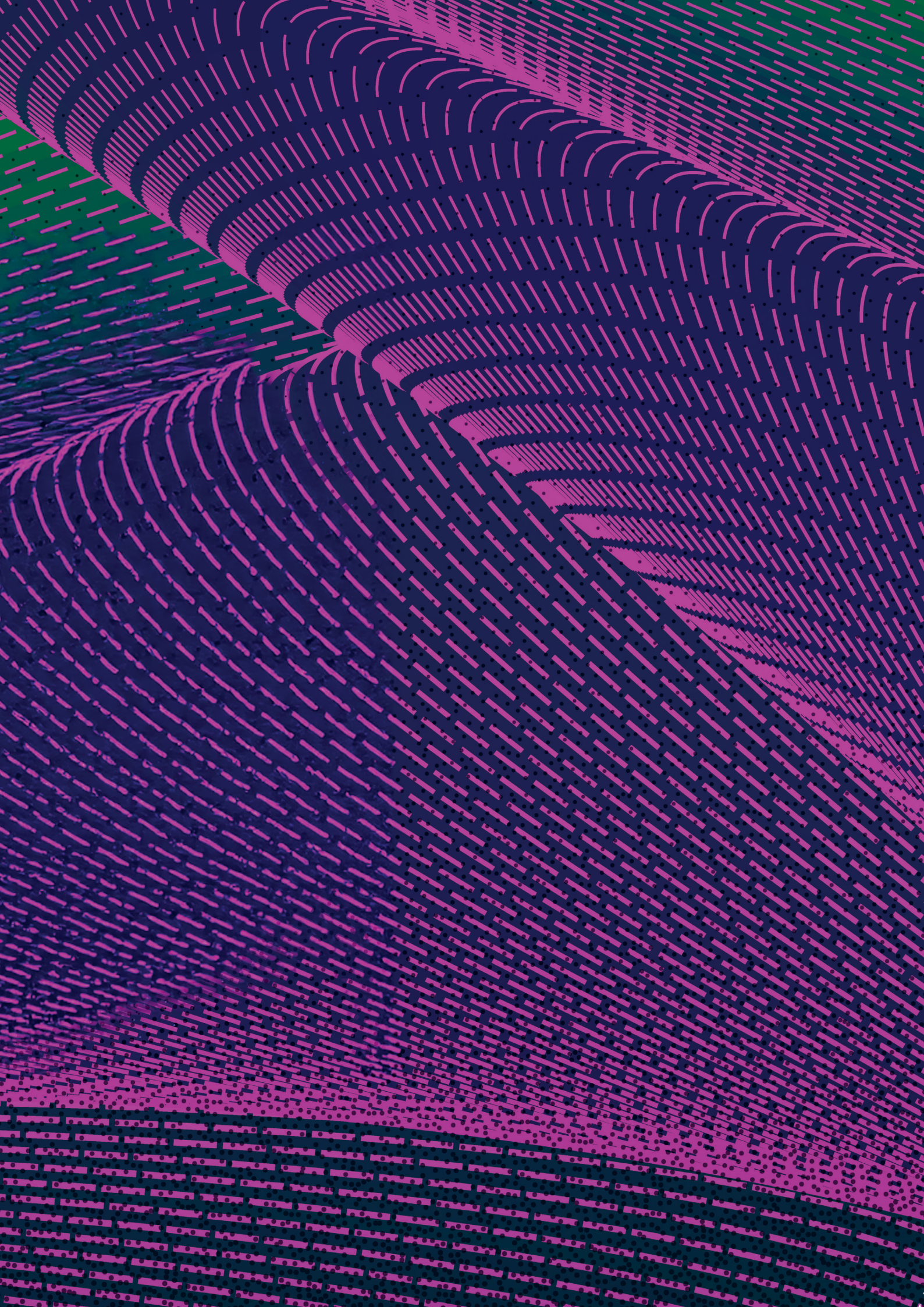

Design Signals
Woven Secrets

FABER

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0 Introduction

0.1 Foreword

FOREWORD

Oana Simionescu

As a cultural institution inspired by the energy and potential that was released when Timișoara was chosen as a European Capital of Culture, FABER is deeply committed to the city and its creative sector. We have designed a cultural program connected to a strong industrial legacy while embracing the freedom, creativity, and ethics of contemporary design.

To us, design is a way of thinking—a process of rearranging information, opportunities, and urgencies in a creative, collaborative, and ethical manner. It's the essence of any creative process, and when well practiced, it has the power to create significant change and inspire new perspectives.

Through *Design Signals*, our primary goal is to build bridges between the utopian optimism of the world of design and the sometimes overly pragmatic academic and industrial sectors. Our purpose is to inspire Timișoara by revealing to it the contemporary creative force it already holds.

Curated by Martina Muzi, *Design Signals* is a four-year program exploring the relationship between Timișoara's industry and contemporary design. It creates opportunities for researchers and industry professionals to be discovered by the public and engaged in creative processes, while offering designers the chance to express their potential in both cultural and commercial arenas. We are privileged to work with local and international designers, researchers, students, and factories, positioning ourselves at the intersection of their continuous questioning about what is urgent, relevant, beautiful, or useful—and sharing this knowledge with our community. We hope the sparks we generate might help power a few new creative engines.

We are grateful and proud that *Design Signals* has received the full support of Politehnica University of Timișoara., local and national funding authorities, press, companies, and international partners. This program, as much as it is our vision, has been carefully constructed with the direct input of all our partners and supporters.

With *Design Signals* we aim to inspire Timișoara, offering a space for exploration and collaboration that reflects the city's spirit and its industrial and cultural heritage, while opening doors to new and transformative ideas.

Date: 15.12.2024

0.2

Design Signals —Woven Secrets

CURATORIAL ESSAY

Martina Muzi

The *Design Signals* program thrives on collaboration. Design has always been closely connected to the worlds of industry and technology, not only in terms of technological advancements and innovation, but because all industries, places and people influence one another. With this year's program and exhibition *Woven Secrets*, *Design Signals* embodies this inter-woven relationship.

Here, design becomes a tool for exploring the societal, technological, and environmental conditions of the present. This approach positions design not just as a way to create, but also as a lens through which we can observe and engage with the dynamics shaping Timișoara's textile legacy—a legacy that, though at times invisible, remains deeply rooted in the city's identity, economy, and cultural fabric.

As part of what we started with the *Bright Cityscapes* program and the exhibition *Turn Signals - Design is not a Dashboard*, both in 2023, *Design Signals* embodies our mission to bring design into dialogue with industrial history, local culture, emerging technologies and urgent contemporary issues. We have extended the inquiry initiated last year in Timișoara, which focused on the automotive industry, by examining another sector undergoing both preservation and transformation: Textiles. The industry's historical role as a pioneer in automation and technology makes it a rich site for understanding how these systems have evolved—from handcrafting techniques to large-scale production and modern technological application, all performing in an age of global supply chains and vertiginous production demands.

Date: 15.11.2024

Redefining Technology in Textiles
In curating *Woven Secrets*, we aimed to transcend a narrow focus on textiles, instead exploring how the industry relates to broader social and material systems. Our approach reflects a commitment to uncovering the layers of technology within textile production, which range from simple handcrafting to complex manufacturing processes. This method encourages designers and participants to think of technology not only as innovation or automation, but also as a critical means of connecting with past practices and envisioning future possibilities.

Historically, textile production set the stage for large-scale industrialisation, bridging the gap between handcraft and mechanisation. From the early loom punch cards—an ancestor of binary coding—to the intricate machines used today, textiles have been at the forefront of technological advancement. Our program questions how such technologies impact the lifecycle of materials, the interconnectedness of techniques, the geography of labour and the potentials and limits of contemporary factories to adapt and respond to political and economical changes.

As textiles become more "engineered," they also become more challenging to access or reuse, thus revealing both the opportunities and limitations involved in innovation. This creates a space for designers to contribute in an age where rethinking values, supply chains and methods of production is central for responding to the global fast fashion phenomenon.

Cross-Generational and Neighbourning Design
A core aspect of *Woven Secrets* is its commitment to cross-generational engagement and community involvement. While industries and materials might evolve, they carry stories that bridge generations. The disappearance of large historical textile factories, one of which is neighbour to FABER (1 Iunie), created a substantial change in the life of the city and its citizens. The factory was a space of labour, but also represented an institution of everyday services, social life and gathering in the neighbourhood. During our research we wanted to acknowledge these changes and therefore a fundamental step was designing formats that enabled engagement with—and for—the neighbourhood and its inhabitants.

Through workshops, dialogues, and collaborations with former textile workers, we create a space where different voices—from seasoned professionals to young designers—intersect. These intergenerational exchanges are not just reflective; they're vital for connecting the city's industrial past with its current and future identity.

The *Looming Workshop*, for example, serves as both a platform for community engagement and a testament to the value of preserving traditional skills. Here, the community's collective memory enriches the designers' approach, grounding their work in the lived experience and technical knowledge of those who have shaped the industry. This participatory method of curation aims to transform the exhibition from a static display into a dynamic, evolving dialogue. It also creates the potential for new moments of gathering, as well as the building of a collective memory, through alternative spaces to those usually associated with industry, such as the factory.

Rethinking Locality and Global Systems
The factories operating in the Timișoara area represented a great point of departure for our design investigations. We started our field research through visits to factories and conversations with their managers and workers, through which we could understand the diverse values, methods and standards through which they operate, consequently creating a framework for collaboration within our program.

In designing *Woven Secrets*, we considered how the local textile industry interfaces with global supply chains, especially as Timișoara adapts to the demands of a changing economic landscape. The city's textile sector has historically balanced local craftsmanship with global

reach. However, fast fashion's relentless pace has pressured this balance, pushing for accelerated production and distribution at the expense of quality and sustainability.

Through our program, designers are encouraged to question and confront the implications of these supply chains. Rather than being overwhelmed by the enormity of global production, they examine specific points within these networks where change may be possible. Their work presented in the final exhibition not only narrates possible interventions within the contemporary local industrial design discourse, but also allows for the inclusion of cultural production agents which are usually not present—such as the factories with which they collaborated. By starting at a local level and considering how these small actions might impact larger systems, designers, factories and the public begin to understand the profound ways in which design can affect both community and industry.

Curating Through Design Research

As a curator with a background in design research, I approach *Woven Secrets* as a collaborative investigation. For me, curation is about creating spaces for multi-layered conversations and insights responding to contemporary design questions. My role is to assemble perspectives from diverse backgrounds, facilitating a dialogue that bridges the hyper-specialised knowledge of industry professionals with the expansive, integrative thinking of design. By fostering this exchange, the exhibition becomes a microcosm of Timișoara's complex textile stories—narrated and experienced through materials, methods of making, and interactive media.

The multidisciplinary nature of *Woven Secrets* aligns with my philosophy that no question exists in isolation. To explore an industry as layered as textiles, we need input from various disciplines: textile manufacturing, engineering, economics, and storytelling. Each participant brings a unique viewpoint, whether it's a factory worker's experience or a young designer's innovative approach to material reuse.

Together, these perspectives offer a holistic view of the industry's past, present, and possible futures. In this specific exhibition, it was important for me to collaborate with designers towards the creation of a space for their practices to be propositive, through their observations and interaction with the local context. I like to look at the exhibition as a prototype of emerging design practices in which the practitioners are enabled to bring agency to their work, activating possible directions for the local design ecosystem of Timișoara through their material and visual stories. As part of *Design Signals*, *Woven Secrets* iterates the idea that designers should have a place within both the social and the economical discourses of the city and its futures.

Orality as a Design Tool

Orality as a condition for transmitting knowledge is woven within domestic practices, and this extends to the predominantly female labour spaces that textile production has always been a part of. Therefore, storytelling emerges as a vital design tool within *Woven Secrets*. The exhibition includes artefacts, oral histories, and multimedia installations that encapsulate the individual and collective stories of Timișoara's textile industry. These narratives add depth to our understanding of the industry's evolution, revealing the social, economic, and personal connections that shape it. This commitment to storytelling ensures that the industry's history isn't just archived but actively reimagined and reintegrated into contemporary discourse.

Incorporating diverse timelines and nonlinear storytelling, we engage audiences in a way that challenges the traditional, linear approach of many exhibitions. This allows us to honour the memories and experiences of the past while inviting new interpretations and future possibilities. Artefacts are accompanied with oral stories and collaboration with industries is contextualised through oral and visual storytelling methods. This book is also an attempt to collect and disseminate many of the conversations that emerged throughout the program

through transcripts, translations, interviews and visual essays tracing the spaces, faces and landscapes that the participants encountered.

Toward a Sustainable Textile Future

Data visualisations, material explorations, prototypes for alternative production lines, natural colouring practices, imaginary playgrounds, collective memory testimonies, iterations of domestic practices, pedagogical utopian experimentations, technical expertise from workers, photographic reportage from a factory floor—they all come together in the exhibition, critically responding to the present of the textile industry starting from Timișoara—a nexus of the global textile market and related industries which is uncomfortably complex and largely unknown. Hopefully, the insights generated through *Woven Secrets* go beyond the exhibition itself. By examining textiles as a technological and cultural practice, we hope to open conversations on how design can contribute to sustainability within the industry.

The question of fast fashion's sustainability—or lack thereof—is central. Most participants in the program agree that fast fashion's model is unsustainable, necessitating new approaches to production, distribution, and recycling. Through the program's exploratory methods, designers investigate specific links in the supply chain where impactful change might be possible. They question how they might contribute to a future where the textile industry supports sustainable practices and strengthens local economies, rather than simply following global demands for speed and volume.

Designing Spaces for Collective Imagination

This book is the conclusive design iteration of this year's *Woven Secret* project. It is the second book to come out of the *Design Signals* program at FABER, following the *Bright Cityscapes* book published in 2023. The book '*Woven Secrets*' is a collaborative effort of its own, serving as a repository of the knowledge we encountered, collected and generated along the process. A publication for presenting our questions, processes and outcomes along with an exploration of design media, strategies and practices.

Woven Secrets is not simply a look back at Timișoara's textile industry; it's a curatorial vision for how design can shape its future. Through our collective efforts—engaging students, designers, workers, researchers, and the local community—the project and its iterations serves as a space for reimagining what textiles can mean today and tomorrow. This project embodies design's potential to observe, question, and transform, offering a blueprint for how we might integrate cultural heritage into sustainable practices.

As a part of *Design Signals* at FABER and this year in *Woven Secrets*, curation becomes a form of design practice, where each artefact, story, and interaction builds a multifaceted portrait of Timișoara's industrial legacy. The dialogue initiated here invites us to consider how we interact with the past while constructing a more conscious, sustainable future for design as a discipline, as well as for the industry and the world.

1 Woven Secrets

1.1 Woven Secrets

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Parteneri media:
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Since Romania's accession to the European Union (EU), the textile industry has undergone significant changes. Historically, large state-owned factories were central to Timișoara's economy and community life, shaping entire neighbourhoods and livelihoods. However, with increased EU-wide competition, mass production has declined. Today, although the industry is less visible, it is far from obsolete. Smaller, more flexible manufacturing systems have emerged, interwoven with sectors such as automotive, chemicals, and agriculture. Textiles are no longer confined to traditional apparel or home categories but have become integral to complex products and export chains.

Design Signals—Woven Secrets traces the fragmentation and transformation of Timișoara's textile industry, uncovering the often-overlooked design shaping the city's economic and social evolution. The exhibition is part of FABER's ongoing *Design Signals* research program, which explores Timișoara's design ecosystem. It also features the commissioned research report 'Shifts in Global Textile Markets: Romania's Role in the Global Value Chain from 1962 to 2022'. The exhibition showcases Romanian designers—some selected through an open call—who have collaborated with local experts, producers, and manufacturers to create work that reimagines future production in the city.

The projects in *Design Signals—Woven Secrets* go beyond observation. They actively engage with and restructure the industrial and cultural landscape. Designers work with waste materials, experiment with new production methods, and form unexpected collaborations that challenge traditional profit-driven supply chains.

Some projects function as design laboratories, illustrating how design can bridge scales and connect disparate manufacturing systems, archives, and communities. The works also highlight the deep expertise of Romanian workers and the cultural significance of textiles in Romania. Incidental design is revealed in labour, relationships, and landscapes as much as in products, entrepreneurship, and innovation.

Design Signals—Woven Secrets reframes the textile industry as a complex, interconnected sector reflecting broader economic trends in Romania, Europe, and global production systems. The exhibition underscores design's capacity to disrupt conventional production models and presents bold, visionary approaches to making, producing, and collaborating.


TURCANDS


TURCANCS

2 Groundwork

2.1 Weaving Data Into Insight: Romania's Textile Transformation

INTERVIEW

Norbert Petrovici

From socialism to integration into the global supply chain, Romania's textile industry has witnessed a number of transformative shifts over the past six decades. Through analysing data collected during this time period, sociologist and researcher Norbert Petrovici has gained insight into Romania's evolving–and in many ways increasingly vulnerable–role in textile markets worldwide. In the process, his research has helped define and guide the focus of the *Woven Secrets* program as a whole.

'Shifts in Global Textile Markets: Romania's Role in the Global Value Chain from 1962 to 2022' sees Petrovici partnering with data visualisation designers Studio Interrobang and animator Victor Ionichi, to present a nuanced exploration of the sector's journey. He examines Romania's adaptation to changing economic landscapes, its integration with high-value sectors, and the impact of multinational corporations on local industry. In a recent interview, he spoke about the sometimes surprising insights the data revealed.

Date: 15.10.2024

To start, it seems that this year's *Woven Secrets* project is more focused than last year's *Bright Cityscapes*, where you were doing broader research on Timișoara and its design landscape. Now, there's a specific focus on the textile industry. How has this more defined scope influenced your research techniques?

Norbert Petrovici: While it's true that the work I did for *Bright Cityscapes* cast a wider net, studying the urban and design landscape of Timișoara as a whole, and it's true that the the focus here has somewhat narrowed, we still approached the project from a broad perspective–some would say broader than last time around– because we were embedding the textile sector of the whole of Romania within global, national, and local frameworks.

For example, I explored the global textile industry as well as Romania's role, trade partners, and the complexities of the industry. We also examined the socialist period, which added a lot of historical depth. For this, I had to work with extensive data, including the entire database on global exports from Harvard Growth Lab's Atlas of Economic Complexity, encompassing all products worldwide. So, rather than narrowing, the research expanded, making it challenging to then scale down the findings to a company level or even a specific geographic scope. Even though Romania's textile sector is small in terms of workforce and revenue, the broader perspective required for the project added substantial layers of complexity.

Could you elaborate on how Romania transitioned from its socialist economy to today's globalised market?

NP: Given that I had global-level data, I was able to approach it with a broad statistical perspective, somewhat setting aside the socialist context. I clustered data by decades, comparing Romania's overall export portfolio and its share of GDP in the global textile trade.

Surprisingly, I found that the 1980s and 1990s were quite similar for Romania in terms of export composition and, when adjusted for inflation, the volume of exports. Similarly, the 1970s resembled the 2000s in terms of export volume, and it wasn't until after 2010 that the textile industry in Romania regained the level of complexity it had during socialism.

The 1980s brought significant challenges, particularly with inflation in the U.S. and the subsequent adjustments by the Federal Reserve, which created widespread currency issues. Eastern European countries, including Romania, had entered the 1970s with substantial financial ties to the West. Countries like Romania, Poland, Czechoslovakia, and Hungary accrued considerable debt in what were called Eurodollars. When the U.S. raised interest rates, Eastern Europe faced significant pressure to repay these debts. Mexico later became the first to default, followed by financial crises across Latin America, but Eastern European nations like Romania, due to Ceausescu's strict debt repayment policies, managed to avoid this fate. However, focus on repaying this debt placed significant pressure on Romania's textile industry throughout the 1970s and 1980s, and this focus on repayment continued into the 1990s.

In terms of textile export complexity, the 1970s, 2000s, and 2010s show similar levels of diversity in product types. However, the 1980s and 1990s can be grouped as a more turbulent period, reflecting both the economic instability and debt pressures. This shift from socialism to a globalised market economy is complex and multilayered, but it's a transition well-documented in the literature.

When compared to Romania's exports during socialism, the textile sector appears to make up only a small percentage of the national economy, or GDP, today. However, in the 1960s and 70s, the majority of global trade—around 80%—was concentrated among just three major economic areas: Western Europe, the U.S., and Japan.

In the 1970s and especially the 1980s, Romania's exports, including textiles, expanded rapidly on the global stage. There is often a perception that socialist economies focus on internal production for an internal market. In fact, Romania's economic policy in the 1970s was strongly export-oriented, and the level of exports adjusted for inflation wasn't matched again until after 2010. This pattern is mirrored even in the textile sector, which is interesting because, for a non-researcher, it might be tempting to make quick assumptions about the impact of socialism. But as researchers, we have to set aside assumptions and let the data tell the story.

What story does the data tell regarding why trends in the 1970s and 2000s reflect each other, despite their drastically different political contexts?

NP: It's all about the types of economic growth we see. This is actually a widely debated topic in socialist studies. There are emerging perspectives now that challenge the old view of socialism as a completely closed economic system. Some of these new paradigms refer to 'global socialism' or 'uneven and combined exchange.' These analyses are now possible thanks to the data we've compiled—data that was unavailable in the 1970s and 80s.

