

# DIGITAL AND INTERACTIVE PLATFORMS AS NETWORKING AND DATA-SHARING TOOL

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## Abstract

The paper investigates the evolution of digital platforms as complex socio-technical ecosystems focused on data visualization, exploration, and the mediation of social and informational networks. Adopting an interdisciplinary perspective, the study analyzes how platforms reshape the production, consumption, and circulation of digital content, as well as the management of social relationships. Through a critical reading of the transition from the participatory web to contemporary platform models, the paper highlights how platforms are not only technological infrastructures, but also cultural devices capable of shaping practices, transferring information, and managing content. The research is based on a comparative analysis of case studies grouped into four categories: Low Impact, Accessibility and Inclusion, Data Exploration and Visualization, and Algorithms and AI. This analysis highlights recurring design models and opportunities, with particular attention to modes of information exploration, and characteristics related to sustainability and platform usage. Within this framework, the paper explores the role of co-design practices as a methodological approach for testing and validating platforms. By actively involving users, stakeholders, and communities in the phases of ideation, prototyping, and evaluation of UX and UI, co-design supports more responsive and inclusive design processes. Finally, the paper proposes a set of pre-design requirements and parameters for developing accessible, low-tech, and environmentally responsible platforms that promote economic sustainability and broaden access to digital content, fostering more inclusive and conscious digital ecosystems.

**Keywords:** *Digital Platforms, Digital Ecosystem, Design Guidelines, Fashion Stakeholders, Web 3.0*

## INTRODUCTION

The evolution of digital platforms within the fashion ecosystem reflects broader transformations in Information and Communication Technologies (ICT) and the progressive shift toward more interconnected and service-oriented paradigms. From the early participatory web – characterized by promises of democratization, user-generated content, and peer-to-peer collaboration – to contemporary platform-based architectures dominated by centralized governance and data-driven business models, digital infrastructures have evolved through distinct phases marked by the emergence of increasingly sophisticated technological frameworks (Srnicsek, 2017). The Internet of Things (IoT) has introduced

pervasive sensing capabilities and object connectivity, enabling physical garments, retail spaces, and supply chain components to generate and exchange data in real-time (Pal & Yasar, 2020). Fashion brands have begun embedding RFID tags, NFC chips and blockchain technology in apparel manufacturing to track inventory movement, authenticate products, and gather data on consumer usage patterns, as exemplified by luxury brands like Burberry and Moncler, which have integrated smart tags to enhance both supply chain transparency and customer engagement (Bertola & Teunissen, 2018; Sun & Ha-Brookshire, 2025). The Internet of Services (IoS) has transformed software functionalities into modular, composable services accessible through standardized interfaces,

facilitating the development of distributed applications that coordinate multiple actors and processes (Reis et al., 2022).

More recently, the Internet of Everything (IoE) framework has expanded these paradigms by envisioning comprehensive connectivity among people, processes, data, and objects, creating intelligent networks where value emerges from the convergence and orchestration of heterogeneous elements (Farias da Costa et al., 2021).

Within the fashion industry, these technological shifts have fundamentally reconfigured the relationships between designers, manufacturers, retailers, and consumers, disrupting traditional hierarchies and enabling new forms of data circulation, collaborative practices, and value creation (Rocamora, 2017; Casciani et al., 2022; Glogar et al., 2025; Liu & Liu, 2025).

While seminal studies about “Web 2.0” emphasized user-generated content and collective intelligence, embodying an optimistic vision of participatory culture, recent research has theorized digital platforms as enablers of new forms of civic engagement and creative expression, as cultural diapositives. In fashion, this manifested through fashion blogs, street style photography platforms, and early social media communities that democratized fashion discourse beyond traditional gatekeepers (Rocamora, 2011). However, this early enthusiasm has been progressively tempered by critical scholarship that interrogates the power dynamics embedded within platform architectures.

Van Dijck, Poell, and de Waal (2018) introduced the concept of “platform society”, arguing that platforms have transcended their status as mere technological tools to become foundational infrastructures that penetrate and reorganize social institutions. In the fashion sector, this transformation is particularly evident: platforms like Instagram, TikTok, and Pinterest have fundamentally reconfigured fashion communication, consumption patterns, and brand-consumer relationships (Duffy & Hund, 2015). Platforms now mediate not only how fashion is discovered and consumed, but also how trends emerge, how cultural capital is accumulated, and how fashion labor is organized. Plantin et al. (2018) further complicated this understanding by examining the convergence of platforms and infrastructures, demonstrating how platforms increasingly assume infrastructural characteristics

while traditional infrastructures adopt platform-like features, creating hybrid socio-technical assemblages that now underpin the entire fashion ecosystem.

