affect SMEs in CCSI field is The Digital Product Passport, which mandates the digital traceability of textile products to support informed consumer choices and circular business models. Another legislative development that impacts SMEs is the EU's Omnibus packages, which aim to simplify the regulatory requirements of SMEs regarding sustainability reporting (European Commission, 2025).
For entrepreneurs it may be difficult to follow what regulations are implemented and what is required of their businesses from legal and sustainability standpoints. Here are some guidelines for fashion SMEs:

- It is important for the entrepreneurs to be active and demand guidance and training sessions from their unions in topics such as the Digital Product Passport. Unions can also be a way to influence EU and local legislative processes.
- One can use EU's Legislative Train Schedule webpage that informs what is happening in EU's legal space. Focus of attention can be directed towards the European Commission Priorities. https://www.europarl.europa.eu/legislative-train/
- EU Transparency Register is a database that lists 'interest representatives' such as organizations, groups and entrepreneurs that aim to affect EU policies and decision-making. Registration became mandatory since 2021. By registering to the database, entrepreneurs can show their commitment to openness about their influencing efforts. Registered SMEs are entitled to activities including the possibility of meeting European Commission members and participating in subject-specific briefings for interest representatives. More information can be found on the main page https://transparency-register.europa.eu/index_en and the Guidance page https://transparency-register.europa.eu/guidance_en.
- Entrepreneur can contact their countries' EU parliament representative to bring up important sustainability matters that affect their business and to propose ideas. Contacting is usually done via email.
- EU citizens and businesses can give feedback and propose changes to EU's upcoming policies and laws. https://ec.europa.eu/info/law/better-regulation/have-your-say_en

By embedding sustainability into the core of digital operations, fashion and craft entrepreneurs can not only meet regulatory requirements but also contribute meaningfully to the EU's broader sustainability goals and drive the green transition forward.

7.2. Environmental Sustainability

Digital platforms offer several environmental benefits. Cloud-based collaboration tools reduce the need for physical travel and printed materials, thereby lowering greenhouse gas emissions and resource consumption. AI-driven forecasting and demand planning tools help align production with actual market needs, minimizing overproduction and waste. This is particularly relevant in the fashion and textile sectors, which are traditionally resource intensive.
Eco-design and LCA platforms enable businesses to evaluate and reduce the environmental impact of their products across the entire lifecycle, from raw material sourcing to end-of-life disposal. These tools support the transition to circular economy models by promoting recycling, reuse, and sustainable material choices. Blockchain platforms can offer an option to facilitate traceability and transparency, which are essential for sustainable supply chain management and compliance with emerging regulations such as the EU Digital Product Passport. With the help of platforms like the Open Connector businesses can generate added value for clothing items by attaching perks and care instructions through NFC tags to the products. This may motivate the customers to use the clothing items for longer periods of time. Attaching digital content to clothing offers businesses subscription-based opportunities for earning income despite producing less products.
However, the environmental costs of digitalization must not be overlooked. The energy consumption associated with cloud services, server operations, and the training and deployment of large AI models is substantial. Data centres require significant electricity, and unless powered by renewable energy, they contribute to carbon emissions. Similarly, the manufacturing of computer chips and digital hardware involves resource-intensive processes, including the extraction of rare earth minerals and the generation of electronic waste.
To mitigate these impacts, SMEs are encouraged to select service providers that prioritize renewable energy and environmental certifications. Additionally, adopting modular and repairable hardware, extending device lifespans, and considering refurbished equipment can significantly reduce the environmental footprint of digital operations.

7.3. Social Sustainability

Digital platforms also play a vital role in promoting social sustainability. They enhance access to knowledge, foster inclusion, and support cultural preservation. Networks such as Fashion Mingle and Conscious Fashion Collective amplify underrepresented voices and provide access to industry-specific resources. Educational platforms and open data repositories bridge gaps in training and professional development, particularly for SMEs in remote or underserved regions.
AI tools and content-sharing platforms can improve accessibility by offering multilingual support, transcription services, and visual-to-text conversion. These features help make content more inclusive and usable for diverse audiences, including those with disabilities.

Nevertheless, social sustainability challenges persist. The digital divide remains a significant barrier, limiting access for SMEs with inadequate internet infrastructure or digital literacy. The pressure to maintain a constant digital presence and produce high volumes of content can lead to burnout and unsustainable workloads, especially for small teams. Algorithm-driven content curation may prioritize popular or commercial voices, marginalizing local, emerging, or culturally specific perspectives.

Moreover, the use of free platforms often involves the collection and monetization of user data, raising concerns about privacy, identity protection, and ethical data governance. SMEs must navigate complex legal frameworks such as the GDPR and ensure that their data practices are transparent, secure, and respectful of user rights.

7.4. Economic and Operational Considerations

Sustainability is influenced by the economic and operational realities of digital platform use. The cost of cloud tools, infrastructure, and content generation—including garments and digital assets—can be significant. SMEs must balance these costs against the potential gains in productivity, innovation, and market reach. Time is another critical resource; while digital tools can enhance efficiency, they also require time investment for learning, maintenance, and content creation.

Repair and refurbishment of digital equipment offer a sustainable and cost-effective alternative to frequent hardware replacement. Choosing energy-efficient components and avoiding overpowered systems can reduce both operational costs and environmental impact. SMEs should also consider the sustainability of their digital content strategies, ensuring that the time and resources invested in digital engagement yield meaningful returns in visibility, customer loyalty, and brand value.