Back then, some economists did argue against the conventional wisdom, pointing out that socialist states like Romania were very much export-oriented, but these voices were relatively suppressed in the 1990s, when the tendency

was to portray socialism as a closed system. That narrative made it easier to imagine that the post-socialist period was a new 'opening.' Yet, looking at the data now, we can see that it was more of a transition between two phases of high export activity—the 1970s and post-2010. After 2010, Romania, like much of Eastern Europe, shifted economically in ways that parallel the export orientation of socialism in terms of GDP share, but not in ideology. Today, exports represent nearly half of Romania's GDP, which is quite significant for Romania and other Central and Eastern European countries.

While the textile sector's export value is comparable to that of the early 2000s, it now represents a smaller share of Romania's overall exports due to growth in other sectors. Romania has become a leader in this export-driven growth model, similar to Germany's, and it's largely fueled by foreign direct investment (FDI). In fact, about 80% of Romania's exports come from foreign-owned companies, and that figure rises to around 92-94% when we include mixed-ownership firms.

As a researcher, what conclusions do you draw from the textile industry's shift toward multinationalism?

NP: It's a complex issue to interpret ideologically and politically. Both nationalists and left-leaning critics are scrutinising this shift. As someone who identifies ideologically with the left, I find that the nationalist perspective often argues for sovereignty, suggesting Romania should reclaim economic independence from Western capital, foster local ownership, and develop its own capitalist class. Meanwhile, the left argues that this is still capitalism, driven by the same global market logic, and that focusing on whether it's 'local' or 'global' capitalism can be limiting. From a leftist standpoint, we're more concerned with labour relations and working conditions, questioning how employees in Romania's labour-intensive sectors—like textiles—are being compensated.

In the 1990s and 2000s, textiles were labour-intensive but part of a low-cost economy. Today, that sector remains labour-intensive, though product complexity has evolved. Now, textile products are not limited to apparel but extend into other industries, like automotive, furniture, and electronics. While wages and working conditions have improved, collective bargaining is still discouraged in Romania, creating challenges for workers across major industries.

How do you account for potential bias when analysing data from such as the Harvard Growth Lab?

NP: The data I use is rigorously peer-reviewed, especially at institutions like Harvard. Scholars continuously refine and expand on these datasets. But it's worth noting that historical datasets come with specific challenges. For example, Romania's accounting practices in the 1960s and 70s differed from Western standards—there was no GDP metric, only national income. Today, researchers have established reliable conversions, and institutions like the World Bank now offer GDP data for Romania.

For contemporary data, which in this study covers the period starting from 2008, we have balance sheets from Romanian companies, and I use this firm-level data extensively, aggregating it to see how trends evolve at a larger scale.

Your work uses a methodology called the product space network. What is this in simple terms, and what can it reveal about Romania's role in the textile value chain?

NP: It's a scholarly trick (*laughs*). The "product space" is essentially a method that uses time and space to deduce the similarity between products based on the skills and infrastructure required to produce them. We look at each country and each year to see what they export, then examine correlations. We analyse which products a country exports simultaneously, seeing if these relationships hold at a global level. For example, if a country exports one type of textile, we check if it tends to export another type in the same year, and across years.

In this way, we use "space" (meaning different countries over time) to examine patterns of co-production. Now, we might not know for certain if producing yarn requires the same infrastructure as producing linen yarn, for instance, but we can hypothesise based on these observed correlations. There's also been a lot of recent research, both qualitative and regional, testing these assumptions. Initially, it was somewhat speculative, but now we know that these relationships tend to hold up across both time and space. The product space, derived annually and globally by Hidalgo and Hausmann, maps how products are interconnected, though researchers can apply this method separately. Fundamentally, it's a data-reduction technique—similar to principal component analysis—that simplifies thousands of products into a few central variables.

You mentioned some surprising findings, like the similarities between the economic trajectory in the textile industry during the 1970s and 2010s. In what ways did your research challenge your views about how the past has shaped the textile industry?

NP: The biggest surprise, which became a central theme of the exhibition, was how the textile sector evolved. Initially, it

was tightly connected to the apparel industry. But now, it has branched off into other sectors and become more integrated into industries like automotive, where it's almost invisible. For instance, in Timișoara, we found that the local development followed a path of "related development" (a concept conceived of by economist Ron Boschma and researcher Kees Frenken), where the textile industry helped establish a foundation for the chemical sector. This was especially significant during socialism when shared infrastructure and knowledge supported this branching.

After Romania joined the EU in 2007-2008, outsourcing surged. Textiles, which were Romania's top export sector in 2000, became a springboard for diversifying into other sectors using the same infrastructure and knowledge. We observed that in areas where textile manufacturing was once prominent, there's now a diversification into different industries, especially automotive. In short, while the apparel sector has faded, textiles are still present but in a new form, embedded in other industries.

How do you see this shift from apparel to sectors like automotive impacting the social landscape of Timișoara?

NP: For the apparel sector, a major issue is that the local supply chains of the 1970s—created under socialist Romania with imported equipment—no longer exist. Now, the textile sector operates within broader, often cross-continental supply chains dominated by sectors like the automotive and chemical industries. This shift suggests that any attempt to re-establish local supply chains would likely struggle. Instead, Timișoara's fate is closely tied to European and global developments.

For policymakers, this change underscores the need for resilience. While it's important to support continental integration, it's also crucial to foster local initiatives, like startups and more integrated ecosystems, to build resilience against the fragility of long supply chains.

Both last year's *Bright Cityscapes* and *Woven Secrets* this year brought researchers such as yourself and designers together in a collaborative space. How did you find this experience?

NP: I loved it. One reason I joined this project was my background with the independent cultural sector in Cluj, especially with the Paintbrush Factory collective. While I've collaborated with the cultural sector before, this was the first time research played such a central role in an exhibition's concept. Martina and Oana pushed for thorough, ongoing research, which was time-consuming but immensely rewarding. This collaboration allowed me to explore the material in ways I wouldn't have otherwise, making it a very unique experience.

Do you hope the methods established conducting this kind of collaborative research will shape your future work?

NP: Yes, previous research identified three sectors as key to Timișoara's diversification: textiles, chemicals, and agriculture. Each has become a significant topic for exhibitions and new programs. Personally, I've turned my research report into books and am working to publish articles based on this material. The project's flexibility, even with its modest funding, allowed for an in-depth exploration I wouldn't have had in a typical research grant. Another unique aspect was the opportunity to present findings to the people I interviewed and get feedback. This dialogue with my sources has been eye-opening and transformative. Unlike in standard applied research, where you write a report and move on, in this project, I am able to continually re-engage with the material, which transforms and evolves over time.

2.2 Shifts in Global Textile Markets: Romania's Role in the Global Value Chain from 1962 to 2022

RESEARCH

Norbert Petrovici with Studio Interrobang and Victor Ionichi

Romania's textile sector has undergone significant transformation, mirroring global shifts in production and economic. This series of infographics illustrates these changes, based on the research report 'Shifts in Global Textile Markets: Romania's Role in the Global Value Chain from 1962 to 2022'.

In the late 20th century, Romania emerged as a key player, contributing notably to global supply chains with both intermediate and highly complex textile products. During the 1990s and early 2000s, the industry thrived by integrating into a global network, producing essential intermediate goods and high-value finished products. Romania leveraged its capacity for both cost-effective and technologically advanced production, establishing a strong presence in textile markets.

However, the rise of major Asian textile exporters and economic changes following the 2008 global financial crisis led to a restructuring of the global textile landscape. Romania's market share declined as Asia's dominance increased, reflecting the global shift in production caused by heightened competition.

Today, Romania remains a significant player in the textile sector, focusing on high-value consumer goods and intermediate products crucial for industries such as automotive and furniture. The country's position underscores its adaptability and continued relevance in specialised textile markets, demonstrating its resilience and importance in the global textile industry.

Norbert Petrovici is a specialist in urban sociology and social theory, with a focus on the political economy of the socialist city, currently affiliated with the Department of Sociology at Babeş-Bolyai University.

Studio Interrobang is a design collective that transforms data into visual and multi-sensory narratives for socially driven communication campaigns.

Victor Ionichi is a motion designer who developed his animation and graphic design skills from a background in photography and film studies.

Credits
Studio Interrobang: (Răzvan Zamfira, Andreea Vrabie, Andra Zamfira), Victor Ionichi, Researchers: Norbert Petrovici, Vlad Alexe, Mihai Iacob

Date: 03.10.2024


1962-1994
Exporturile anuale de textile
după țara/regiunea de destinație
Annual textile exports by destination country/region
$1.366 mil.
Importurile anuale de textile
după țara/regiunea de proveniență
Annual textile imports by source country/region
$590 mil.
1995-2004
Exporturile anuale de textile
după țara/regiunea de destinație
Annual textile exports by destination country/region
$4.119 mil.
Importurile anuale de textile
după țara/regiunea de proveniență
Annual textile imports by source country/region
$2.979 mil.
2005-2014
Exporturile anuale de textile
după țara/regiunea de destinație
Annual textile exports by destination country/region
$6.843 mil.
Importurile anuale de textile
după țara/regiunea de proveniență
Annual textile imports by source country/region
$6.026 mil.
2015-2021
Exporturile anuale de textile
după țara/regiunea de destinație
Annual textile exports by destination country/region
$6.429 mil.
Importurile anuale de textile
după țara/regiunea de proveniență
Annual textile imports by source country/region
$7.372 mil.


Geografia industriei textile
din România, 2022
The geography of textile industry
in Romania, 2022
Industria textilă în 2022:
Cifra de afaceri pe unități administrative
2022 Textile industry:
turnover by administrative unit


Sutiene
Bras
Complexitate
Complexity
Competitivitate
Competitiveness
Ponderea în exporturile globale
Share of global exports
Exporturi anuale
Annual exports
Alte țesături tricotate sau crosetate
Other knitted or crocheted fabrics
Materiale textile nețesute
Nonwoven textiles
Bumbac, cardat sau pieptănat
Cotton, carded or combed
Sfoară și frânghii din fibre vegetale
Twine and ropes of bast fibers
Cârpe sau resturi textile, folosite sau noi
Used or new rags
Păr de animal
Animal hair
Materii prime textile
Textile Raw Materials
Matrițe pentru pălării
Hat forms
Accesorii și accesorii de cusut
Accessories and Sewing Supplies
Lenjerie pentru bărbați, tricotată
Men's underganments, knit
Industria confecțiilor
Apparel industry

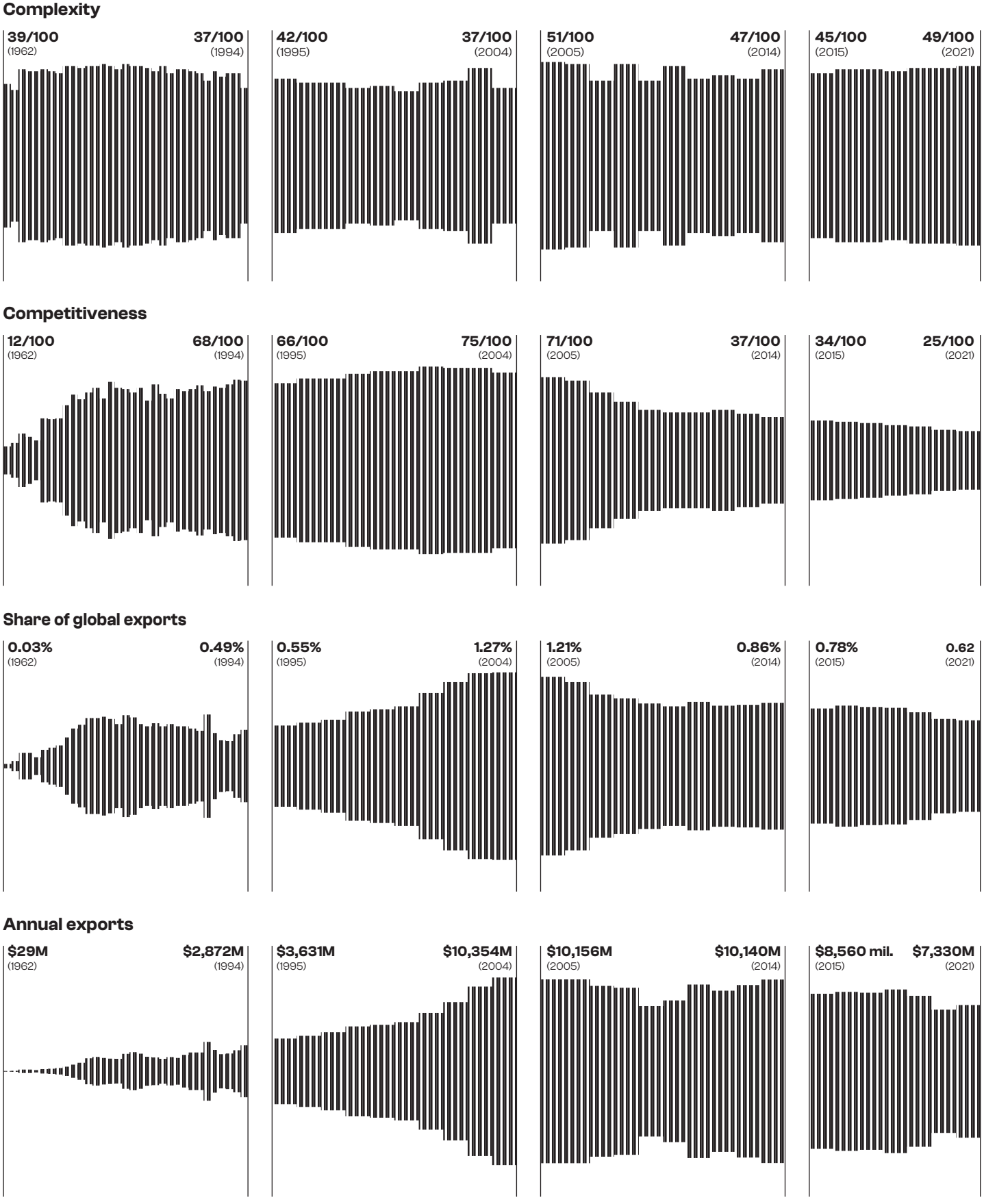
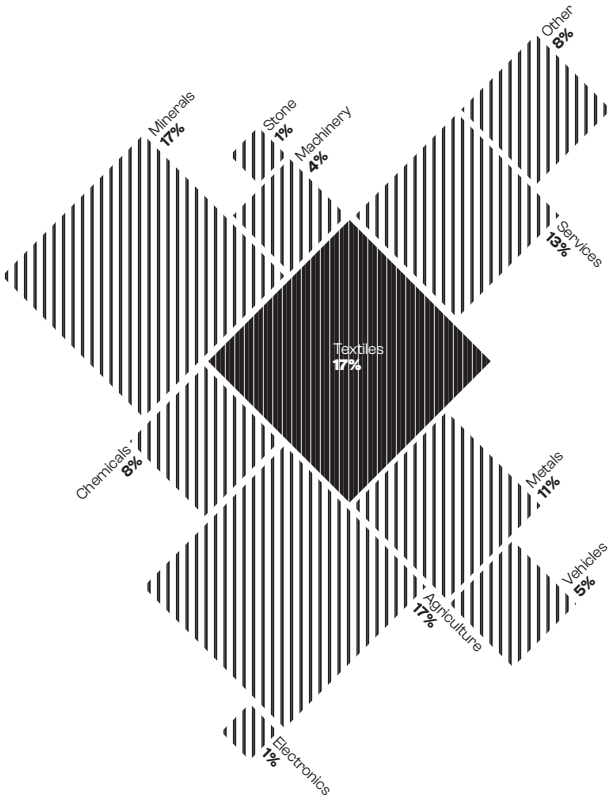


Figure 1
Romanian textile industry in numbers

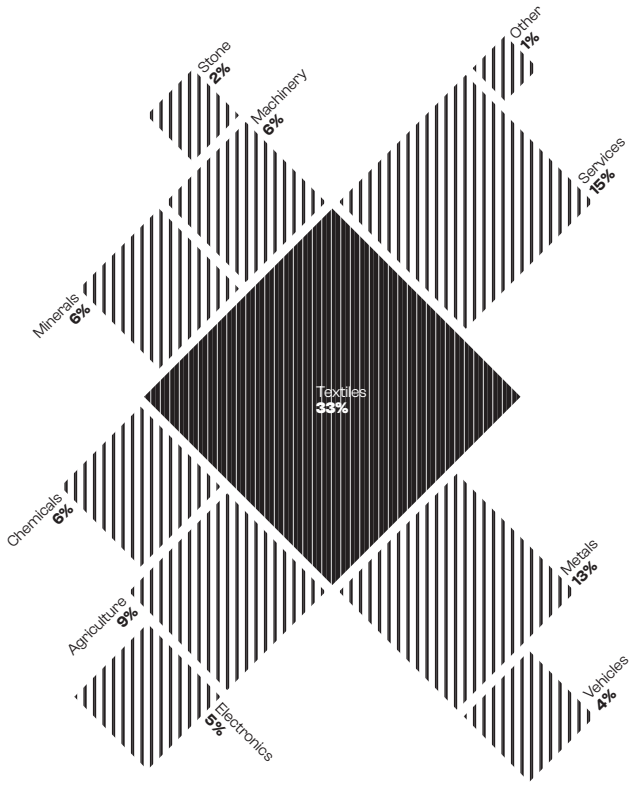
Area charts depict the evolution of Romania's textile industry from 1962 to 2021 across four key periods, highlighting trends in export complexity, competitiveness, share of global exports and annual export values in millions of USD. Each period reveals shifts in industry dynamics and Romania's role in the global textile market.

Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/

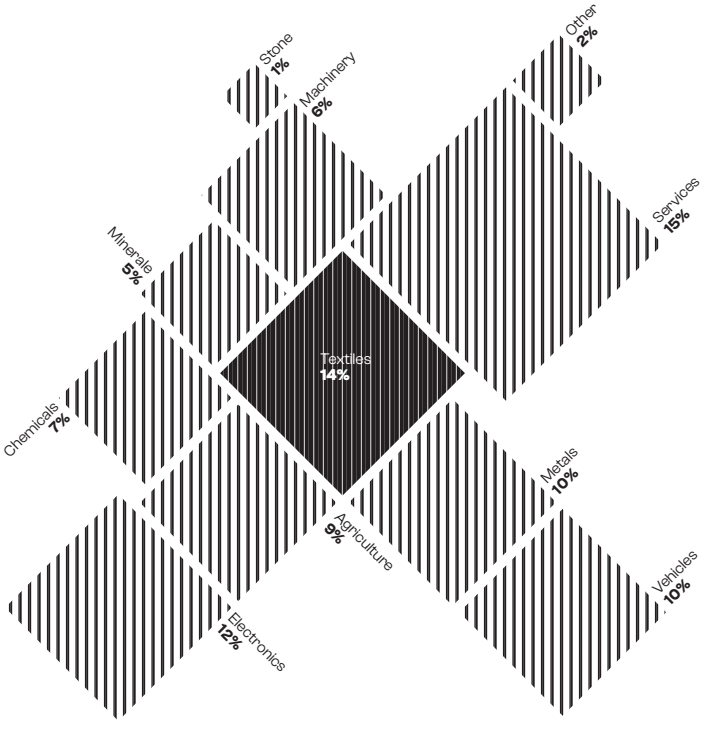
1962-1994



1995-2004



2005 -2014



2015 - 2021

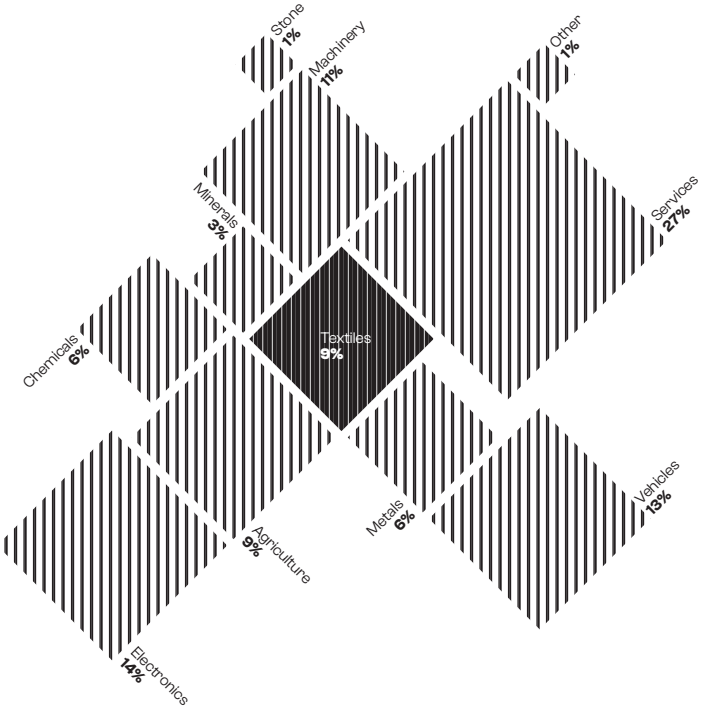


Figure 2
Romanian exports by economic sector

Tree maps illustrate Romania's export composition by economic sector over four periods, highlighting the textile industry's changing share. Textiles dominate with 33% between 1995 and 2004, but by 2021, services lead with 27%, while textiles fall to only 5%.

Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/

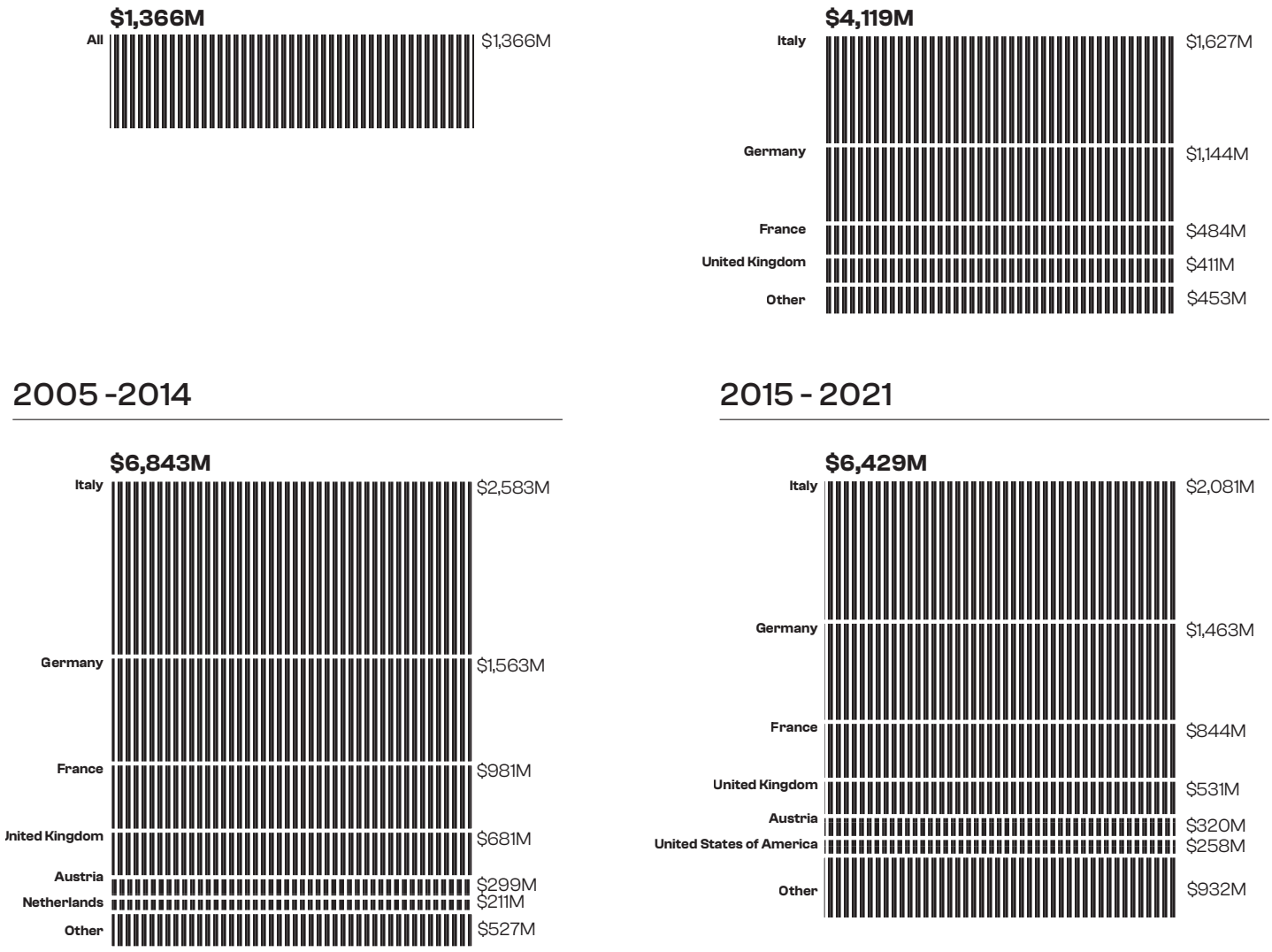


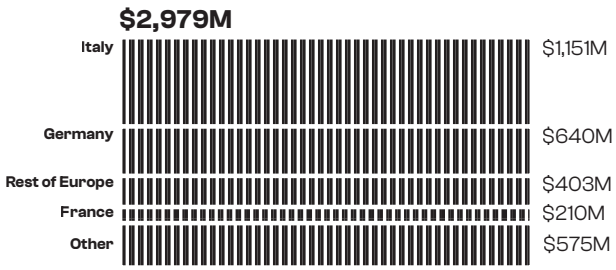
Figure 3
Romanian annual textile exports by destination country/region

Stacked bar charts depict changes in Romania's textile export destinations, with Italy, Germany and France remaining top markets from 1995 to 2021.

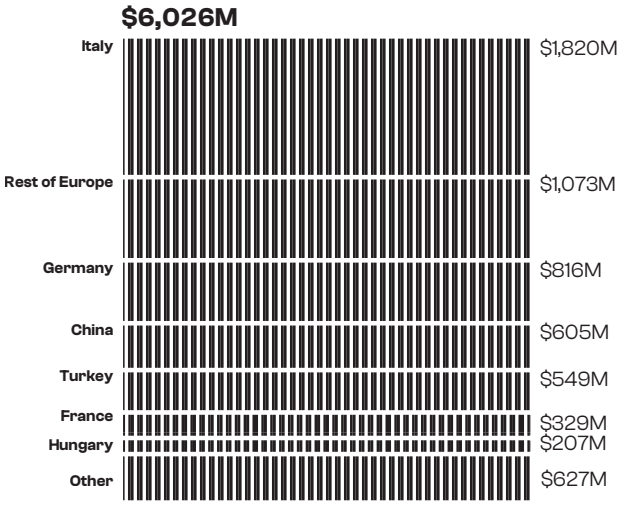
Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/

1962-1994

1995-2004



2005 -2014



2015 - 2021

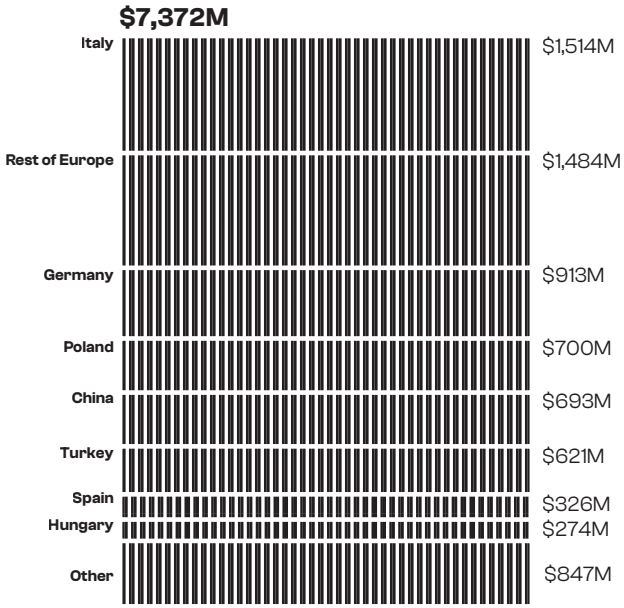


Figure 4
Romanian annual textile imports by country/ region of origin

Stacked bar charts show Romania's textile import origins, with Italy as the main source throughout, and a notable rise in imports from China over the last period, surpassing other European countries as a primary source.

Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/

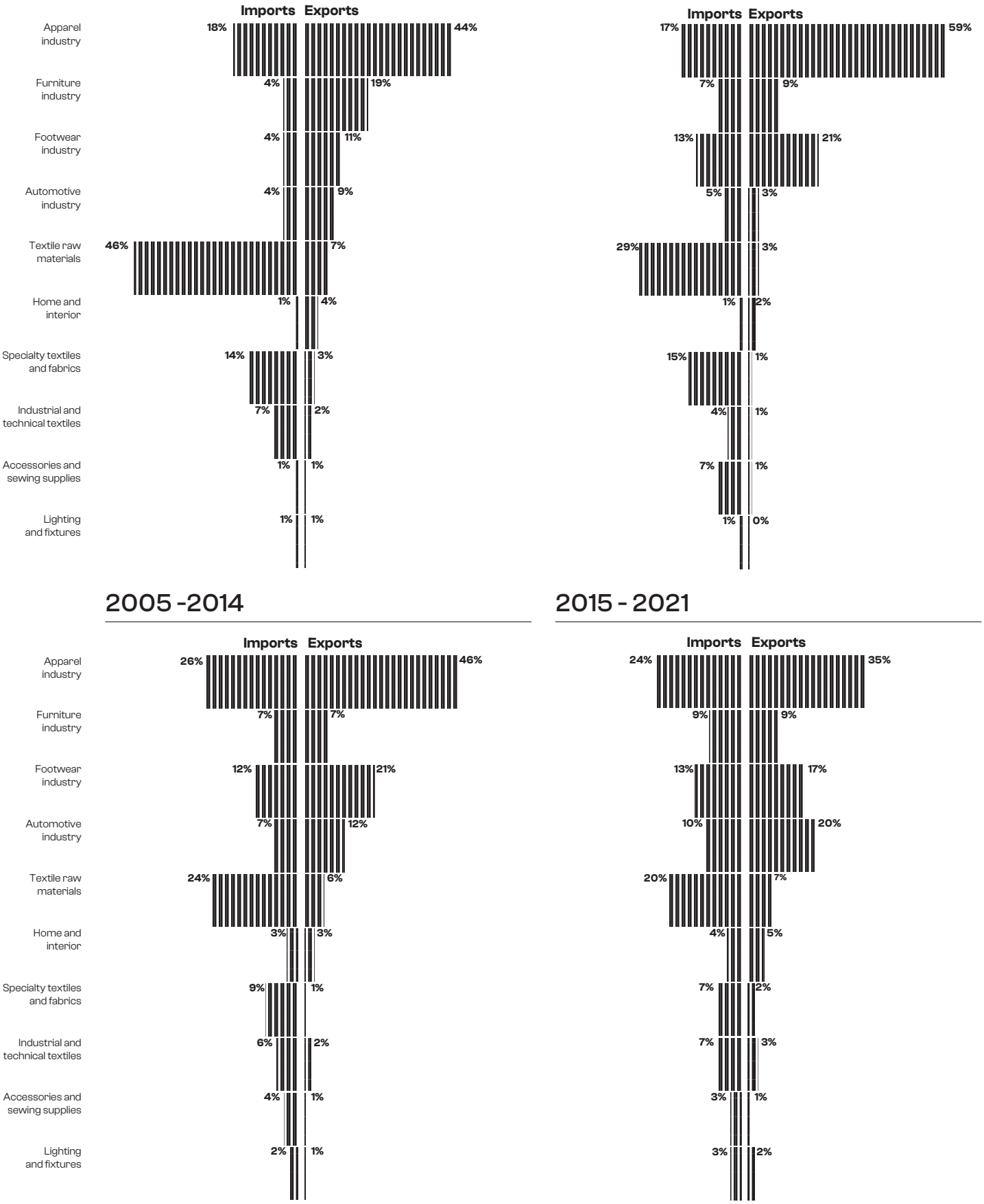
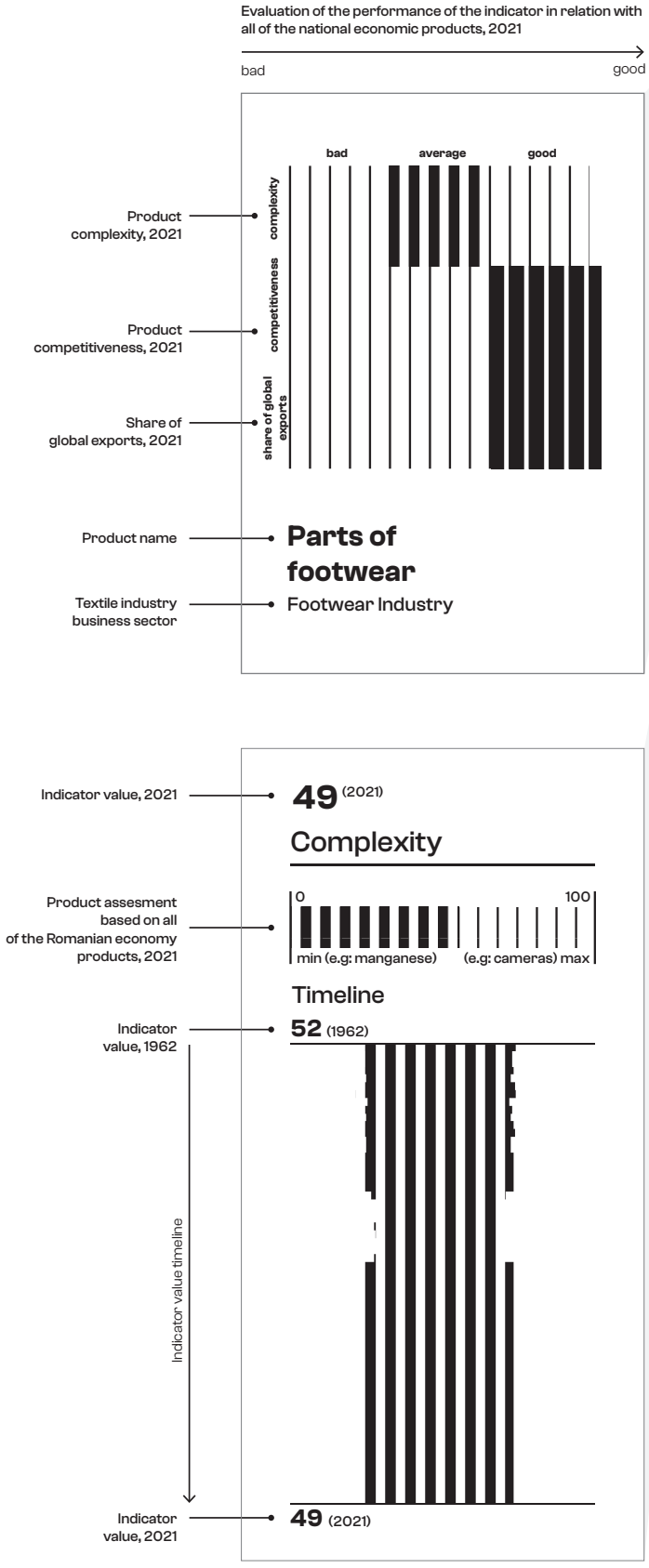
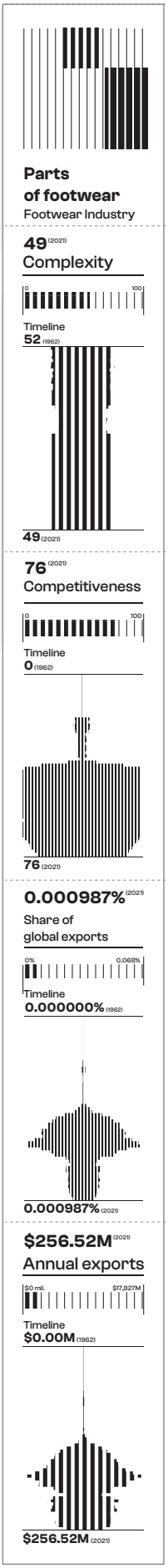


Figure 5
Share of Romanian imports and exports by textile sector

Chart details shifts in Romania's textile trade composition, with early dominance of raw materials in imports and apparel in exports, later giving way to increased imports in apparel and export growth in automotive and footwear sectors.

Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/





Product data avatar

Product complexity

A measure of the complexity of a product based on the knowledge and capabilities required to produce it. The PCI is calculated from the diversity of countries that export the product and the complexity of these countries' overall export structures. The index is normalized such that 0 indicates no complexity, 100 indicates maximum complexity, and 50 represents an average level of complexity.

Product competitiveness

A metric that indicates whether Romania has a comparative advantage or disadvantage in exporting a specific product. It is calculated by comparing the share of a product in Romania's total exports to the product's share in total world exports. The RCA is normalized such that a value of 0 indicates no comparative advantage, 100 indicates maximum specialization, and any value above 10 suggests that Romania has a comparative advantage.

Share of global exports

The share of a product's export value by Romania in USD, relative to the total global exports in the same year.

Annual exports value

The total value in USD of a product exported by Romania during a given year, adjusted for inflation using the US GDP deflator with 2015 as the reference year.

Figure 6
Product label - detail

Detailed label for one of the 84 products of the Romanian textile industry, illustrating 2021 data on export complexity, competitiveness, global share and annual export value.

Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/

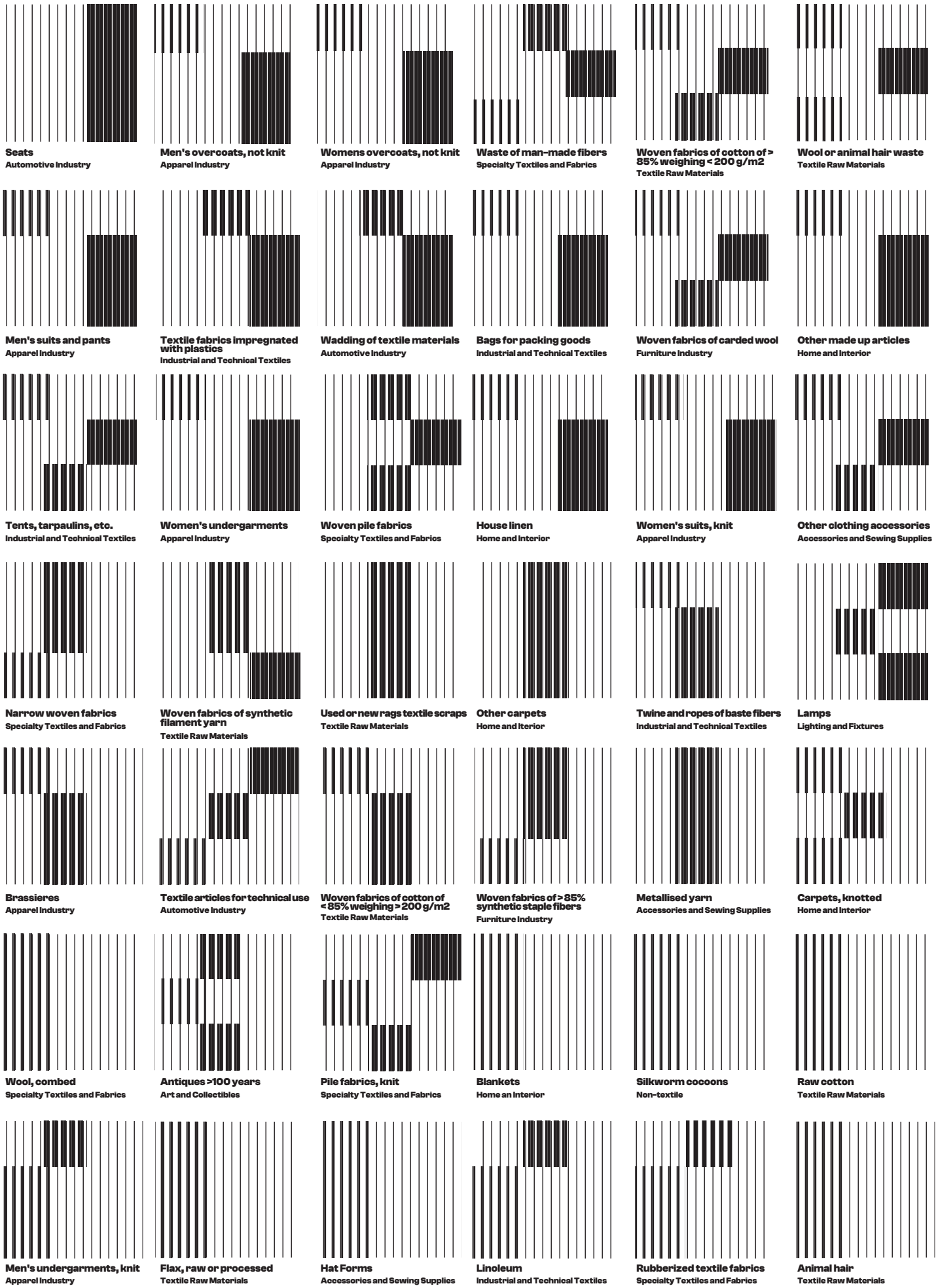
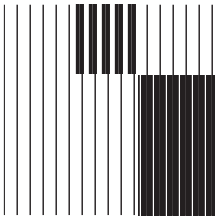


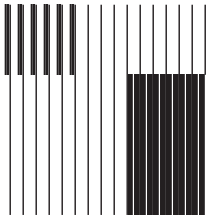
Figure 7
Product label – grid

Set of 84 data avatars, each representing a Romanian textile product, arranged from most to least competitive (left to right and top to bottom) and displaying a streamlined view of each product's 2021 metrics.