This transformation can also be interpreted through the concept of *remediation*, as theorized by Bolter and Grusin (1999), whereby digital media refashion and reconfigure the logics of pre-existing media forms. Contemporary fashion platforms absorb and reorganize communication systems within layered digital environments. In this way, platforms become cultural interfaces that translate visual culture, practices, and research knowledge into interactive, data-driven ecosystems.

Within the fashion system, this process marks a shift from representation to interaction, from linear communication to participatory infrastructures, and from product-centered logics toward relational and knowledge-based value creation.

Gillespie’s (2010) analysis of the “politics of platforms” reveals how these entities strategically position themselves as both open and closed, neutral and interventionist, depending on regulatory and commercial contexts. This discursive flexibility obscures the extent to which platforms actively curate, moderate, and algorithmically organize information flows. In fashion, this is particularly consequential: Instagram’s algorithmic feed determines which designers gain visibility, TikTok’s recommendation system shapes viral fashion trends, and Pinterest’s visual search algorithms influence consumer taste formation (Rocamora, 2017; de Perthuis & Findlay, 2019).

In such a perspective, digital platforms have become pivotal mediators in this transformation, functioning as spaces where creative labor is coordinated, trends are identified and disseminated, consumer preferences are aggregated and analyzed, and brand identities are constructed and negotiated (Duffy, 2017). Platforms leverage artificial intelligence and social media monitoring to predict emerging trends by analyzing millions of images and posts, fundamentally altering how fashion companies approach design and merchandising cycles (Bof & McKinsey, 2019, 2025). Similarly, many brands like Zara have developed sophisticated digital infrastructures that connect point-of-sale data with design teams in real-time, enabling rapid response to consumer demand and reducing unsold inventory.

Intelligent data processing has provided the technological foundation for platforms that transcend simple communication functions to operate as complex socio-technical ecosystems. These ecosystems are capable of mediating knowledge exchange across distributed communities, orchestrating global production networks, visualizing complex datasets, and actively shaping cultural practices and consumption patterns (Van Dijck et al., 2018; Plantin et al., 2018).

In the fashion domain specifically, platforms have emerged as critical infrastructures that serve multiple, often overlapping functions: visualizing and interpreting trend data through sophisticated dashboards and analytical tools, coordinating intricate supply chains that span multiple continents and involve numerous intermediaries, facilitating peer-to-peer exchange of garments and accessories in circular economy models, providing spaces for community formation and knowledge sharing among practitioners and enthusiasts, and constructing compelling brand narratives through curated visual content and strategic algorithmic amplification. Platforms like Depop and Vinted have created thriving marketplaces for second-hand fashion, attracting millions of users and challenging traditional retail models while promoting circular consumption practices. Meanwhile, supply chain transparency platforms such as Provenance, an AI-enabled product data platform, and TextileGenesis, which delivers article-level traceability by creating digital tokens for every step in the supply chain, utilize blockchain technology to trace materials from fiber to finished garment, responding to growing consumer demand for ethical and sustainable production—a practice adopted by brands including Stella McCartney and Reformation (Agrawal et al., 2021; Cedrola et al., 2024). Professional networking platforms like The Business of Fashion's community forums and design collaboration tools such as CLO 3D and Browzwear enable distributed teams to work synchronously on digital prototypes, significantly reducing sample production and associated waste, and help fashion companies speed up time to market, improve fit, increase customer satisfaction. Moreover, digital fashion agencies and mono or multi-brand digital platforms build collaborative communities of experts with different digital competencies, sharing knowledge in such open-source communities (Casciani et al., 2022).

This multifaceted role has transformed traditional industry structures, enabling new modes of creative production that blur boundaries between professional and amateur practice, new consumption patterns that emphasize access over ownership, and new forms of cultural intermediation that challenge established gatekeeping mechanisms (McRobbie, 2016). However, these transformations have also introduced significant tensions and challenges: issues of precarious work and value extraction, concerns about data privacy and algorithmic bias, questions regarding environmental sustainability and the material costs of digital infrastructures—including the substantial energy consumption of data centers supporting e-commerce operations—and debates about accessibility and digital exclusion (Crawford, 2021).