8. Conclusions

The sustainability of data platforms is a complex issue with environmental, social, and economic dimensions. While these platforms can be valuable tools for promoting sustainability in fashion, textile, and craftsmanship, their use needs to be purposeful and aligned with broader sustainability goals. Small and medium-sized enterprises (SMEs) should adopt a comprehensive approach that includes ethical data practices, energy efficiency, inclusive design, and long-term value creation. This holistic approach ensures that digital transformation positively impacts both people and the planet.

The European Union's green transition is significantly reshaping the operational environment for SMEs in the fashion, craft, and textile sectors. Digital platforms and data infrastructures are becoming increasingly central to business operations, and their ecological and social sustainability is an essential part of responsible business conduct. This includes considering the carbon footprint of digital technologies as well as ethical data governance and transparency in supply chains.

EU legislation such as the European Green Deal, the EU Strategy for Sustainable and Circular Textiles, and the new Circular Economy Action Plan guide companies toward more sustainable practices. Upcoming requirements include the Digital Product Passport, which mandates digital traceability of textile products, and the Omnibus legislative packages, which aim to simplify sustainability reporting for SMEs.

For entrepreneurs, it can be challenging to stay up to date with regulatory developments and understand what is expected of their businesses. Therefore, it is important for them to be proactive and request training and guidance, for example, on the Digital Product Passport. Trade unions can also serve as a channel for influencing both EU and national legislation. The EU's Legislative Train Schedule website provides up-to-date information on legislative initiatives, and citizens can give feedback and suggestions on upcoming regulations through the "Have Your Say" portal. Contacting one's national Member of the European Parliament can also be a useful way to engage in sustainability discussions.

Digital solutions can support environmental sustainability in many ways. Cloud-based collaboration tools reduce the need for travel and paper use, thereby lowering greenhouse gas emissions. AI-based forecasting and demand planning tools help align production with actual demand, reducing overproduction and waste. Eco-design and LCA tools enable businesses to assess the environmental impact of their products from raw materials to end-of-life. These tools support the transition to a circular economy by promoting recycling, reuse, and sustainable material choices. Blockchain technology can enhance transparency and traceability in supply chains, which is essential for implementing tools like the Digital Product Passport. Platforms such as Open Connector allow businesses to add digital features to products, such as care instructions or value-added services via NFC tags, which can extend product lifespans and enable new subscription-based revenue models.

However, the environmental impacts of digitalization must not be overlooked. Cloud services, data centres, and the training of AI models consume significant amounts of energy, and unless powered by renewable sources, they contribute to carbon emissions. The production of digital devices is also resource-intensive and generates electronic waste. These impacts can be mitigated by choosing service providers that use renewable energy and hold environmental certifications. Extending the lifespan of devices, using repairable and refurbished equipment, and avoiding overpowered systems are also effective ways to reduce the environmental footprint of digital operations.

From a social sustainability perspective, digital platforms can enhance access to knowledge, inclusion, and cultural preservation. Networks such as Fashion Mingle and Conscious Fashion Collective amplify underrepresented voices and provide access to industry-specific resources. Educational platforms and open data repositories support skills development, especially for SMEs in remote or underserved areas. AI tools and content-sharing platforms can improve accessibility through multilingual support, subtitles, and visual-to-text conversion, making content more inclusive for diverse user groups.

Nevertheless, challenges remain. The digital divide limits access to digital services in areas with poor infrastructure or digital literacy. For small teams, the pressure to constantly produce content can lead to burnout. Algorithms may favour commercial or mainstream content, marginalizing local or culturally specific voices. Additionally, the use of free platforms often involves data collection and monetization, raising concerns about privacy and ethical data use.

Companies must comply with regulations such as the GDPR and ensure that their data practices are transparent and respectful of user rights.

Finally, the use of digital platforms also involves economic and operational considerations. The costs of cloud services, content production, and digital assets can be significant, and SMEs must balance these expenses with the potential benefits in productivity, visibility, and market reach. Time is also a critical resource: while digital tools can improve efficiency, they require time for learning, maintenance, and content creation. Repairing and reusing digital equipment can offer a cost-effective and sustainable alternative to frequent replacements. Businesses should also evaluate the sustainability of their digital content strategies to ensure that the time and resources invested yield meaningful returns in terms of visibility, customer loyalty, and brand value.

With the right tools, guidance, and collaborative spirit, digital platforms can not only enhance operational efficiency but also foster a more inclusive, transparent, and regenerative industry. As the EU continues to shape a greener future, businesses of the CCSI that proactively engage with these developments can be the ones that drive progress towards a more sustainable and resilient economy.

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References

European Commission. (2025, February 26). *Questions and answers on simplification omnibus I and II.* European Commission, Press Corner. https://ec.europa.eu/commission/presscorner/detail/fi/qanda_25_615

TechPowerUp. (2025). *GeForce RTX 5070 Ti Specs*. TechPowerUp, GPU Database. https://www.techpowerup.com/gpu-specs/geforce-rtx-5070-ti.c4243

TechPowerUp. (2025). *GeForce RTX 5090 Specs*. TechPowerUp, GPU Database. https://www.techpowerup.com/gpu-specs/geforce-rtx-5090.c4216

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