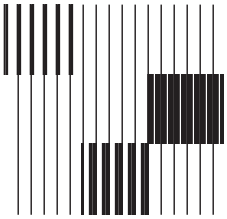
Data source:
Growth Lab at Harvard University, The Atlas of Economic Complexity (2024). Retrieved from https://atlas.cid.harvard.edu/



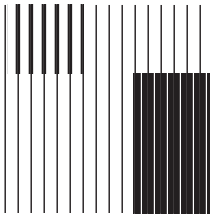
Parts of footwear
Footwear Industry



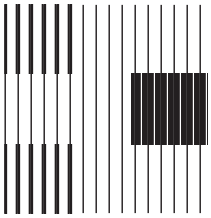
Silk yarn, for retail sale
Textile Raw Materials



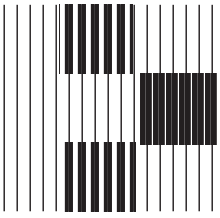
Raw Silk
Textile Raw Materials



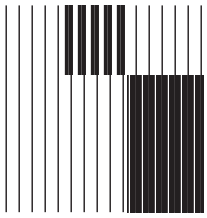
Yarn of carded wool, not for retail sale
Textile Raw Materials



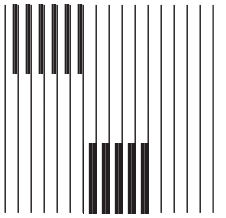
Hemp fiber
Textile Raw Materials



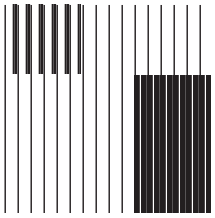
Woven carpets and rugs
Home and Interior



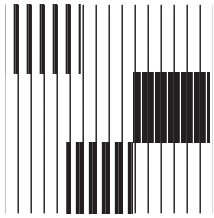
Synthetic staple fibers
Industrial and Technical Textiles



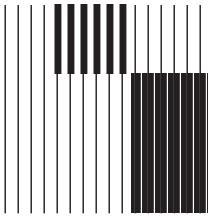
Woven fabrics of combed wool
Specialty Textiles and Fabrics



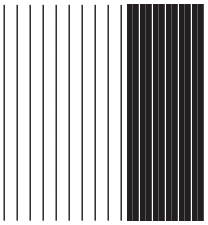
Women's shirts
Apparel Industry



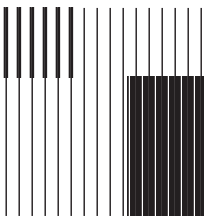
Woven silk fabrics
Textile Raw Materials



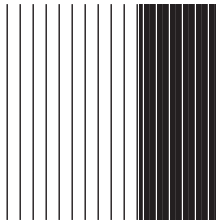
Lace and net fabrics
Specialty Textiles and Fabrics



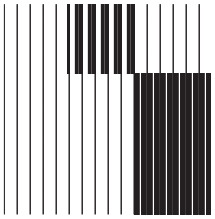
Medical, dental or veterinary furniture
Apparel Industry



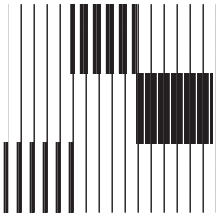
Yarn of synthetic staple fibers, not for retail sale
Textile Raw Materials



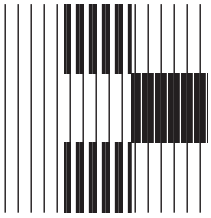
Other furniture and parts
Furniture Industry



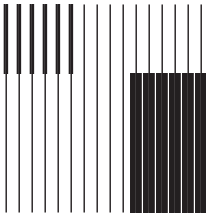
Textile footwear
Footwear Industry



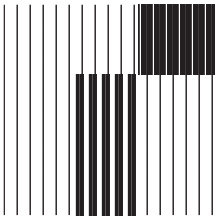
Yarn of artificial staple fibers, not for retail sale
Textile Raw Materials



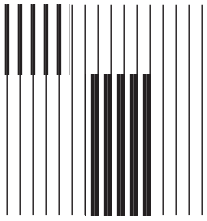
Woven fabrics of artificial filament yarn
Textile Raw Materials



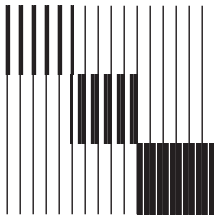
Women's suits and pants
Apparel Industry



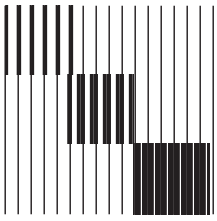
Felt
Automotive Industry



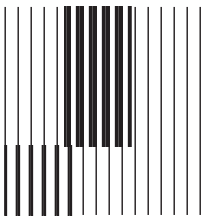
Other woven fabrics of s ynthetic staple fibers
Specialty Textiles and Fabrics



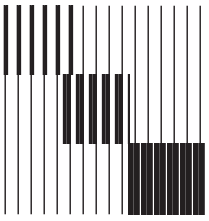
T-shirts, knit
Apparel Industry



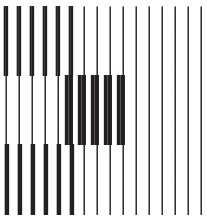
Pullovers, sweatshirts etc., knit
Apparel Industry



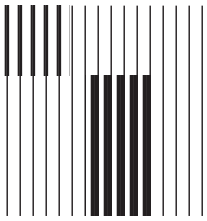
Synthetic staple fibers, processed
Automotive Industry



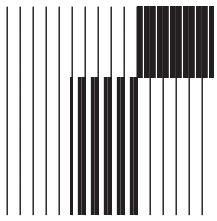
Other garments, knit
Apparel Industry



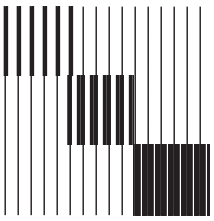
Cotton, carded or combed
Textile Raw Materials



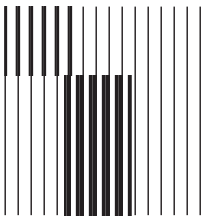
Other clothing accesories, knit
Accessories and Sewing Supplies



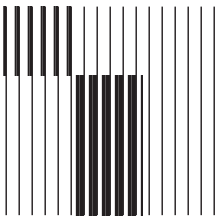
Nonwoven textiles
Automotive Industry



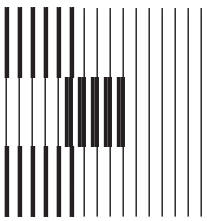
Women's undergarments, knit
Apparel Industry



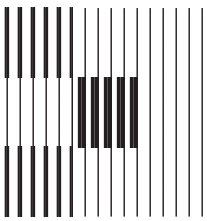
Other knitted or crocheted fabrics
Apparel Industry



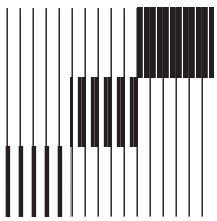
Other headgear
Accessories and Sewing Supplies



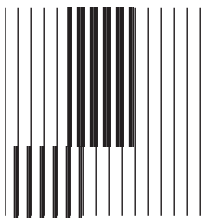
Men's undergarments
Apparel Industry



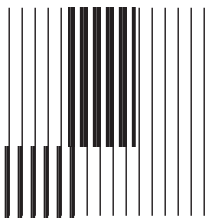
Wool
Textile Raw Materials



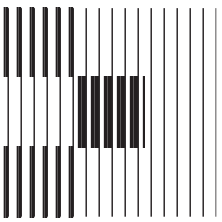
Woven fabrics of flax
Textile Raw Materials



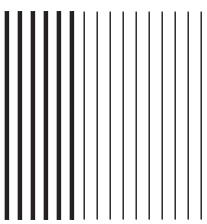
Woven fabrics of artificial staple fibers
Specialty Textiles and Fabrics



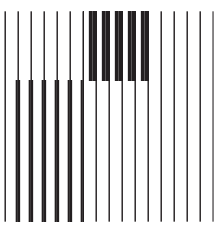
Umbrellas
Accessories and Sewing Supplies



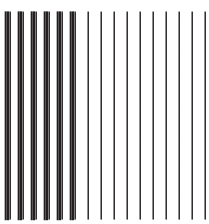
Woven fabrics of jute or of other textile bast fibers
Textile Raw Materials



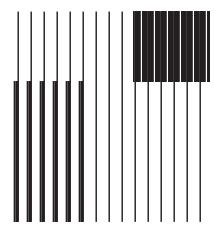
Cotton waste
Textile Raw Materials



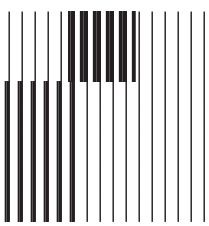
Carpets, tufted
Automotive Industry



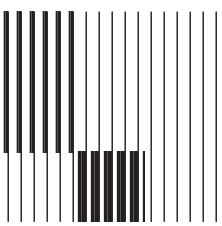
Textile bast fibers
Textile Raw Materials



Artificial staple fibers, not processed for spinning
Industrial and Technical Textiles



Synthetic filament yarn
Automotive Industry



Cotton yarn of > 85%
Textile Raw Materials

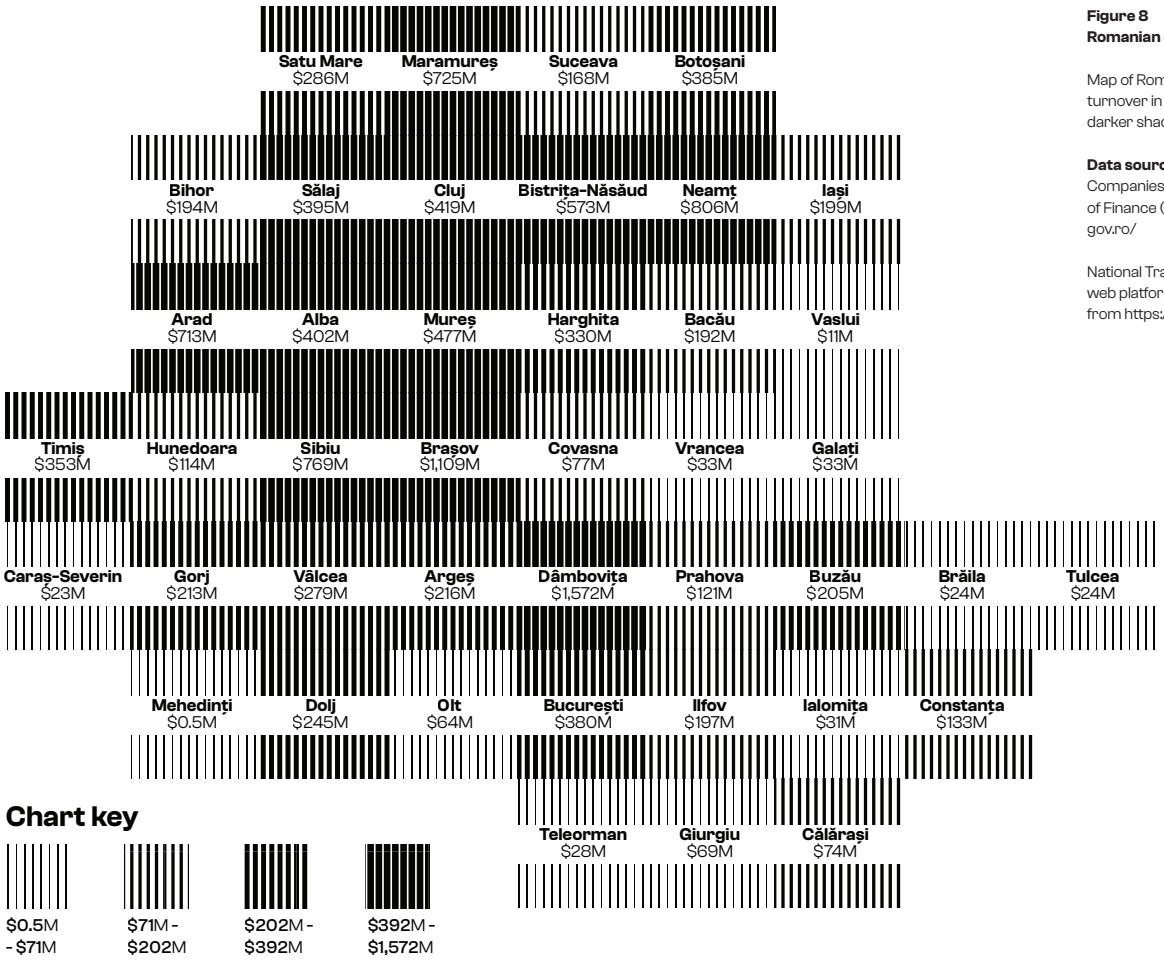


Figure 8
Romanian county turnover

Map of Romania displays 2022 annual average turnover in the textile industry by county, with darker shades indicating higher turnover levels.

Data source:
Companies Accounting Balance, Romanian Ministry of Finance (2024). Retrieved from https://data.gov.ro/

National Trade Registry, Lista Firmelor din România web platform, BordDesign SRL (2024). Retrieved from https://www.listafirme.ro/

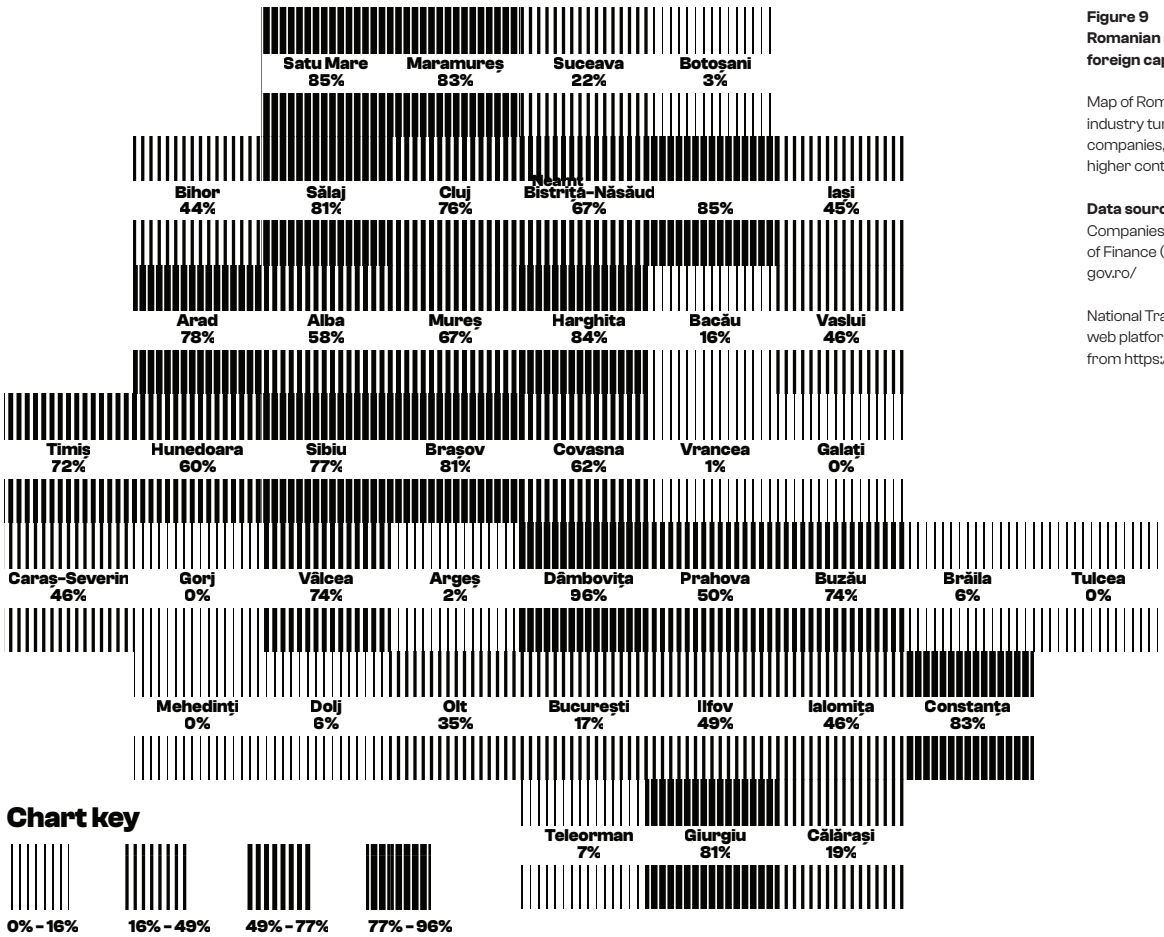


Figure 9
Romanian share of turnover generated by foreign capital companies

Map of Romania shows the 2022 share of textile industry turnover generated by foreign-owned companies, with darker shades representing higher contribution levels.

Data source:
Companies Accounting Balance, Romanian Ministry of Finance (2024). Retrieved from https://data.gov.ro/

National Trade Registry, Lista Firmelor din România web platform, BordDesign SRL (2024). Retrieved from https://www.listafirme.ro/

Figure 10
Romanian number of employees per county, 2022

Map of Romania shows 2022 textile industry employment by county, with darker shades indicating higher employee counts.

Data source:
Companies Accounting Balance, Romanian Ministry of Finance (2024). Retrieved from https://data.gov.ro

National Trade Registry, Lista Firmelor din România web platform, BordDesign SRL (2024). Retrieved from https://www.listafirme.ro/from https://www.listafirme.ro/

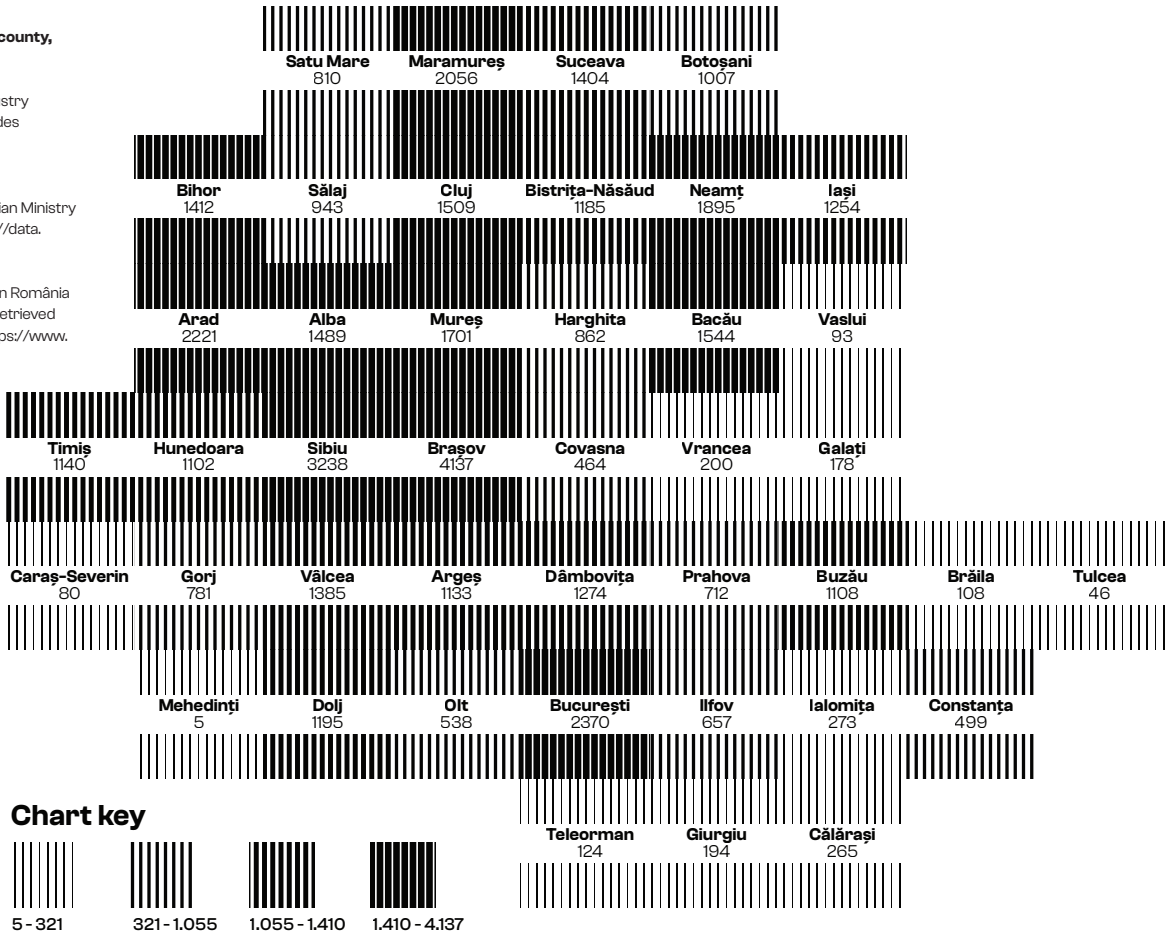
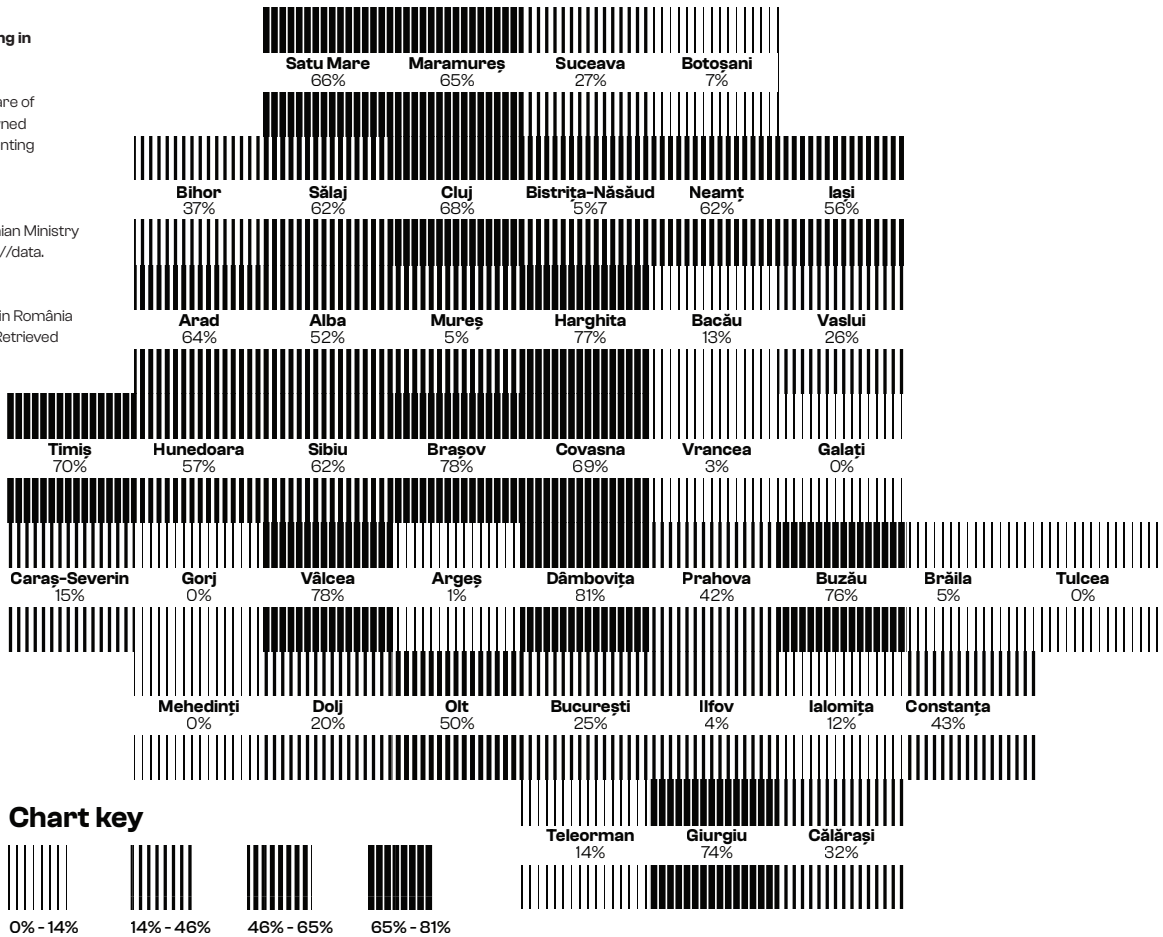