## **DIGITAL ECOSYSTEM: CASE STUDIES SELECTION**

In an increasingly internet-based society, the ways in which people access information, communicate, and interact have undergone radical changes, reshaping behaviors, tools, and languages, and fostering the pervasive spread of technological platforms. The digital era has introduced growing levels of interactivity and personalization within platforms, transforming the processes of production, transmission, and sharing of knowledge.

Since the introduction of infographics, information design, and data visualization, design has engaged with the management of complex data flows through new media, developing alternative ways of accessing and experiencing information. Within this scenario, theories of complexity (Morin, 2017; Bocchi & Ceruti, 2020; Ceruti & Bellusci, 2025) have provided a framework for interpreting the non-linear nature of contemporary digital phenomena, emphasizing relationships, interdependencies, and the definition of systems capable of making complex data understandable. Design thus assumes a key role in the processes of knowledge production and dissemination, operating through the construction of alternative languages to convey information and to structure new forms of knowledge representation, while also responding to the needs of sustainability, circularity, and accessibility in the digital world. Digital platforms, therefore, emerge as environments in which information is not

simply transferred but constructed through processes of interaction, visualization, and shared interpretation.

They are situated within the *docusphere* (Ferraris, 2021), understood as the overall ensemble of documents and human behaviours, regardless of their immediate informational value. This differs from the *infosphere* (Floridi, 2017), which represents the surface layer of information. “[...] The infosphere is the superficial and particularly murky foam of a much vaster sea, which I define as the ‘*docusphere*’, consisting in the domain of documentality” — “[...] the web is only minimally an infosphere and largely a *docusphere* and a biosphere” (Ferraris, 2021, pp. 41, 310).

The *docusphere* highlights the tensions between recording and meaning-making, proposing a more complex vision of digital knowledge, in which design can act not only as a communication medium, but as a device capable of mediating and interpreting this stratification in an intelligible way. At the same time, digital transformation has introduced systems of automation and dematerialization that have redefined the timing, spaces, and modalities of communication. Internet can be understood as a “universal meta-platform, neutral, multi-sided, and multi-layered” (Cellini, 2018), within which multiple specialized platforms coexist and interconnect. Platforms can be read as complex ecosystems oriented toward the sharing of information, data, and services, capable of facilitating different types of interaction and access to content.

In this context, new technologies have contributed to breaking down temporal and geographical barriers to communication and connection. The development of services, tools, and classification systems has facilitated access to information and knowledge, strengthening the role of platforms as devices of cognitive mediation.

From this perspective, the selection and analysis of the case studies presented outline a theoretical framework that provide a critical reading of platforms representative of the main orientations in contemporary design practice. The definition of four categories — *Low Impact, Accessibility and Inclusivity, Data Visualization and Exploration, and Algorithms and AI* — highlights how different configurations of digital ecosystems reflect specific visions that guide design practices.

The identification of these four categories is

based on a hybrid methodological approach, that combines theoretical grounding with inductive observation. On the one hand, they are based on literature on platform studies, digital design, and data culture; on the other, they emerged through a comparative analysis of contemporary digital platforms, whose design strategies reveal recurring orientations in how digital ecosystems are conceived and developed.

These categories are not isolated typologies but should be considered as interconnected analytical dimensions that may coexist within a single platform. Together, they form a conceptual framework for interpreting how platforms articulate environmental responsibility, inclusivity, knowledge mediation, and algorithmic agency. The research initially considered a broader set of platforms identified through exploratory mapping of contemporary digital ecosystems. From this broader analytical sample, the cases discussed in the paper were selected as best cases, chosen for their representativeness and clarity in expressing the design approach outlined above.

The *Low Impact* category includes platforms that promote technologies, practices, and design choices oriented toward ecological and social sustainability, emphasizing the reduction of energy footprints, technological autonomy, and shared responsibility. An example is the website *Low-tech Magazine – Solar Low-tech Power*; powered by solar energy, it displays the available energy through a battery indicator on the page, informing users that the website may go offline in case of insufficient energy [Fig. 01].

Located in Barcelona, it is therefore closely connected to local weather conditions and shows live data relating to power supply, power demand, and energy storage. It is a blog that explicitly presents a model in which the digital platform becomes a space for sharing information. To reduce energy use, the designers opted for a back-to-basics web design, using a static site instead of a database-driven content management system. They further apply default typefaces, dithered images, offline reading options, and other strategies to reduce energy use far below that of the average website. In addition, the low resource requirements and open design help keep the blog accessible for visitors using older computers and/or less reliable internet connections. In this case, all design choices are oriented toward adopting a low-tech model as a

## Power

This website runs on a solar powered server located in Barcelona, and will go off-line during longer periods of bad weather. This page shows live data relating to power supply, power demand, and energy storage.

Translations [fr](#) [de](#) [nl](#) [es](#) [it](#) [pt](#) [pl](#)

### Power supply

This is a forecast for the coming days, updated daily:

TODAY

☁️ cloudy

TOMORROW

☔ rain

DAY AFTER TOMORROW

\* weather forecast

72.51KB

🔍 39%

↑

Fig. 01

critique of highly sophisticated new technologies. The design studio *Formafantasma* uses the digital platform as an extension of their research-based design practice. The exhibition-oriented approach of its portfolio becomes a device for a critical reflection, in line with their vision. The website has been designed to minimize the energy consumption and CO<sub>2</sub> emissions resulting from internet navigation. The interface uses system typefaces (Arial and Times New Roman) to avoid unnecessary HTTP requests and is available in dark mode, following the operating system's color scheme preferences by default, thereby reducing screen brightness and energy consumption – especially in mobile use, where OLED screens are most common.

Interface clarity is not merely an aesthetic choice, but a strategy to limit the loading of unnecessary content. The preview of file sizes before enlarging images makes the energy cost of user actions explicit, introducing a form of shared design awareness between platform and user. At the infrastructural level, the adoption of renewable-energy-powered hosting, such as GreenGeeks, together with a custom-developed platform, further contributes to reducing the environmental impact on the server side.

The *Accessibility and Inclusivity* category includes

platforms that integrate accessibility services and broad user engagement as core design principles in web use. In particular, the University of the Arts London (UAL) integrates accessibility tools directly into its institutional website through *ReciteMe* technology, which provides translation, text-to-speech, typographic adjustment, text highlighting, and other interface adaptation functions, making content accessible to users with diverse accessibility needs [Fig. 02].

Another AI-based technology is *accessiBe*, which aims to make websites accessible for people with visual, auditory, and motor disabilities through automated processes that analyze and correct content to comply with WCAG guidelines. The *Data Visualization and Exploration* category investigates platforms that transform data into visual systems that can be selected and navigated through structured storytelling. The design becomes a tool not only for aesthetic representation, but a practice for understanding complex phenomena and making knowledge accessible by designing ways of communicating data that embrace context, qualitative narratives, and even imperfections or missing information. This vision is embodied in *Data Humanism*, an approach that reclaims the human side of data and