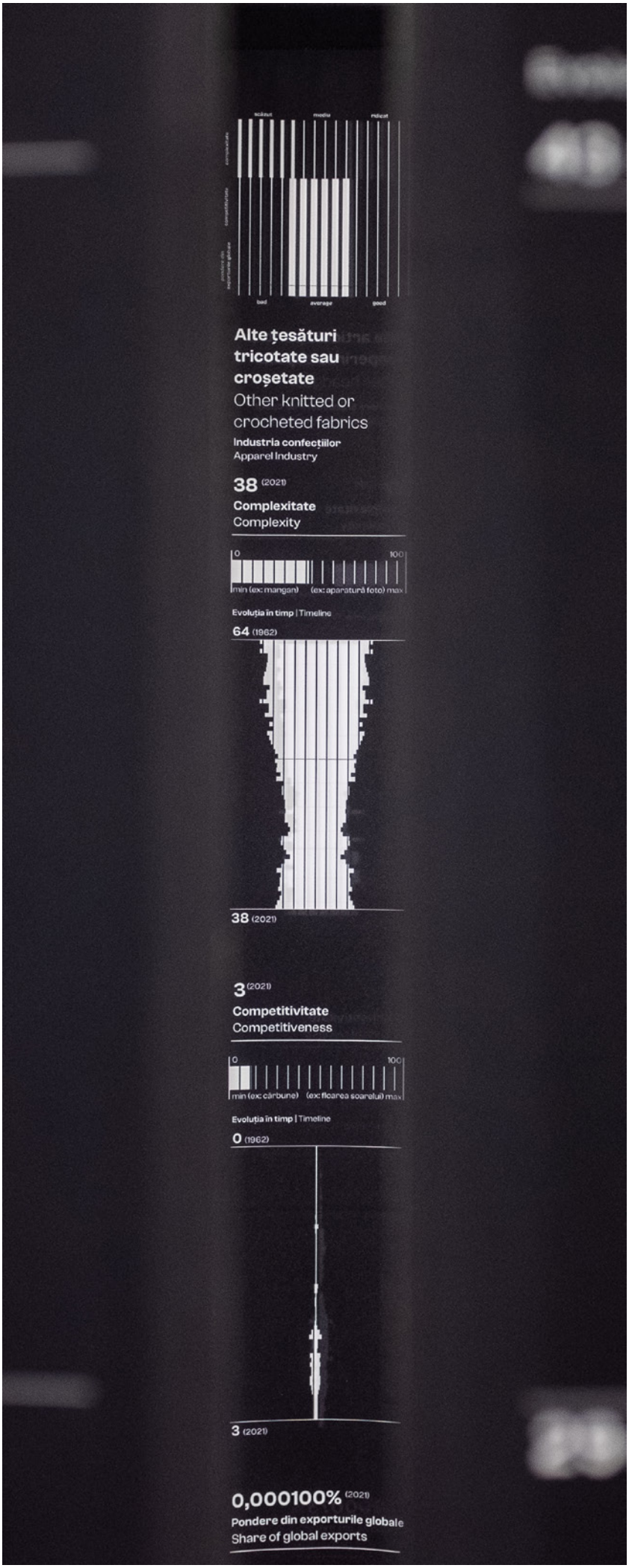
Figure 11
Romanian share of employees working in foreign capital companies, 2022

Map of Romania illustrates the 2022 share of textile industry employees in foreign-owned companies, with darker shades representing higher proportions.

Data source:
Companies Accounting Balance, Romanian Ministry of Finance (2024). Retrieved from https://data.gov.ro/

National Trade Registry, Lista Firmelor din România web platform, BordDesign SRL (2024). Retrieved from https://www.listafirme.ro/




scăzut
mediu
ridicat
bad
average
good
Alte țesături tricotate sau croșetate
Other knitted or crocheted fabrics
Industria confecțiilor
Apparel Industry
38 (2021)
Complexitate
Complexity
0
100
min (ex: mangan)
(ex: aparatură foto) max
Evoluția în timp | Timeline
64 (1962)
38 (2021)
3 (2021)
Competitivitate
Competitiveness
0
100
min (ex: cărbune)
(ex: floarea soarelui) max
Evoluția în timp | Timeline
0 (1962)
3 (2021)
0,000100% (2021)
Pondere din exporturile globale
Share of global exports

2.4 Designing with Data: Decoding the Economic Stories of Textile Products

INTERVIEW

Răzvan Zamfira

‘Shifts in Global Textile Markets: Romania’s Role in the Global Value Chain from 1962 to 2022’ is a collaboration drawing on the research of sociologist Norbert Petrovici, the data visualisations of Studio Interrobang, and the animations of Victor Ionichi. In this interview, Razvan Zamfira of Studio Interrobang reflects on their approach to turning complex data into accessible formats that allow viewers to draw their own conclusions.

Date: 25.10.2024

What is your design background and how did you come to be designing with data?

Razvan Zamfira: My background is in architecture, but I was always more interested in the analysis part of architecture projects—how you design the theme for a project. I wasn't a great architect, but I enjoyed building solid arguments for layout and space choices, which led me to data visualisation. I then did a Master's in urban geography across several European universities, where I used data visualisation more formally.

After returning to Romania, I worked in public participation for urban planning. We dealt with urban data and had to communicate it to people who might not be interested in complex maps, so I explored data visualisation to make it more accessible. At that point, it was more of a skill than a profession for me. Eventually, I found an online community, realised this could be a full-time thing, and began working as a data visualiser in 2018. Most of my projects are related to sustainability, resilience, and social impact, with very little focus on business intelligence.

Contrary to popular belief, data visualisations is so much more than infographics. What is your approach to data visualisation?

RZ: In the data visualisation community, the word 'infographic' doesn't always have the best connotation. Infographics became super popular around 2014/2016, driven by the explosion of data and social media's need for small, digestible pieces of information. Historically, infographics have been around since the 1930s, but they weren't called that.

There are two ways to use data visualisation: for exploration or explanation. Infographics are more on the explanation side, where specific data points are selected to tell the reader a story. In contrast, exploratory data visualisations let people find their own insights by interacting with the data. Interactive dashboards are great for this, allowing users to filter data to answer their specific questions.

In all my projects, I try to combine exploration and explanation, as neither can function independently. People need explanations because they aren't experts in every subject, but they should also have the freedom to find their own stories within the data.

What was your process in developing the 'Shifts in Global Textile Markets' project for the *Woven Secrets* exhibition?

RZ: *Woven Secrets* is not about nostalgia for Romania's textile past but about understanding how it evolved, became more complex, and expanded beyond traditional clothing to include technical products like car seats. With this in mind, we started working with Norbert Petrovici's preliminary findings and the Harvard Growth Lab data, which served as our primary dataset for visualisation. This dataset consists of data points that show each individual product in various countries, evaluating how complex each product is and its competitiveness within the economy, based on what countries are exporting and the market share of that product. Additionally, we considered the expertise and know-how required to create each product, which allowed us to construct a comprehensive 'product space network' that connects different products based on the know-how needed to create them.

How do you contextualise this data in the exhibition in a way that allows people to discover different stories about the data?

RZ: The initial dataset provided a basis for the analysis and formed the foundation of the work. We then developed three components: a set of animations, an installation, and a map. Together these allow visitors to the exhibition to explore both the economic data of the textile industry in Romania, as well as look at the artefacts within the exhibition through the data sets provided.

The animations are based on Petrovici's insight that there are four distinct periods in the evolution of the textile industry in Romania. What are the stories that you allow visitors to see through these animations?

RZ: In his research, Petrovici considers the pre-1990s, 1990-2005, 2005-2014, and the present. The animations explore these four eras through four data variables: the complexity of products, competitiveness, global export share, and industry growth.

What becomes visible, among other things, is that the complexity of Romanian textile exports outgrew the complexity of the imports after the 1990s, and that the complexity of textile exports has also grown more than the complexity of general exports.

While people often think the Communist era was the peak for Romania's textile industry, the data shows that the early 90s were actually the most competitive period. Then we see a decrease but a stabilisation in the past eight years.

The installation also includes 84 textile objects produced in Romania, presented through labels.

How does this link this abstract global economy and its data back to the more artistic objects within the exhibition?

RZ: The labels are inspired by apparel tags that tell the hidden story behind where textile items are produced, what they are composed of, and so on. Our labels highlight competitiveness, complexity, and global market share of the product, and rank these metrics as good, bad or average—a silkworm cocoon for instance ranks poorly on all metrics. The labels also show how these metrics have evolved over time. We printed the labels on textiles, and they hang like a curtain you walk through. Visitors can also see how the projects made by designers in the exhibition align with the data.

Finally, there are the maps. What was your approach here and why was it important to include in 'Shifts in Global Textile Markets'?

RZ: The maps provide geographic context to the abstract economic data, although we did play with the concept of geographical space when designing the maps. Typically, data is coded based on physical regions, but different regions have varying characteristics. When examining economic data, the focus is less on the area of a region and more on proximity. For instance, while it's interesting to note whether one county is located in the north or south, the actual size of the region is less relevant. To illustrate this, we coded how each administrative unit in Romania ranks in terms of profitability, specifically looking at yearly turnover for the textile industry across four different categories. The thin lines represent zero turnover, while thicker lines indicate greater importance to the textile economy.

The maps provide a simplified view of these figures at the county level. The maps also display the percentages of foreign investment in each county, which plays a significant role in the development of the textile industry in Romania, as well as the number of employees per county and the proportion of those employees working in foreign-capital companies.

How do you think people who aren't very data-minded will engage with these visualisations?

RZ: The goal is for visitors to be able to create their own stories. Someone might look at a label for a product they're familiar with—maybe they had a relative who worked in a textile factory—and see how that product has evolved over time. They can explore how competitive it is today, or how its complexity compares to other products. The visualisations make the data accessible, even for people who aren't particularly data-minded.

3 Mirroring the Ecosystem

3.1 From Local Roots to Global Markets: Finding a Future for Romanian Textiles

INTERVIEW

Cosmin Grapini

Cosmin Grapini is President of Timișoara-based Pasmatex SA, one of the few examples of a company that has weathered the shifting landscape of the city's once-thriving textile sector. But while it has kept its doors open, globalisation and fast fashion have reshaped its production processes, and Pasmatex has been forced to become resilient, blending modern innovation with traditional Romanian weaving techniques honed over a century. In this interview, Grapini reflects on the past, present and future of Romania's textile industry and his factory's place within it.

Date: 25.10.2024

The *Woven Secrets* program aims to shine a spotlight on your industry. How does it feel to have your sector analysed by researchers and scrutinised by designers, and is this kind of attention welcome?

Cosmin Grapini: It is welcome, and I think it's long overdue. The textile industry in Romania, especially over the last 10–20 years, has undergone big changes, with many traditional companies disappearing. I believe a project like *Woven Secrets* could shine a light on the local textile industry and offer a fresh approach towards this business and our challenges. The ultimate hope is that the project could help lead to a new start for the national industry after our challenges over the last 20 years.

What, from your perspective, are these challenges?

CG: In the last 10 to 20 years, we've seen significant shifts in the market. In the previous two decades, particularly after 2007, the industry saw impressive growth, largely driven by multinational companies. However, these companies are often disconnected from local brands and traditions, focusing instead on global needs. While this has its benefits, it has also overshadowed the history and heritage we have here.

The trend of multinationals dominating the industry has turned textile production into a globalised process, where, for example, fabric might be produced in one country, assembled in another, and sold worldwide. At Pasmatex, we've adapted to this model by working with companies globally. Multinationals have been instrumental in training personnel and introducing new procedures, helping bring our industry into the 21st century. But there's a downside—local companies with fewer resources struggle to invest in R&D and new technologies, which can put them at a disadvantage.

In Timișoara, the textile industry has faced tough times, with many factories closing or downscaling. Pasmatex, founded 35 years ago as one of the smallest textile companies here, is now the last of the more traditional factories still standing. Early in the 1990s, we realised we needed to modernise, investing in new technology and becoming more flexible, even if it meant some sacrifices.

You find yourself then in a delicate position, critiquing a system that in many ways your own company is a part of. How do you see the role of Pasmatex within this globalised system?

CG: We have had to adapt, and we view this as the reality of the current market. For example, we source rubber from Malaysia and yarn from Portugal, we weave them together in Romania, and then ship to New York. This is simply how the industry operates now, and we've accepted it.

That said, recent global challenges over the past few years have highlighted the importance of local sourcing and solutions. There's a growing awareness of the need to move beyond the convenience of finding the same product worldwide. Many designers and academics are pushing back against the one-size-fits-all, multinational approach, and I can see a potential shift toward local sourcing and production in the future. In the next 10 to 20 years, I hope we can foster a landscape that values and integrates more local resources, both at Pasmatex and in the broader industry.

Some of the work produced as part of *Woven Secrets* has taken a critical look at the global move towards fast fashion. You've conceded that your company has had to adapt to these shifts, but what is your personal opinion on the effect they have had on the fashion industry?

CG: The main result of this shift is a kind of global flatness, where everything looks and feels the same, with only a few big companies dominating the market. While these companies contribute a lot, the downside is what I would describe as a loss of personality or local identity.

It's easy to overlook, but when every shop in Berlin, Tokyo, Bucharest, or Paris feels the same, it's hard to tell where you are. This is where designers can play a crucial role—by bringing back unique branding, personality, and the character of different locations, industries, and traditions.

We also need to promote awareness around buying decisions—why you're buying something, where it's from, and knowing more about the product you're wearing. The instant gratification culture we live in, where you see something, click on it, and it ends up on your doorstep the next day, has taken away the pleasure of truly having something. People are no longer accustomed to waiting or anticipating. It used to take several visits to a tailor to get a custom suit, and the anticipation was part of the experience. Now, it's just a click, and while you may pay more, the satisfaction is often minimal compared to the past.

This shift also impacts quality. In the past, you'd buy a suit or garment that lasted, but today's fast fashion mentality has diminished this quality. Many young people today buy a $10 t-shirt, wear it a few times, and throw it away, whereas in the past, a well-made t-shirt could last a decade. Previously, there were only two seasons in fashion: spring/summer and fall/winter. Now, some major brands offer up to 20 collections per year, ten times more.

We can't deny that we're part of this trend. At Pasmatex, our smaller size and flexibility have allowed us to adapt quickly to changes, which serves us well in meeting fast fashion demands. But there will of course be a negative side to this. Keeping up with fast fashion requires us to stay updated on technology, but it also incurs significant costs. Each production change requires halting operations, which is costly. Financial efficiency has decreased, and our vulnerability has increased. Though we do our best to meet demand, it often comes at a cost, and we're not always fully aware of what the future implications of this are.

Romania has weaving traditions that date back centuries. How do you balance this legacy with the need to remain competitive in a global market?

CG: While, as I have mentioned, we have adapted to the demands of the modern industry, I feel that embracing our traditions has also been key. We are a company that is over 105 years old, and we've had opportunities to sell our building or repurpose it, but we've chosen to hold on to it.

The local textile industry was once well-integrated into Timișoara, but as factories were bought up or redeveloped into real estate projects, that balance changed. However, we have preserved some of our textile heritage. We're proud to have staff who have been with us for more than 40 years, bringing invaluable know-how and continuity to the company. Although everyone uses similar machines and materials today, our history and decision to retain a few unique, old machines have given us an edge. These machines produce ribbons with a traditional touch that modern equipment can't replicate.

What do you see as Pasmatex SA's role in preserving these traditional methods in the decades ahead?

CG: I feel that preserving our traditions in the future will only become more challenging. We're committed to passing on this knowledge to a new generation of technicians, but it's not easy. The education system has shifted away from textile trades—everyone wants to be an economist, lawyer, or engineer, while textile-focused vocational training has dwindled. This is perhaps our biggest risk, as finding skilled people to carry on this tradition is becoming increasingly difficult.

To address this, we need to make textiles relevant again, especially in a world concerned about the environment and sustainability. In recent discussions, like at my recent presentation at FABER, I asked people to imagine a world without textiles. It's unimaginable; textiles are essential. Our goal is to produce textiles responsibly, in a way that respects both the planet and each other.

Sustainability is something many companies currently claim to be invested in. But some of these companies have been accused of greenwashing, addressing the need for sustainability as a PR issue rather than in terms of genuine changes to their processes. How do you ensure that Pasmatex's commitment to sustainability is genuine?

CG: It's true that on sustainability, we see a lot of talk, and there's scepticism about whether large companies genuinely care or are merely engaging in public relations. As a B2B (business-to-business) company, our marketing is more technical, targeting industry professionals who understand the specifics and won't be swayed by 'nice talk'. Sustainability is an issue we take seriously, as it's essential for the future of our industry. It's clear that addressing sustainability genuinely, rather than superficially, is a responsibility every factory must embrace.

You've touched on a very sensitive issue by mentioning the PR involved in the sustainability business. For example, Europe faces a major problem because so much production has moved abroad. Initially, this was done to cut costs, but later it was rationalised as being for environmental reasons: 'Let's keep our air clean and shift production elsewhere, somewhere far away.' But that doesn't solve the problem; it just moves it somewhere else, like passing around a hot potato.

Now, sourcing locally is nearly impossible. For instance, we used to have yarn producers nearby in Romania, so within 500 kilometres, we could source, produce, weave, and ship to a confection company within a radius of 1,000 kilometres. Today, the journey of raw materials and finished products spans thousands of kilometres, making it difficult to honestly claim sustainability.

I would suggest starting with a simple change: let's read the label. If it says 'Made in Bangladesh,' then we know it has travelled far. Yes, there's the idea that by buying it, we're helping someone earn a salary. But, in reality, most of the money spent on that garment isn't reaching the worker; it's consumed by marketing and distribution.

Today, a high-fashion piece that sells for 2,000 euros might result in only 80 euros or less going to the actual producer. So we need a better labelling system that's transparent about the origins and traceability. It's like when you buy yoghurt labelled 'bio.' That label implies only a percentage of bio ingredients—not all of it has to be bio—but at least there's a standard that must be met. Similarly, if a label says 'Made in Germany,' then

at least 70% should be made there. Now, many items are produced far away, only to be labelled as 'Made in Europe' because they were finished or printed in a European factory. Honest, transparent labelling would be a big step forward, and lobbying for such standards could positively influence regulations.

Finally, Pasmatex participated in the *Woven Secrets* project, which involved collecting stories and objects from local textile workers. What do you hope such a project achieves?

CG: I hope the project reflects an honest exploration of the industry without influence from us. Feedback, whether positive or negative, is always useful if we choose to work with it. Pasmatex is a small company, and compared to Romania's past when it was Europe's major textile producer with nearly half a million workers in textiles, things have changed dramatically. Timișoara, for instance, has shifted to automotive production, and we are among the last in our field here. Although we work with automotive clients, we're also involved with fashion and other industries. Perhaps that's why we've managed to survive—we didn't put all our resources into one area.

Lastly, regarding the potential outcomes of *Woven Secrets*, I hope that this project, with its focus on both design and academia, could increase awareness around Romania's textile industry. I was very positively surprised by the study it provided ('Shifts in Global Textile Markets: Romania's Role in the Global Value Chain from 1962 to 2022', by Norbert Petrovici, Studio Interrobang and Victor Ionichi), full of historical data and industry statistics. Projects like these can bridge gaps in understanding between legislators, authorities, and industry professionals. Over the past 20-30 years, we've lost some contact within our industry. A project like *Woven Secrets* can help resurface important issues and reconnect us based on facts and real data, not just stories.

Pasmatex
Timișoara, 2024

3.2 Factory Visits: A Photographic Reportage

PHOTO ESSAY

Alex Todirică

Continuing the *Design Signals* approach of opening the doors of local factories, the 'Mirroring the Ecosystem' visual essay visits six key locations. Together, these cites represent the current state of Timișoara's textile industry: 1 Iunie has played an essential role in the economy and community and it will be soon demolished to make way for a real estate development; EcoCinix is the first textile recycling factory established in Western Romania in 2022; IMP Romania started as a family business producing mattresses from textile waste in 1949 in Italy and in 1995 they also open a factory in Timișoara ; Pasmatex is a traditional textile company that has produced trimmings and narrow fabrics since 1919; Cottontex is a family-owned company from South Tyrol that produces custom sports textiles; and Uniunea Tehnologiile Textile (part of Union Textile de Tourcoing from France) represents one of the few remaining functional spinning mills in Romania.