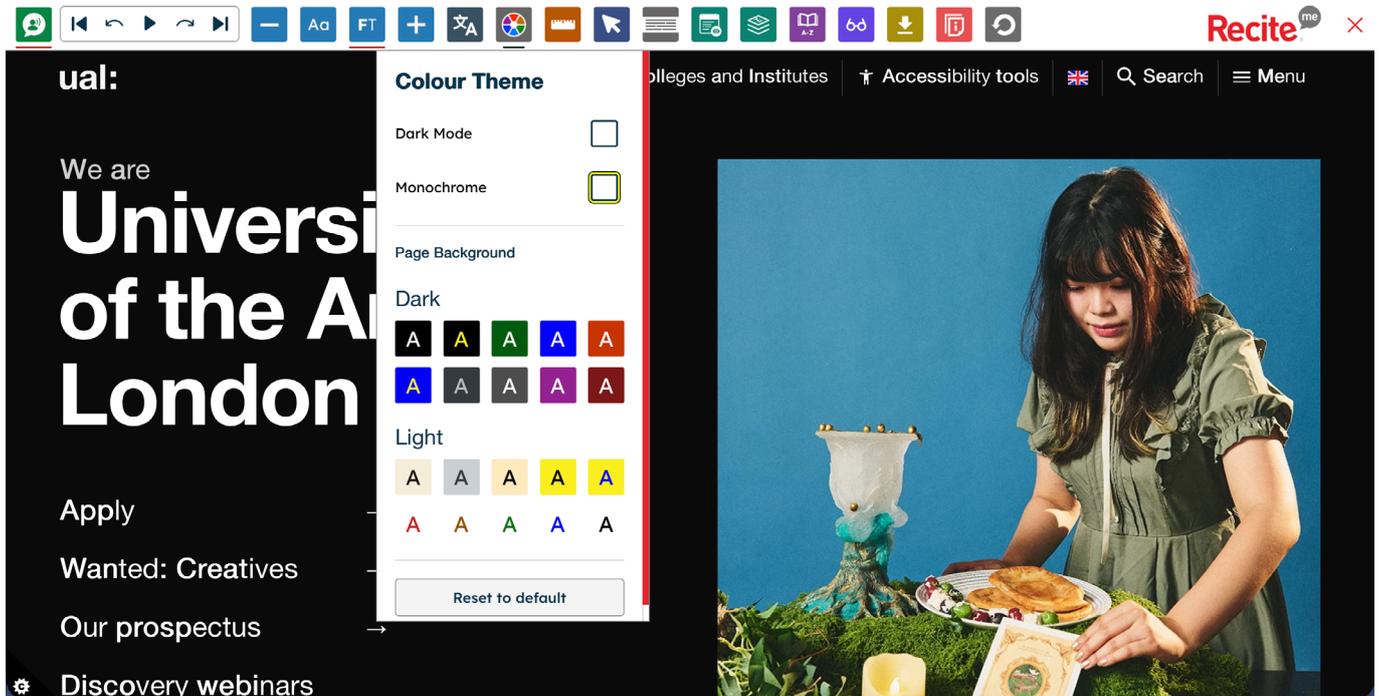


Fig. 02

recognizes that even the most technical datasets are rooted in human stories, actions, and decisions (Lupi, 2017).

*Science Stack: Tools Within Reach* by Pentagram is an interactive infographic for data visualization and comparison. The project aims to make the impact of low-cost and open-source scientific tools visible and accessible to a broad audience, showing how they are transforming research and society. It operates as an interactive module composed of 24 cards, each presenting a different tool and highlighting a key feature. The cards are organized into categories that allow users to explore, compare, and sort tools by type, use, cost, and level of openness. The project is designed to organize complex information into comparable visual forms. Its design value lies in creating interfaces that support the critical interpretation of multidimensional datasets, enhancing accessibility while reducing and clarifying complexity.

The *Impact Report* section of the *Organic Basics* clothing brand's platform presents data related to the social and environmental impacts of its products through accessible visualizations and indicators. The aim is to transparently communicate initiatives and ecological footprints not merely by publishing numbers, but through a visual storytelling that makes the connection

between production, value chain, and impact legible. This demonstrates how design can facilitate access to complex information; at the same time, it remains an example of corporate transparency reporting – a marketing practice that risks oscillating between genuinely enabling information and brand-driven consumer loyalty strategies. Finally, the *Algorithms and AI* category examines how algorithms and AI-based digital platforms are redefining decision-making processes, personalization, and automation, making users active participants in interaction.

The *Unmade* platform enables real-time customization of garments through algorithms that translate user choices into product configurations. Here, the digital ecosystem is not merely a production tool, but an agent of co-design between machine and user. The platform becomes a medium of interaction, intertwined with predictive models and algorithmic logic to enable more sustainable production (stock reduction and on-demand customization).

Moreover, *Browzwear* is an advanced 3D design platform for the fashion industry that digitizes and accelerates the product development process, reducing costs and waste through realistic virtual prototypes (true-to-life virtual twins). It integrates algorithms and AI to support collaborative design

and garment simulation, fostering sustainability. Positioned as a hub for digitizing the entire product development cycle – from concept to design, production, and sales – it synchronizes heterogeneous teams around a single digital model. The selected platforms demonstrate how principles of sustainability, accessibility, storytelling, and automation can be translated into concrete design choices aimed at facilitating access to information, reducing the environmental impact of digital systems, providing tools to access content through defined codes and narratives, and introducing intelligent systems capable of supporting design, management, and collaboration processes.

## PRE-DESIGN PARAMETERS FOR WEB PLATFORM 3.0 DEVELOPMENT

In contemporary debate, Web 3.0 cannot be interpreted exclusively as a technological evolution, but rather as a set of orientations that redefine how digital platforms are conceived, governed, and used. Building on reflections on the *Semantic Web* (Berners-Lee et al., 2001), as well as subsequent developments related to artificial intelligence and to models of decentralization of infrastructure and governance of platforms, Web 3.0 is understood as a broader cultural and design shift.

Compared to Web 2.0 – characterized by the strong centralization of content, interactions, and data control within large proprietary platforms – Web 3.0 is described as an open, interoperable, and user-oriented digital environment, in which data, services, and relationships can be reused and reconfigured in flexible and distributed ways. From this perspective, the web is no longer conceived only as a space for publication or social interaction, but as an informational and relational ecosystem capable of supporting more articulated forms of cooperation between people, communities, and algorithmic systems.

Within this framework, defining a Web Platform 3.0 requires the identification of pre-design parameters capable of guiding design choices even before advanced technological solutions are introduced [Fig. 03]. Among these, low-tech approaches, environmental sustainability, and accessibility emerge as interdependent dimensions able to translate the principles of Web 3.0 into concrete design practices.

Low-tech, represents a first parameter, which is not intended as a rejection of innovation but as a conscious reduction of technological complexity.

In the web domain, this approach encourages simple, durable, and energy-efficient solutions, promoting essential information architectures, optimized code, and limited use of computational resources. When applied to platform design, low-tech supports readability, maintainability, and content longevity, contributing to the creation of resilient systems capable of functioning under conditions of limited resources and adapting to diverse social, cultural, and geographical contexts. Closely connected to this approach is the parameter of environmental sustainability, which has become increasingly central in discussions on web development. Recent studies show that the entire digital ecosystem – including network infrastructures, data centers, devices, and data flows – contributes significantly to global greenhouse gas emissions.

In response to these challenges, *Sustainable Web Design* approach proposes a vision of the web as a socio-technical infrastructure whose design must account for environmental impact across the entire lifecycle of digital platforms (Greenwood, 2021). Initiatives such as the *Sustainable Web Manifesto* and the *Web Sustainability Guidelines* promoted by the *World Wide Web Consortium* (W3C) emphasize the need to integrate energy efficiency, transparency, resilience, and social responsibility into design and development processes. Sustainability, therefore, extends beyond technical performance optimization to include governance models, access to content, and the distribution of value generated by digital platforms.

A third key pre-design parameter is accessibility, understood as a structural prerequisite rather than a mere regulatory requirement. Making platforms accessible means designing systems that can adapt to different sensory, cognitive, and linguistic abilities, ensuring equal access to information and knowledge. International standards such as the *Web Content Accessibility Guidelines* (WCAG) 2.1 issued by the W3C, together with the European regulatory framework defined by the *European Accessibility Act* (EAA), provide shared principles and criteria for building content that is Perceivable, Operable, Understandable, and Robust (POUR).

From a design perspective, accessibility also contributes to reducing interaction complexity by fostering clearer, more navigable, and more understandable interfaces. In this sense, it aligns with low-tech and eco-design principles,



Fig. 03

reinforcing the idea of digital platforms as inclusive, cooperative spaces oriented toward social and environmental sustainability.

### RHITA PLATFORM 3.0: A COLLABORATIVE DIGITAL FASHION SYSTEM

Building on the theoretical framework of platformization and socio-technical systems, the RHITA Platform 3.0<sup>1</sup> was conceived as a collaborative Web 3.0 environment for the fashion domain, aimed at sustainability, inclusivity, and sharing. A national network of five universities operating in Campania, Lombardy, Tuscany, and Veneto, focused on strengthening Italian Fashion know-how.

The platform was designed not merely as a repository of information, but as an interactive and dialogic space capable of connecting research outputs, sustainable practices, and stakeholders across the fashion value chain. The development phase included the construction of a research background based on the analysis

of selected Web 3.0 visual platforms, with the objective of defining pre-design, functional and interaction parameters translating research findings into an advanced, interactive, and dialoguing platform.

This comparative investigation contributed to defining the technical and functional requirements of the RHITA web platform, including website architecture [Fig. 04], content organization, and the creation of interactive visualizations for structured dissemination of research outputs.