Alex Todirică is a self-taught phtographer and visual designer from Timișoara, who uses photography as a tool to investigate the relationship between people and the built environment in the post-communist context from Romania.

Date: 15.08-25.09.2024

1 Iunie
Timișoara, 2024

Ecocinix
Moșnița Nouă, 2024

Cottontext
Timișoara, 2024

Pasmatex
Timișoara 2024

Cottontext
Timișoara, 2024

Pasmatex
Timișoara 2024

IMP România
Timișoara, 2024

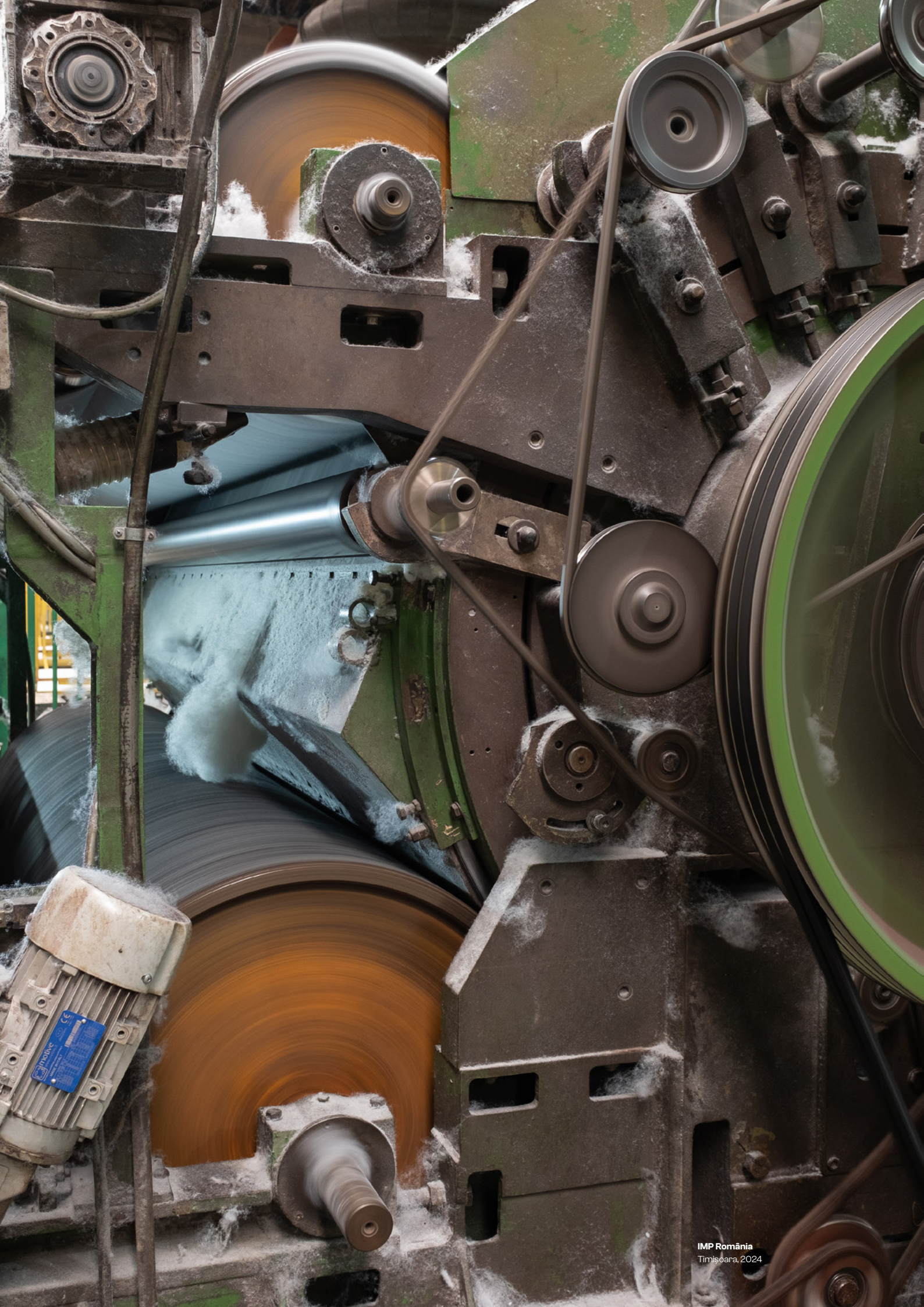
Ecocinix
Moșnița Nouă, 2024

LanaTerm
Oradea, 2024

Uzinele Tehnologiilor Textile
Timișoara 2024

1 Iunie
Timișoara, 2024

1 Iunie
Timișoara, 2024



IMP România
Timișoara, 2024

LanaTerm
Oradea, 2024

Uzinele Tehbologiilor Textile
Timișoara, 2024

Uzinele Tehnologiilor Textile
Timișoara, 2024

Pasmatex
Timișoara, 2024

Pasmatex
Timișoara, 2024

3.3 Objects of Industry: Insights on Romania's Textile Evolution

COLLECTION

An archive of artefacts and testimonies from Romania's textile industry is preserved and displayed, capturing moments and memories from workers at factories including FABER's neighbours, the 1 Iunie textile plant, which will soon be replaced by a new real estate development.

The exhibit, *Objects of Industry*, showcases tools, textiles, and photographs, scattered around the exhibition space. Overall, the collection offers a reflection on the evolution of industrial methods, design trends, and social connections over the years. Restored furniture from the original factory enriches the space, offering a nostalgic yet critical look at Romania's textile heritage.

What follows are selected highlights of two audio recordings. The first, involving stories about objects recovered from 1 Iunie, was taken from an interview with Mrs. Mihaela Stroia, the former director of the factory. The second, titled Welcome Letter, is an excerpt from an interview with Mrs. Letiția Moga, a former production worker at the Industria Lânii SA factory.

Credits
Rodica Zehan, Letiția Moga, Mihaela Stroia

The furniture of 1 Iunie Factory was recovered with the support of Speedwell and refurbished with the help of AZUR, Inside Manufacture and Industrial Cleaning Systems.

Date: 03.10-24.11.2024

BOBBINS

On the knitting machines, 81 identical thread bobbins were placed. Over time, and with some improvisation, we experimented with using differently coloured yarns, resulting in beautiful pre-colored knits right from the start. We used the last of the yarns delivered by the suppliers from Câmpulung, transforming them into striped patterns. We crafted striped pyjamas, both tops and pants, which became so popular that I often saw them on the shelves of stores, everywhere I went. Today, I still see our striped designs replicated. Just recently, I saw pyjamas with the same pattern at Selgros. It seems that our original designs continue to be imitated and I take pride in their enduring relevance.

In 2005, we introduced a new dyeing system with three large dye machines that could handle up to 500 kilograms of knit in a single cycle. This upgrade improved our production efficiency dramatically, allowing us to maintain colour consistency, as the entire process became automated.

Credits
To operate a knitting machine at the 1 Iunie factory, 81 thread bobbins were required. Due to a lack of raw materials, in some cases, spools of different colours were used. The spools in this installation were made by collecting thread scraps, which are waste from the production process.

Spools recovered from the 1 Iunie factory and Uzinele Tehnologice Timișoara

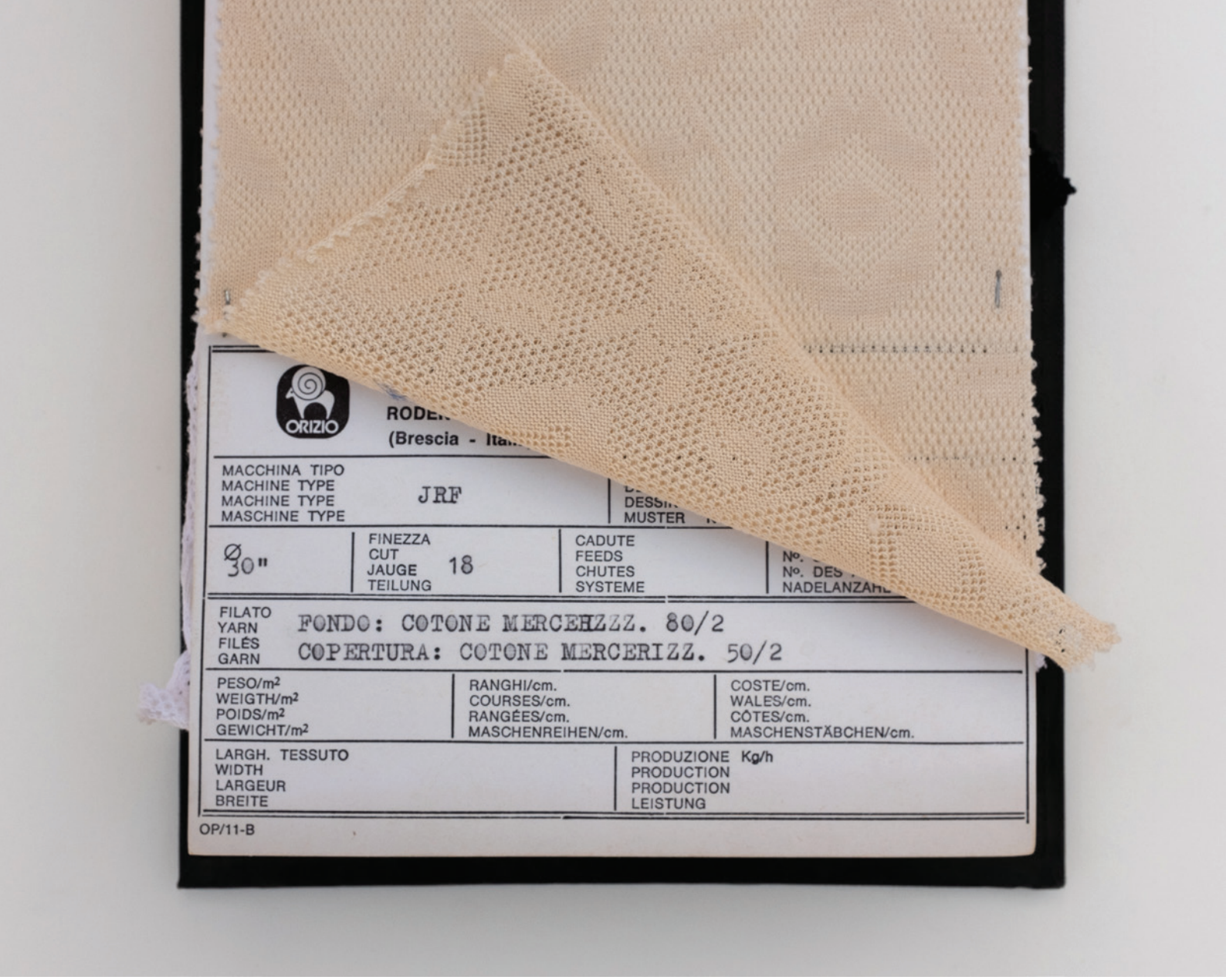
Credits
The bunny, Miffy, is the fictional main character of a series of illustrated books created by Dutch artist Dick Bruna.

Revoluția 89 is a slogan used in Romania to commemorate the victims of the revolution.

Recovered from the printing department at 1 Iunie factory, with the support of Speedwell

SILKSCREEN

Our factory had a seven-colour rotary printing machine, acquired to meet productivity demands, especially after securing a licensing deal with Disney for characters like Mickey Mouse and Winnie the Pooh. The machine is likely still somewhere in the factory, complete with drying stations. Stencils were made for each of the seven colours, with each colour application followed by a drying stage. The final product would pass through a drying tunnel for additional fixing. Before 2004, this was done manually, with workers applying colours by hand using stencils, a squeegee, and an electric dryer.



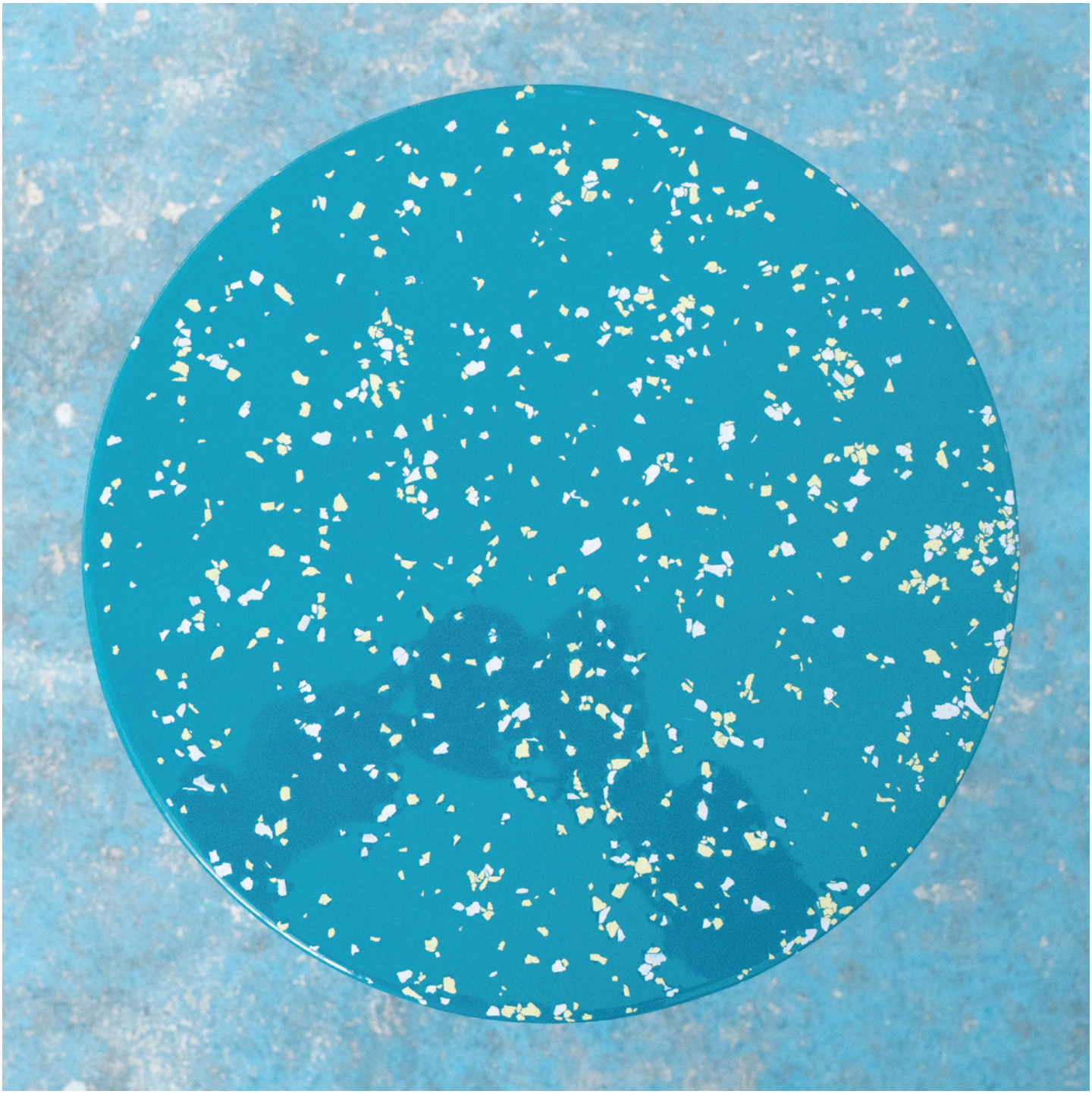
EMBROIDERY

We also had a lace-making machine from 1901, which operated with a pantograph mechanism. The worker would follow the pattern with a stylus, resulting in a delicate perforated lace. This machine was retired around 2003–2004, when modern automatic PFAFF embroidery machines were introduced, making production more efficient and freeing up space in the factory.

Credits
Samples of materials that could be produced on single or double circular knitting machines from the brand Orizio. This Italian company, founded in 1951, manufactures industrial knitting equipment.

Recovered from the 1 lunie factory, with the support of Speedwell

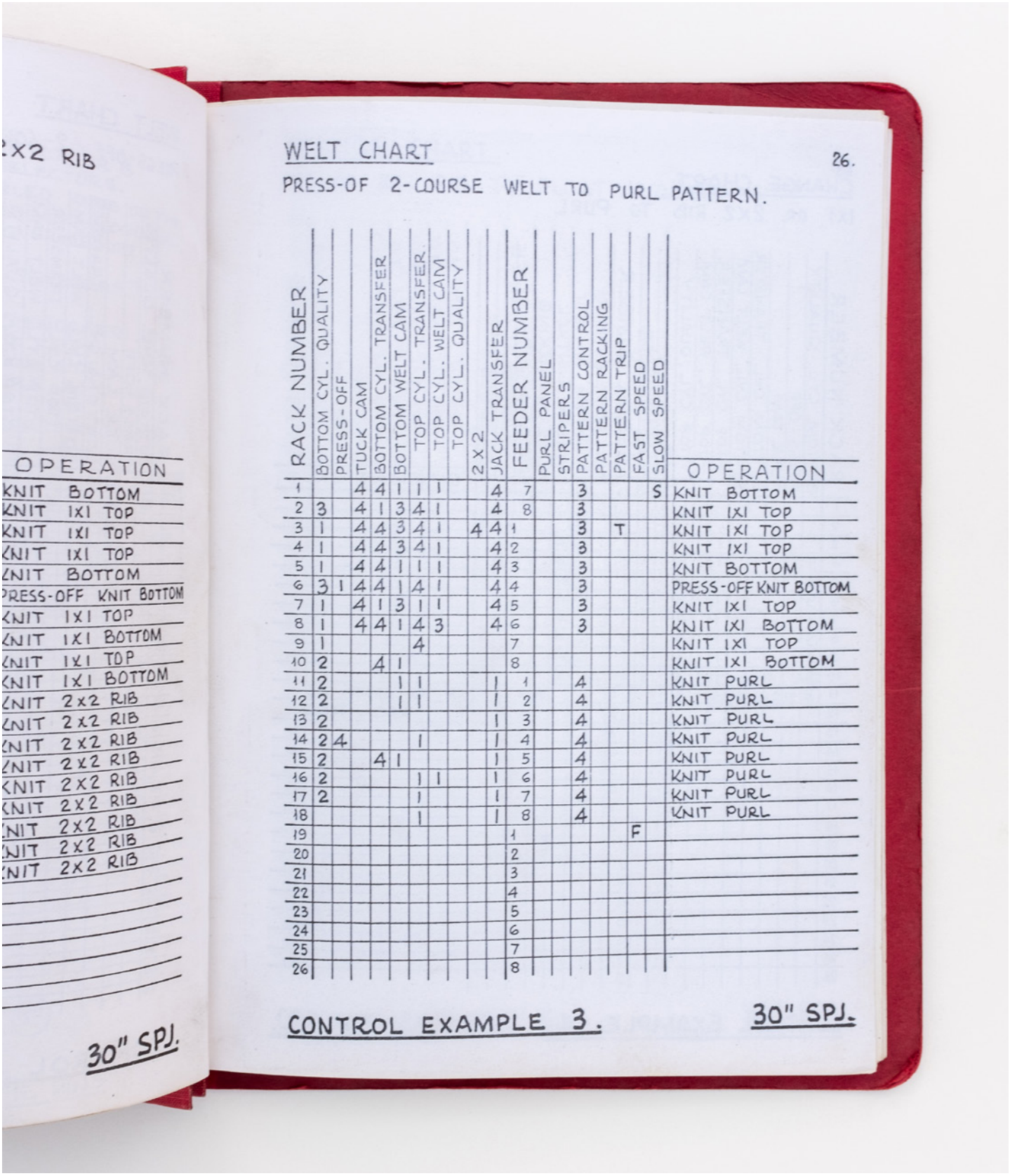
fabbrica macchine tubolari per maglieria
25050 rodengo saiano - brescia - via stacca, 3 - ITALIA
tel. (030) 698171 (3 linee con ricerca automat.) telex 30069 orizio



Credits
The furniture has been collected from the 1 Iunie former factory, with the support of Speedwell. The furniture has been customised with the help of AZUR paint division.

ABOUT 1 IUNIE

Our factory initially specialised in items for newborns and children, later expanding into essentials like underwear, undershirts, and pyjamas. Although adult items were produced on request, children's clothing remained the main focus. Around 80% of our production was for export, allowing us to stay ahead of fashion trends in colours, cuts, and styles by preparing for the following season. Twice a year, we organised events for the domestic market, where manufacturers presented collections and took orders.



2X2 RIB

OPERATION
KNIT BOTTOM
KNIT 1X1 TOP
KNIT 1X1 TOP
KNIT 1X1 TOP
KNIT BOTTOM
PRESS-OFF KNIT BOTTOM
KNIT 1X1 TOP
KNIT 1X1 BOTTOM
KNIT 1X1 TOP
KNIT 1X1 BOTTOM
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB
KNIT 2X2 RIB

30" SPJ.

WELT CHART

26.

PRESS-OF 2-COURSE WELT TO PURL PATTERN.