The platform was therefore structured according to four guiding criteria that reflect the analytical framework of this essay:

- a fashion-oriented perspective, addressing sector-specific dynamics of production and communication;
- a low-impact approach, prioritizing essential infrastructures, optimized content delivery, and sustainable digital practices;
- data visualization strategies, designed to make research findings accessible through visual and navigable knowledge systems;

<sup>1</sup> RHITA Platform available at the link: <https://www.rhita.eu>

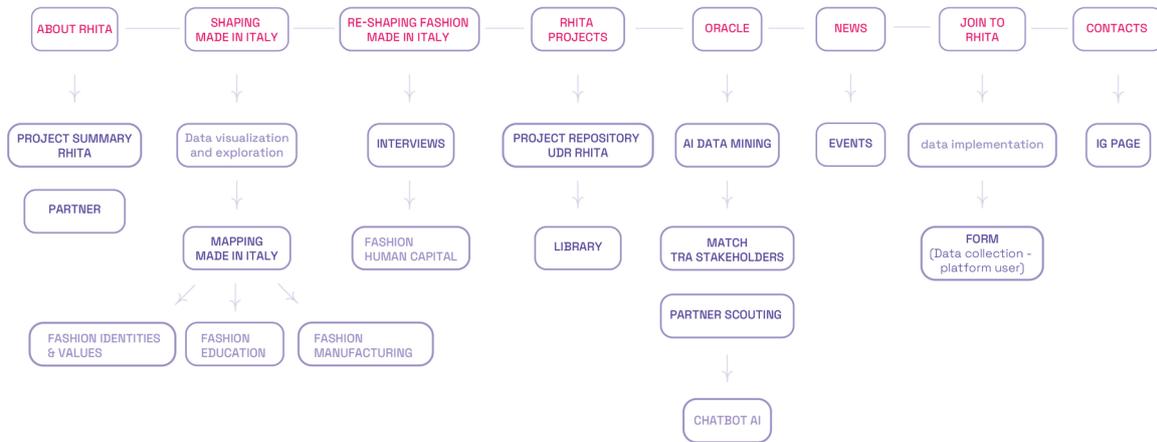


Fig. 04

– the integration of AI-based features, supporting investigation, customization, and search.

Through these principles, RHITA platform operates as a collaborative digital ecosystem that connects stakeholders – institutions, companies, researchers, and local actors – within a renewed fashion value chain. The platform enables collaborative exploration, knowledge exchange, and co-creation practices.

RHITA represents an experimental model for the evolution of fashion platforms from transactional environments toward narrative and operative tools based on research-driven, and oriented towards circularity, digitalization and sustainability.

## CO-DESIGN PROCESSES FOR TESTING AND VALIDATING PLATFORMS

In the design and implementation of digital platforms, collaborative processes play a crucial role in evaluating usability and performance, and in

providing feedback to developers before the digital tool's official launch.

Usability studies, focusing on the functional aspects of interfaces, the effectiveness of content, and digital communication strategies in general, allow us to verify and evaluate the user experience through experimental research phases.

Co-design is a creative and participatory practice that enables a wide range of actors to make meaningful contributions to the definition and resolution of complex problems. The term is commonly used as an umbrella concept encompassing approaches such as co-creation, open design processes, collaborative creative practices and participatory design. Across these perspectives, co-design is understood as a form of collaborative product and service development, as well as a process of joint value creation (Trischler, 2019; Guasch et al., 2022). Central to this approach is the active involvement of stakeholders and end users throughout the design and development process, with the aim of generating solutions that are closely aligned with their contexts of use. Within co-design processes, users are recognized as experts of their own experiences; their needs, practices, and concerns therefore become key drivers of decision-

making and design outcomes.

Co-design processes are adopted as a methodological framework for testing and validating digital platforms, integrating usability evaluation with participatory design practices (Sanders, Stappers, 2008). Within this approach, platform prototypes are subjected to iterative cycles of testing aimed at assessing both functional and experiential aspects of the interface, including clarity of visual elements, effectiveness of functionalities, and coherence of user flows.

Testing activities involve small, representative groups of participants – aligned with the target users of the platform –, and are conducted through a combination of focus groups and one-to-one interviews in order to collect qualitative feedback. Participants are guided through predefined tasks that simulate real usage scenarios by using an interactive prototype to test the User Interaction (UI) and User Experience (UX) while verbalizing their thoughts and decision-making processes according to a “think-aloud protocol” (McDonald et al. 2012). Feedback is systematically collected through open dialogue and structured questionnaires combining quantitative ratings and open-ended questions.