RACK NUMBER	BOTTOM CYL. QUALITY	PRESS-OFF	TUCK CAM	BOTTOM CYL. TRANSFER	BOTTOM WELT CAM	TOP CYL. TRANSFER	TOP CYL. WELT CAM	TOP CYL. QUALITY	2X2 JACK TRANSFER	FEEDER NUMBER	PURL PANEL	STRIPERS	PATTERN CONTROL	PATTERN RACKING	PATTERN TRIP	FAST SPEED	SLOW SPEED	OPERATION
1			4	4	1	1	1		4	7			3				S	KNIT BOTTOM
2	3		4	1	3	4	1		4	8			3					KNIT 1X1 TOP
3	1		4	4	3	4	1		4	1			3		T			KNIT 1X1 TOP
4	1		4	4	3	4	1		4	2			3					KNIT 1X1 TOP
5	1		4	4	1	1	1		4	3			3					KNIT BOTTOM
6	3	1	4	4	1	4	1		4	4			3					PRESS-OFF KNIT BOTTOM
7	1		4	1	3	1	1		4	5			3					KNIT 1X1 TOP
8	1		4	4	1	4	3		4	6			3					KNIT 1X1 BOTTOM
9	1					4				7								KNIT 1X1 TOP
10	2			4	1					8								KNIT 1X1 BOTTOM
11	2				1	1			1	1			4					KNIT PURL
12	2				1	1			1	2			4					KNIT PURL
13	2								1	3			4					KNIT PURL
14	2	4				1			1	4			4					KNIT PURL
15	2			4	1				1	5			4					KNIT PURL
16	2					1	1		1	6			4					KNIT PURL
17	2					1			1	7			4					KNIT PURL
18						1			1	8			4					KNIT PURL
19										1						F		
20										2								
21										3								
22										4								
23										5								
24										6								
25										7								
26										8								

CONTROL EXAMPLE 3.

30" SPJ.

USER MANUAL

The maintenance team made modifications to improve machine reliability, adapting devices to prevent frequent stoppages and ensure smooth operation, even during power fluctuations. The knitting and finishing sections operated continuously in three shifts, from Monday to Sunday, pausing only for the 1989 revolution.

Credits

User manual for a Wildt Mellor Bromley circular knitting machine, produced in the UK between 1975-1985.

Recovered from the 1 lunie factory, with the support of Speedwell

WILDT MELLOR BROMLEY

TETRA UNDERWEAR

The tetra knit was a unique creation, developed here by our knitting experts. They were always eager to invent new knit types and structures, adjusting cams and needles to craft specific patterns. Unlike Tricoul Roșu, a similar knitwear factory that used small machines to produce seamless underwear, we used machines with a 70–80 cm wide knit, creating items with side seams. Back then, sizing was based on anthropological studies, so you could confidently buy a size 48 and it would fit perfectly. Today, unfortunately, we can no longer rely on this being the case.

Credits
Produced in Romania during the 1960s, these underwear pieces were made from Tetra—a type of thin, soft, and breathable cotton characterised by a slightly textured weave. Tetra was widely used during the communist period for making underwear and children's clothing due to its durability, comfort and breathability. It was valued for its ease of maintenance and longevity.

Underwear produced at 1 Iunie, courtesy of Rodica Zehan

ÎNTREPRINDEREA
INDUSTRIEI LINEI TIMIȘOARA

„STIMATE TOVARĂȘE"

CEREREA DUMNEAVOASTRĂ DE A LUCRA ÎN COLECTIVUL ÎNTREPRINDERII NOASTRE A FOST APROBATĂ.

BAZAȚI CĂ VEȚI MUNCI CONȘTIINCIOS, CONVINȘI CĂ VEȚI FACE TOTUL SĂ VĂ ADAPTAȚI LA SARCINILE COMPLEXE CE LE ARE ÎNTREPRINDEREA „INDUSTRIA LINEI", PRIETENII NOULUI ANGAJAT VĂ UREAZĂ:

„BUN VENIT"

ÎN CADRUL ÎNTREPRINDERII NOASTRE ȘI SUCCESE ÎN MUNCA PE CARE URMEAZĂ SĂ O EFECTUAȚI. ÎN ACELAȘI TIMP ESTE NECESAR SĂ REȚINEȚI CĂ ÎNTREPRINDEREA NOASTRĂ ARE CA SARCINĂ DE RĂSPUNDERE, DE A DA ȚĂRII STOFE DE CALITATE SUPERIOARĂ, PENTRU CARE ESTE DOTATĂ CU UTILAJE DE ÎNALTĂ TEHNICITATE ȘI ARE PROCESE TEHNOLOGICE COMPLEXE CARE IMPUN O DISCIPLINĂ FERMĂ DIN PARTEA FIECĂRUI MUNCITOR ȘI STĂRUINȚĂ ÎN ÎNVĂȚAREA DESERVIRII UTILAJELOR LA CARE LUCREAZĂ. SUNTEM CONVINȘI CĂ VEȚI ÎNȚELEGE ROLUL DUMNEAVOASTRĂ ÎN MIJLOCUL HARNICULUI COLECTIV DIN ÎNTREPRINDERE.

„PRIETENII NOULUI ANGAJAT"

Credits
Received on the first day of work as a new employee at the Wool Industry Enterprise at Industria Lânii SA in Timișoara, 1980.

Courtesy of Letiția Moga, former worker in production, second group, Industria Lânii SA

WELCOME LETTER

I started working at Industria Lânii SA in February 1980, staying on until July 1995—a total of 15 years of experience in production. The warm reception we received as young graduates was memorable. We were already skilled, having completed ten years of school and vocational training. We had a brief adjustment period under the guidance of experienced workers before being integrated into the full production process.

4 Neighborhood Conversations

4.1 Neighbourhood Conversations: Memories of Former Factory Workers Tell Timișoara's Story

INSIGHT

Factories such as 1 Iunie, Industria Lânii SA (ILSA), Garofița, Banatul, Guban, Uzinele Textile Timișoara (UTT), Bumbacul, Confecții Bega (ModaTim), Arta Textilă and Pasmatex have played a central role in both Timișoara's thriving textile industry, and the city's identity. These factories produced clothing, shoes, and homeware that locals used with pride. People of Timișoara, mostly women, worked in these factories, forming strong communities centred around their workplaces. The deep personal connections forged have left a lasting sense of nostalgia for many former workers. It is these personal connections and stories that the *Neighbourhood Conversations* project seek to gather and archive. Photography, workshops and collections of objects serve to capture a glimpse of the cultural heritage and lived experience of those who built the city's textile industry. What follows are selected excerpts from the interviews with former factory workers that formed part of *Neighbourhood Conversations*.

Date: 15.08.-03.10.2024

At the 1 Iunie factory the sections were full of women. So many women. Whether I came in for my shift, or when I left, that crowd was huge, like it used to be back in the day. It was beautiful. That period had its own charm. Now there's this lingering nostalgia. Even though today's times are nice too—there's more freedom, more diversity—those memories remain. The nostalgia is still there.

From the Sock Factory, I still keep in touch with three people.

The bosses from 1 Iunie understood me. They weren't such harsh bosses. They didn't put that much pressure on us. It's a nice memory that they overlooked some of our shortcomings and encouraged us to keep going, to persevere. Back then, there was this sense of being encouraged to work, to accomplish something. They inspired us in that way, to try, to achieve something.

Melinda Covaci, 43 years old, The Sock Factory and 1 Iunie factory

I worked in sewing, and I already knew how to sew since I had a machine at home, but one of the ones with pedals. When I came here, I really liked it, and I saw how well those machines worked. I picked it up quickly, and all the supervisors liked me. Then, on the second or third day, they immediately moved me to the export section.

I still live around the area, and when I was riding my bike I saw how 1 Iunie has been destroyed. What a pity. I feel sorry for that factory because now there's nothing left there.

Floare Engelman, 67 years old, 1 Iunie factory

From the moment I started working at the Bumbacul factory I had very frequent connections with the 1 Iunie factory. I only have fond memories of what I saw and knew about the factory—it had a past, a present, and a future.

I worked at Bumbacul until after the Revolution, until 2008. I started in the workshop as a tradesman, went to school, finished high school, and continued both before and after I went to the army.

The fondest memories are the most genuine and real ones, the ones of times when I was growing as a person. I bought an apartment and helped others too. I'd give them tips. I'd say, 'Write there that you have a daughter and a son, and that you live in a two-room apartment.' Because if they had a daughter and a son, they would get an extra room. And because of my help, they would get a three-room place.

Life was beautiful. It wasn't easy, but it was beautiful.

I worked at Bumbacul, went to school, and cherished those who never turned their backs on me. It wasn't that they forced me. They pushed me forward.

Constantin Guțan, age unknown, Bumbacul Factory

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I worked at Bumbacul until after the Revolution, until 2008. I started in the workshop as a

Lica Antonică, age unknown, Garofița factory and Bumbacul facto

tradesman, went to school, finished high school, and continued both before and after I went to the army.

The fondest memories are the most genuine and real ones, the ones of times when I was growing as a person. I bought an apartment and helped others too. I'd give them tips. I'd say, 'Write there that you have a daughter and a son, and that you live in a two-room apartment.' Because if they had a daughter and a son, they would get an extra room. And because of my help, they would get a three-room place.

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Rozalia Gabor, age unknown, 1 Iunie factory

I worked with the payroll records from 1978 to 1992.

That was just the way it was back then—we helped each other quite a lot if needed. Since we had to work on Saturdays too, there were some tough situations—health issues, financial, personal—and inevitably, at some point, you had to cover for someone. And if it was possible, we did it.

There were 3,600 people working there when I was there. This was around 1989 or 1990. We had computers that took the records from each section and calculated them. Every day the data was recorded on tape, and those computers, each with its tape, processed the records, and each person had a card and a stamp where all the monthly work was centralised. These computers would bring the records, that's what they were called, each person's records, and we would only use the stamp for the centralisation.

Once, it was really cold in the offices, and we would warm ourselves with space heaters, that was just the way it was. And I knew that the boss really liked stuffed cabbage rolls. So I wanted to surprise him and thought, why not, I'll bring a pot of cabbage rolls and see what happens. I set the pot of cabbage rolls to heat on the space heater. A bunch of things came up—papers, situations, who knows what—and I forgot about the cabbage rolls. Then the boss, whose office was right next to ours, opened the door and said, 'Where are those cabbage rolls? They're driving me crazy!' And, of course, everyone ended up eating some cabbage rolls. They were a little burned, but it was exceptional.

Octavian Iustin Mări, 69 years old, UTT (Uzinele Textile Timișoara)

I worked at the Timișoara Textile Factory for ten years, from 1973 to 1984, as an electrician in the electrical workshop. We maintained the machines there, and the work shifts were from 6am to 2pm, from 2pm to 10pm, and from 10pm to 6am. Only the handkerchief section had two shifts, with the rest of the UTT factory operating in three shifts.

Work was from Monday to Saturday, and on Sundays, we in the electrical workshop had to go in to check the transformer stations. We had to switch off the electricity in certain sections so we could go in and perform maintenance, clean the parts, and make sure everything was spotless inside to prevent issues caused by dust.

There was no cafeteria, so everyone brought food from home—bread with butter, bread with jam, bread with salami. In our workshop, we had people who lived in the countryside, and they would sometimes bring bacon, ham, and we would share food with each other. If someone brought tomatoes, you'd get to taste the first tomatoes from the countryside that season.

Claudia Chiper, 72 years old, Arta Textilă factory

I was a worker, meaning I worked at the weaving loom. It was a job I really enjoyed, and I still dream about it often even now.

A workday started at 6am and ended at 2pm. During that time, you had to operate two machines, two looms, and if you enjoyed it, it was a beautiful job. You could see what came out of your own hands. It was beautiful, what came out of our hands.

Rodica Nicolaescu, age unknown, Industria Lânii and Pasmatex

I worked as a textile engineer at Industria Lânii from 1983 to 2002, and then at Pasmatex until my retirement in 2017.

As a technologist in the weaving section and preparation section, I had to check the operating parameters for everything that was produced. Before the weaving process, there was a preparation section where all the equipment was set up for the weaving machines.

Daily, we checked the operating parameters and all the changes made to the weaving machines because there were always 300 weaving machines in the weaving section, and there were both short and long orders. Every two or three days, a different article was changed on each machine, so the parameters needed to be checked, and the model had to be verified to ensure everything was woven correctly, with no weaving defects. That was the main task.

There was a lot of exporting at that time; we exported a great deal. There was also some for the domestic market, though less.

Back then, there were artistic brigades in every factory. Those preparing for performances would have a program in the factory's meeting room. It was interesting. They would perform mainly satirical songs related to our work in the factory, referencing the humorous incidents that occurred in each section. In the end, it all worked out, but there were some funny moments highlighted in those brigades, and people enjoyed them. It was something we enjoyed.
There was a cafeteria, a nursery, and a kindergarten because women worked in three shifts, so they needed a place to leave their children, either in the nursery or the kindergarten.

I have a memory that at one point, there was a problem with production costs and the prices of various items we were producing. We received a task from the general director, Dumitru Vinereanu, to investigate what was happening and how we could improve and reduce these costs. Of course, we completed the work in our respective sections. After finishing the work, we presented it to the factory management, and the director, who didn't often praise us, thanked us for what we had accomplished. Yes, he didn't praise us; he just thanked us. But for us, that meant a lot.

My regret is that these factories no longer exist, that natural raw materials—cotton, wool, silk, flax, and hemp—are no longer processed, and only synthetic fibres like polyester are used. Everything we and our children wear is synthetic, and that's a real shame. The same can be said for footwear; it's the same situation there.

Timișoara had a well-developed industry in all areas. We had factories for cotton, wool, silk, and shoe production—luxury shoes and sports shoes. Then there was the upholstery fabric. It was everything you could wish for, and the fact that natural raw materials are no longer processed is regrettable, as we no longer have a place to process them.

To get a factory back up and running is very difficult. Yes, it's very hard. There are many machines, the production process is quite lengthy, and involves many types of equipment, and I don't think it's possible to do a lot of what we used to do anymore. That is my greatest regret.

T9
Carolina Mariari, age unknown, 1 Iunie Factory

I worked at 1 Iunie from the age of 16, for 26 years and 6 months. I got a job immediately after finishing school.

It was Children's Day, and there was a parade. We went by bus, and my child was on the float. We travelled the entire route to the National Opera House, going in cars with several other mothers and children who were there. The children were dressed up for June 1st, and they had created costumes—someone came and took their measurements and made their outfits, and they were on that float.

We did exports, but we also had items in stores. We had our own store in the city centre where we sold what we produced, and it was really great.

I feel very sorry that the factory will be destroyed. Honestly, I have cried, and it has pained my soul that after so many years passing through that gate, it is now being torn down. It's painful, even though it's true that we were compensated; I had my shares at 1 Iunie, and I received 7,000 lei when the factory was sold.

Letiția Moga, age unknown, Industria Lânii SA (ILSA)

I joined Industria Lânii in February 1980 and worked until July 1995. I spent 15 years in the second group on an individual agreement, solely in production. I was also a top worker. Back then, if you completed our five-year plan, you would be put on the honour board at the factory and in the city centre.

I completed my plan and remained diligent. There were also people who didn't always meet their targets, and the shift supervisors would try to help them identify the issues preventing them from achieving their goals. If they still couldn't make it, they would be assigned to a section, such as finishing or starching, where they didn't have a production quota and could work in production. In those areas, there were management hours, and you only received our base salary.

I still have a very nice winter suit made of fabric because we worked a lot for export. I got it from the design department. In the factory's design department, production was more exclusive, as it wasn't for large-scale sales, but we workers had access.
We also had a lovely swimming pool where we had a water polo team. We had access to the pool year-round, as it was covered. We also had a volleyball team and a mini greenhouse.

Gyongyi Hajdu, age unknown, 1 Iunie Factory

I worked on several important phases. The first was the triploc, which is the industrial term for the machine that used three threads with three spools. How did that machine work? It sewed while simultaneously cutting off the surplus material that was left on the piece in the machine. After working with three threads, I was moved to other phases, like the linear machine, for example, the tac-tac machine. It was a kind of machine that sewed like our parents did by hand, used for tablecloths. Then there was the Rimoldi, a machine that made the lengths of T-shirts. The elastic seam was important because each type of seam had its significance.

At 1 Iunie, I have fond memories because at that time we worked on Saturdays and Sundays. When there was a large order and we had exports that needed to be completed in a few days, they would ask us to come in for shifts, including night shifts. It was tiring and we felt sleepy, so we took an hour instead of the usual half-hour break, and one of us put on a bathrobe, while another wore some baby bonnets on their heads; I don't remember exactly what they were called. We tied them like that. It was fun because we could enjoy ourselves a little, and the

funny thing is that I still keep in touch with a few people from that time.

We had sheets where everyone had a code. You would put our name, code, and signature to indicate that you made a specific number of pieces, like 50 for one package, or perhaps 48, depending on how the batch turned out. Up at the cutting area, they worked with a bandsaw, a large handheld machine, or there was a fixed band that moved vertically, and the lady in charge of cutting managed the stock of material—the scraps, as we called them. If a piece accidentally went through incorrectly, those pieces would be lost. If you didn't sew it properly, it would come back to you and you would have to unpick it. During our time, instead of making another 20 pieces for the phase you received, you had to stop and repair it because otherwise you couldn't proceed, especially if it was for export.

I worked for 25 years at 1 Iunie.

Etustante, age unknown, 1 Iunie Factory

I first entered an office where cutting and crafting was done, which I guess you could say was the cutting department, and I handled the norms and salaries of those who worked there. Once the items were cut by the machines, other women would pack them up, putting together the pants, hats, and everything needed for a costume. After that, the accounting manager said it was a shame for me to stay there, so he assigned me to manage the unfinished goods warehouse, meaning the uncut bundles.

There, I had to train the people who delivered goods for cutting and finishing and also brought items to dye. I handled the salaries, recorded the entries and exits from the knitting department to mine, from mine to dyeing, from dyeing back, and from mine to the other sections, and so on. I also had three girls who worked at the archives. I prepared the salary lists for them.

We had few men. They were only in the workshops, checking the machines that worked on knitting and winding. We spoke three languages because you could tell who was Hungarian, who was German, or who was Serbian. I also spoke a little Serbian. At that time, holidays like Easter or Christmas weren't strictly observed. If Easter fell on a Sunday, there wasn't much that could be done, but we would bring pastries and then exchange recipes and pastries. There was a mutual understanding among people; there was no envy.

We also had exports, especially to Russia; we did a lot of work for them.

Elisabeta Szekey, 73 years old, 1 Iunie Factory

We didn't have many trips, but we benefited from vacations, especially us women who had children and were single; we could take leave whenever we wanted. They were very kind to us, and we would go to the seaside with my girls in the summer, and of course, we had a discount. Yes. And especially since I had many apprentices, I also received bonuses and incentives.

On holidays, everyone would bring something, and we would plan what we needed to do, and then we would sit at the table and celebrate like women—a bit of liquor, some pastries, and some sausages.

Floare Ciuculescu, 76 years old, Confecții Bega Factory

I enrolled in the Miu Vocational School in the tailoring department, specifically in clothing manufacturing. I attended for three years, from 1962 to 1965. The school was sponsored by the Bega Confecții Factory. During school, we also had practice days, so we initially completed our practical training in the factory.

I worked in the workshop where the conveyor belt method was used. This meant that there were little boxes moving along, and each person handled a phase. One person would do the collar, another would do the darts, another the cuffs, the sleeves, and so on. Each person took the item they were working on from the package in their box, handling the specific operation assigned to them. I'll never forget how quickly we had to work; the next person needed to have the item ready to continue, so it kept you working at a fast pace.

I can say it was a top-level clothing factory. The model was created here, the contracts were made, and the entire documentation was prepared. Without the documentation we created, production couldn't proceed. Whether you made seven pieces in one size or 700 in a specific model, the workload remained the same for me.

Petru Simionescu, age unknown, Industria Lânii SA (ILSA)

I mainly handled the provision of energy resources—electricity, gas, water, and so on—at Industria Lânii, maintaining relationships with suppliers of these resources.
Industria Lânii was an integrated factory, designed this way from the start. What does that mean? Raw materials, mainly wool, would be received—some partially processed, like carded wool, while some underwent that process on-site. The wool would then be spun into thread and ultimately transformed into wool fabrics. Later on, when I joined, synthetic fibres were also starting to be used.

Back then, there was a saying in Timișoara that half the city was related to someone working at ILSA, especially women. To give you an estimate, I remember there being about 4,300 workers in the 1980s—4,000 women and 300 men.

I've lived in Timișoara since 1958, so about 66 years, if I've counted right. My first memory related to ILSA goes back to when I was around 8 or 9 years old, when I'd go play football on ILSA's field. ILSA had a football field around where the police station stands today, somewhere in that area.

4.2 Neighborhood Conversations — Looming Workshop

WORKSHOP

This community workshop took the form of a traditional ‘șezătoare’—a gathering for craft and storytelling—to reconnect the neighbourhood around FABER with its textile heritage. Held during an August festival, former textile workers and locals used reclaimed materials from the 1 Iunie factory to create a communal rug on a traditional Romanian loom, brought from a village in the Apuseni Mountains. Under the guidance of two retired weavers from the factory, participants prepared and wove the fabric, each attaching a label with their name to their contribution. Participants shared memories of the factory’s role not just as a workplace, but as a vital social institution that included daycare facilities, sports, and community activities.

The loom was a living installation, which is why we invited the visitors, during the exhibition, to take a piece of textile woven on 1 Iunie Factory and contribute to this tapestry of memories.

Date: 17.08.2024


Elisa si Paul
Alina Michalachi
SASA :)
CRISTINA
MONICA

4.3 The loom

PROJECT

The loom (pictured, left) was made in 1959 by carpenter Francisc Mahala and comes from Bologa, Cluj, thanks to Florica Potra and Mărioara Molnar.

It was installed in Timișoara for this programme with the support of Nicu Potra, Maria Potra, Cristina Potra-Mureșan, Matei and Tudor Mureșan, Edith Lazăr, and Lica Antonică, as well as Pavel David Spăriosu Secoșan from Uzdin, Serbia.