This method enables the observation of user behavior, the identification of strengths and critical issues, and the validation of navigation paths, interface components, and content structures. In addition to functional testing, the co-design process includes the evaluation of graphic and visual aspects – such as layout, color schemes, typography, icons, and interface controls – to ensure usability, accessibility, and visual coherence. The process is organized into a sequence of recurring activities – exploration of users’ practices and processes, interface and functionality testing, feedback collection, and content refinement – which together support continuous improvement of the platform.

Insights gathered during each testing session inform successive design iterations, allowing incremental refinements to navigation, visual hierarchy, instructions, and interface elements. This co-design-based testing framework is replicable and scalable, as it can be applied across different user groups, disciplinary backgrounds, and contexts, progressively expanding the diversity of participants involved and strengthening the robustness, inclusiveness, and validity of the

platform. Within the RHITA project, co-design was adopted as a structuring principle guiding the platform’s development. Workshops and testing sessions involved designers, researchers, and stakeholders in evaluating how sustainability criteria, accessibility features, and data visualization strategies could be effectively translated into digital interaction.

The participatory process allowed the platform to evolve iteratively, aligning technological development with cultural and operational needs of the contemporary fashion ecosystem.

## CONCLUSIONS

The paper explored digital platforms in the fashion ecosystem as complex socio-technical infrastructures rather than neutral technological tools. Moving from early participatory paradigms to contemporary platform societies, the analysis has shown how platforms reorganize creative work, cultural mediation, data circulation, and value production. Through a comparative analysis of case studies organized into four distinct categories – Low Impact solutions that prioritize environmental and social sustainability, Accessibility and Inclusion services that extends the use to a wider audience, Data Exploration and Visualization tools that enable interpretive engagement with complex information, and Algorithms and AI-driven applications that automate decision-making and generate creative outputs – the essay demonstrate that platforms can actively mediate knowledge, reduce environmental impact, support inclusive access, and enable new forms of co-design and collaboration. Rather than acting only as interfaces for information delivery, platforms emerge as cognitive and cultural devices that structure meaning-making processes, visual storytelling, and collective visions. Particular attention is devoted to value dynamics within platform ecosystems, examining how economic worth is generated, captured, and distributed among multiple stakeholders; information exploration models that shape user engagement, investigating the affordances and constraints of different interface paradigms and interaction designs; and sustainability characteristics that determine environmental and economic viability, assessing both the ecological footprint of digital operations and the longevity of platform business models. Furthermore, the research examines co-design practices and methodologies employed in platform

testing and validation, emphasizing the active involvement of diverse user groups, stakeholders, and communities throughout ideation, prototyping, and UX/UI evaluation phases.

Iterative testing and participatory feedback transform platforms into adaptive systems, capable of responding to diverse practices and expectations while strengthening their social legitimacy. This participatory dimension is crucial for ensuring that platforms respond to authentic needs, accommodate diverse literacies and competencies, and foster genuine agency rather than imposing predetermined interaction patterns. Fashion companies adopt co-creation platforms that invite consumers to participate in product design and customization, transforming customers from passive recipients into active contributors to creative processes.

Ultimately, this interdisciplinary investigation – drawing on insights from design studies, platform studies, media theory, and sustainability research – establishes a framework of pre-design requirements and parameters understood as interconnected orientations capable of guiding design before technological implementation

By situating RHITA as an applied case, this research suggests that fashion currently occupies a transitional stage in the evolution of digital platforms, moving from communication-driven Web 2.0 environments toward collaborative and knowledge-oriented Web 3.0 ecosystems. The study highlights how future fashion platforms may evolve by integrating sustainability metrics, participatory design, and data transparency directly into their infrastructures, addressing current systemic tensions within the industry, including overproduction, opacity of supply chains, and the concentration of information within platforms. In this perspective, digital platforms can contribute to redefining whether fashion can become truly democratic, by enabling access to knowledge, participation in design processes, and shared cultural production. RHITA Platform therefore operates as a prototype of this shift, illustrating how digital infrastructures may support more inclusive, environmentally responsible, and collaborative models of value creation in fashion.

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## CAPTIONS

[Fig. 01]. Low-tech Magazine – Solar Low-tech Power website page. Retrieved from: <https://solar.lowtechmagazine.com/>

[Fig. 02]. University of the Arts London; Accessibility tools on the UAL University website. Retrieved from: <https://www.arts.ac.uk/>

[Fig. 03]. Pre-design Parameters for Web platform 3.0. Image by Michela Carlomagno

[Fig. 04]. RHITA platform Information Architecture (IA). Image by Michela Carlomagno

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