5 Collaborations


TURCANOS
1962-1994
1995-2004
2015-2021

5.1.1 Unsolved Patterns

PROJECT

Andreea Pleșa,
Mihaela Vișovan with
Cătălin Botean

Unsolved Patterns explores the possibilities of textile waste, particularly the challenges of recycling blended fibre materials. At the Cottontex factory in Timișoara, the project investigated how standardised production processes lead to standardised waste and how this waste can be repurposed through innovative design.
Merging digital and analogue pattern-making techniques, the project resulted in three unique cycling jerseys, each employing different methods to minimise waste. Additionally, a video demonstrates the potential of on-demand garment production, virtually assembling and reassembling designs to reduce the need for physical prototypes.

A transparent polo shirt crafted from factory patterns symbolises social contrasts and highlights workers' vulnerabilities. The project culminates in a video mapping the repetitive sewing movements of workers, urging viewers to reflect on the labour behind textile production and the ethics of consumption. *Unsolved Patterns* challenges traditional production lines by turning waste into an opportunity for creative practice.

Andreea Ana-Maria Pleșa is a fashion designer with a keen focus on sustainable fashion and an assistant professor at the Faculty of Arts and Design, West University of Timișoara.

Anamaria Mihaela Vișovan is currently completing her PhD at the Faculty of Arts and Design, West University of Timișoara, where she is exploring the emotional and experiential dimensions of fashion.

Cătălin-Cristian Botean is currently completing their PhD at the Faculty of Automation and Computer Science, at the Politehnica University of Timișoara, focusing on advancing domain generalisation techniques in computer vision.

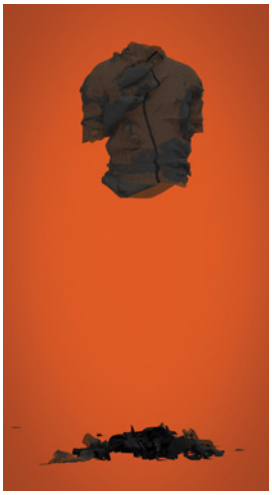
Credits
Cottontex / West University of Timișoara, Faculty of Arts and Design / Politehnica University Timișoara

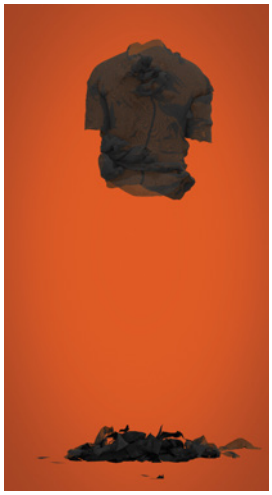
Date: 03.10-24.11.2024

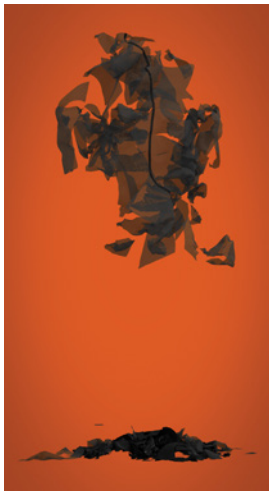
Fragmented pattern jersey
Leftover pattern fragments were pieced together, making it possible to maintain the original design. A 70% reduction in waste was achieved, showcasing innovative ways in which materials can be used. The jersey is made from Ceylon that consists of 80% polyester and 20% elastan (spandex).

Repurposed remnants jersey
Textile waste was reduced by 50% by sewing together offcut materials. This was made possible due to the standardised nature of manufacturing, which produces uniform textile remnants, allowing for the construction of a new, standardised garment from the leftover fabric.

The jersey is made from Ceylon that consists of 80% polyester and 20% elastan (spandex).







Accidental cut jersey
The accidental cut technique* results in a 90% reduction in waste, highlighting the potential of using random or unconventional cuts and an experimental or unplanned construction process.

*Accidental cut technique is a method where the fabric is cut in an unplanned or spontaneous way to achieve a desired design effect.

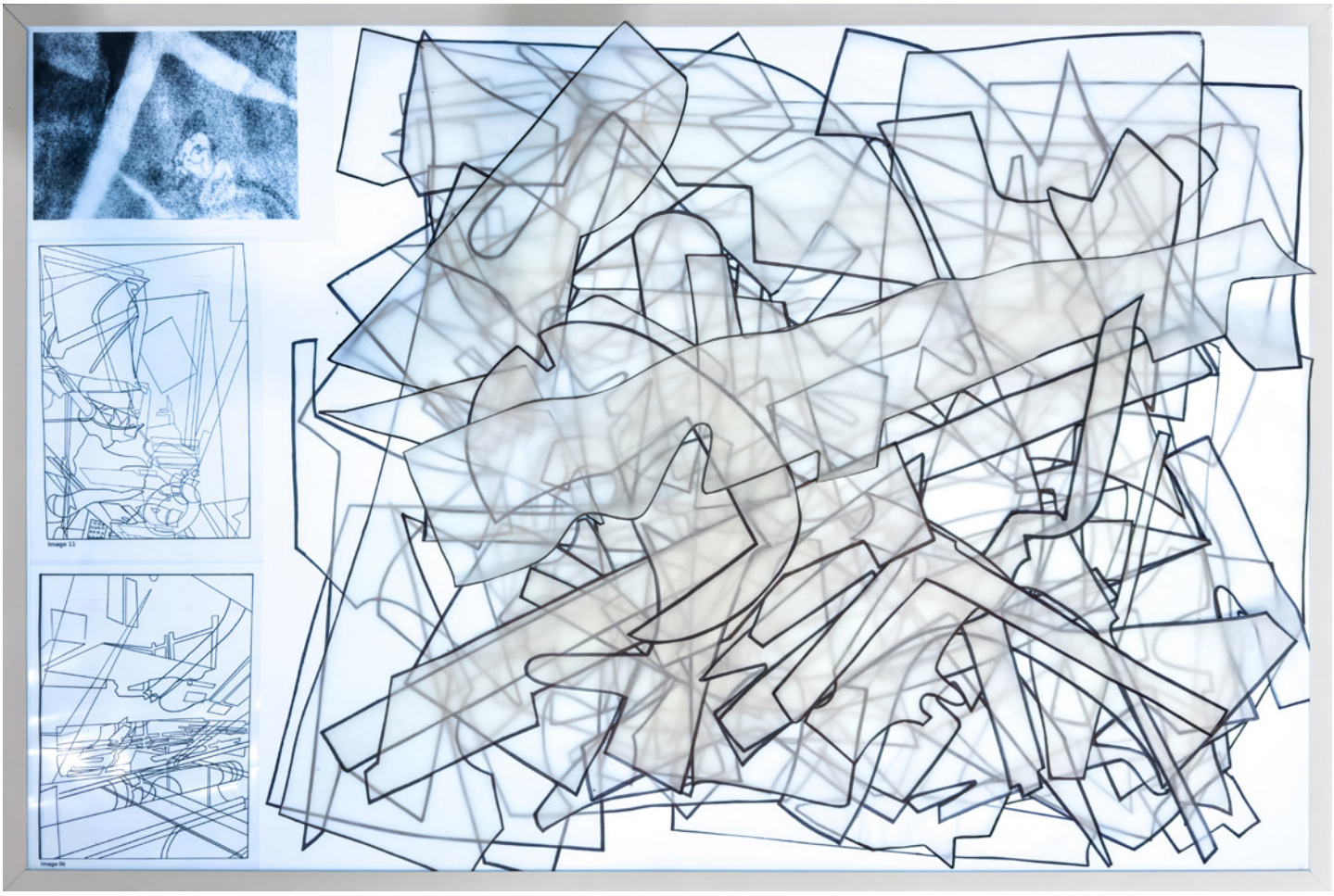
The jersey is made from a mesh fabric that consists of 95% polyester and 5% polyamide.








Virtual garment exploration
The video demonstrates how textile waste can be reduced using virtual design processes. Working with the standardised fabric scraps, a series of on-demand clothing items was developed using digital composition, decomposition, and recomposition methods that can result in ready-to-use patterns. By minimising the need for physical prototypes, this approach reduces waste and offers a dynamic way to investigate garment design and perception.



Transparent polo shirt
Made from transparent material printed with a pattern derived from the Cottontex factory imagery, the transparent polo shirt symbolises the historical and cultural essence of the factory. The transparency of the material represents the fragility and vulnerability of the workers' lives, contrasting with the jerseys on display and highlighting the complex narratives behind these products. The choice of the polo shirt, traditionally associated with tennis players and the privileged classes, further emphasises these socio-economic disparities.

5.1.2

Unsolved Patterns - Labour and Product

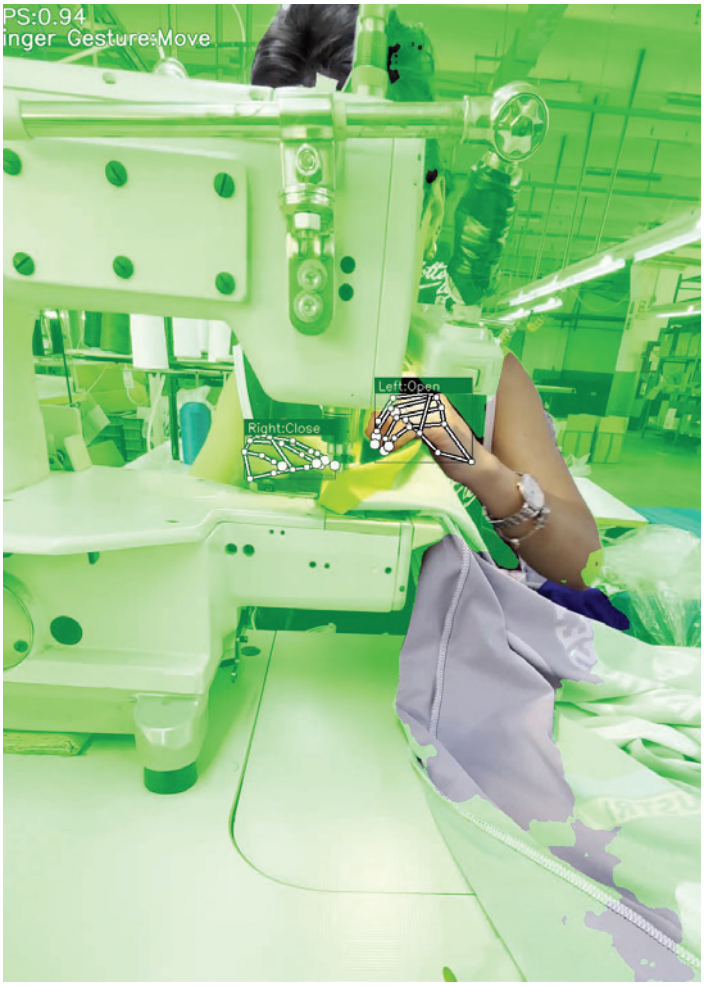
PROJECT

Andreea Pleșa,
Mihaela Vișovan with
Cătălin Botean

This video explores the relationship between labour and the product by analysing workers' repetitive movements during the sewing process. Using artificial intelligence, these movements were mapped and transformed into a new clothing pattern. The video highlights the repetitive effort in textile production, offering an emotional view of the labour involved in creating each garment. It encourages reflection on the human value in each mass-produced garment.

Date: 03.10-24.11.2024

Labour and product
This video explores the relationship between labour and the product by analysing workers' repetitive movements during the sewing process. Using artificial intelligence, these movements were mapped and transformed into a new clothing pattern. The video highlights the repetitive effort in textile production, offering an emotional view of the labour involved in creating each garment. It encourages reflection on the human value in each mass-produced garment.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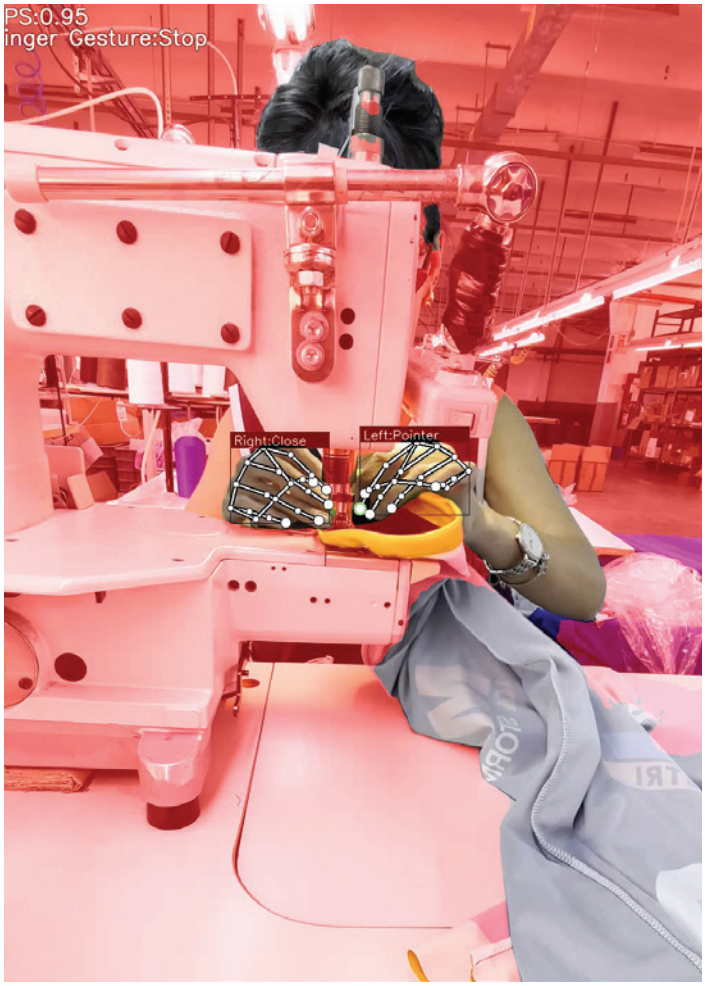
Left:Open
Right:Close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inger Gesture:Stop
Right:Close
Left:Pointer


PS:0.92
nger Gesture:Move
Left:Pointer


PS:0.93
nger Gesture:Stop
Left:Open

5.1.3 Standardised Waste: Designing Ways Forward for the Fashion Industry

INTERVIEW

Andreea Pleșa,
Mihaela Vișovan with
Cătălin Botean

Unsolved Patterns starts from the premise that sewing 100 T-shirts results in 100 identical scraps of material, often considered textile waste. By designing a pattern that fits within these scraps, new standard garments can be created from leftover materials, offering a creative solution to waste.

In this conversation the project's creators, fashion designers and academics Andreea Ana-Maria Pleșa and Anamaria Mihaela Vișova, discuss their approach to merging digital and analogue methods, and their approach to collaboration, both with each other, with computer scientist Cătălin Botean and with major textile producer Cottontex. They reflect on how their work aims to challenge traditional production processes, rethink waste in the fashion industry, and build bridges between industry and academia.

Date: 25.10.2024

Can you each share a bit about your backgrounds and what led you to this collaborative project?

Andreea Pleșa: Both Anamaria and I come from an academic background in fashion and textile design, holding both bachelor's and master's degrees. I completed my PhD last year, focusing on sustainable fashion design in consumer society, while Anamaria is completing her PhD on the emotional and experiential dimensions of fashion. This combination of technical and conceptual approaches has enabled us to tackle the topic of textile waste creatively in the *Unsolved Patterns* project. Our collaboration felt like a natural step, combining my focus on sustainability with Anamaria's sensitivity to the human elements of design.

Mihaela Vișovan: Yes, our work is enriched by our different approaches. While Andreea handles the technical aspects, I bring a perspective focused on the human and emotional side of design. Together, we've been able to explore new ways to address textile waste. Collaborating with Cătălin added another layer, allowing us to incorporate digital technology in ways that visualise labour and material use.

Cătălin Botean: My expertise lies in deep learning and computer vision, and I primarily focus on domain generalisation to create resource-efficient models that work well across different environments. When Andreea and Anamaria approached me about using AI to capture the repetitive sewing movements of factory workers, it was exciting. This collaboration allowed me to adapt my AI work to a new and meaningful context, where we could highlight the often-overlooked labour behind garment production.

How does your collaboration bridge the fields of academia, industry, and digital technology, especially within the fashion industry?

AP: These areas are interconnected, especially in fashion, where design must address real-world issues like sustainability. Academia pushes research forward, industry applies this research, and design brings in creativity to solve tangible problems. Our work with Cottontex allowed us to bring academic concepts into an industrial setting, testing our ideas with actual materials. Collaborating with Cătălin helped us incorporate technology that reimagines how production processes are perceived.

CB: From a technical standpoint, working with Andreea and Anamaria was fascinating. We used AI to capture hand gestures and movements specific to garment sewing, which not only provided new data but highlighted the skill and repetition involved. This was more than just an academic exercise; it was a way to use technology to tell a story and reveal the human element behind every garment produced.

Andreea and Anamaria, you developed three cycling jerseys using different methods to reduce waste. Could you walk us through these methods?

AP: We started by using standardised fabric scraps to create new materials, which allowed us to cut the cycling jersey pattern and reduce waste by 50%. Then we adapted the pattern itself to match the available scraps, achieving a 70% waste reduction. Lastly, we experimented with an 'accidental cut' technique, which uses abstract shapes cut from scraps to reduce waste by up to 90%. Although this last method is more suited to one-of-a-kind designs, it demonstrates how creative techniques can push waste reduction further.

MV: The 'accidental cut' technique, originally developed by Eva Iszoro, is an experimental method that emphasises spontaneity and randomness. It's not feasible for mass production but works well in artistic contexts, emphasising that even scraps can hold value. It also challenges the conventional, rigid structures of production, which is part of the message we wanted to convey.s

Cătălin, could you elaborate on what your use of AI and image recognition brought to the project?

CB: We applied two main AI techniques. First, I developed a program to recognize hand movements by analysing key points on the hand, such as joints and fingertips, from video feeds. This allowed us to understand and classify gestures specific to garment production. Then, I used a technique called semantic segmentation to highlight these hand movements by differentiating the hands from the background. Together, these methods allowed us to capture the repetitiveness and skill in sewing, providing a visual narrative for the labour involved.

Digital pattern-making was essential for this project. How do you see digital tools shaping the future of sustainable fashion?

AP: Digital tools are transforming the industry by reducing the need for physical prototypes and allowing for rapid adjustments, which cuts down on CO2 emissions from transportation. For Unsolved Patterns, we used digital techniques to create patterns from textile scraps, helping us reduce waste significantly. I believe that digitalization in pattern-making is a key solution to waste reduction and can make fashion production more sustainable.

CB: I agree. Digital tools can help create simulations and optimizations that would be impossible by hand, especially

when it comes to managing waste. From my perspective, AI and digital tools can also be used to track efficiency and ensure that every step in production is as resource-effective as possible.

You designed a transparent polo shirt as part of the exhibition. What was your intention behind this piece?

MV: The transparent polo shirt is a metaphor for labour visibility. Polos are typically associated with privilege, but we wanted to use it to represent the workers and the production environments that are often invisible. Using 100 pattern pieces derived from factory images, the design sheds light on the social contrasts and challenges in garment production, encouraging viewers to consider the human stories behind the clothing they wear.

What surprised you most about this project, and do you have plans for future development?

AP: I was surprised by the potential to reduce waste by rethinking traditional methods. Initially, we only anticipated two waste-reduction techniques, but as we progressed, we found ways to go further. Moving forward, I want to refine these techniques to make them scalable, transforming Unsolved Patterns into Solved Patterns.

MV: This project has inspired my ongoing PhD work. I see endless research possibilities in exploring unconventional design methods that consider both the material and human dimensions. Experimenting with these ideas showed me that we have potential to challenge and change industry norms.

CB: This experience opened up a new path for my work as well. While I've focused on improving AI performance metrics, this project showed me the value of applying technology for impact. I'm interested in continuing to explore how AI can visualise and honour the labour behind production, not just in fashion but across industries.

If you could change one thing in the fashion industry today, what would it be?

AP: I would address overproduction by encouraging the industry to focus on fewer, higher-quality garments made from ethically sourced materials. This would help reduce textile waste, promote mindful consumption, and improve conditions for workers.

MV: I would focus on promoting transparency, both in production processes and in the treatment of workers. Fashion should not only be sustainable but also fair to those involved in every stage of production.

CB: From my perspective, I'd encourage more use of technology to provide transparency and accountability. Tools like AI can reveal inefficiencies and areas for improvement, potentially transforming production into a more responsible and people-centred process.

Finally, how do you hope Unsolved Patterns influences the fashion industry and consumers?

AP: We want to show that waste can be a design opportunity, and we hope that this mindset inspires companies to integrate sustainable practices. Ultimately, our goal is to create awareness of the people, places, and processes behind each garment, motivating both companies and consumers to make more thoughtful choices.

MV: Yes, we hope to bridge the gap between industry and academia, demonstrating that there are alternative models of production that can be practical and humane. Our designs are meant to provoke thought about consumption and the invisible labour in every piece of clothing.

CB: I'd like our work to encourage a deeper respect for production and craftsmanship. By using technology to highlight the human effort in garment creation, we hope to influence how consumers and industries view labour, waste, and the ongoing movement towards sustainability.

6 Constellations

6.1.1

Back to Our Sheep

PROJECT

Lavinia Ghimbășan

Back to Our Sheep explores Romania's pastoral heritage by reexamining the wool industry, which has drastically declined over the past 30 years. Once a valuable resource, wool is now often discarded, leading to "wool cemeteries" where the material is buried due to the absence of a functional integration system.

This project explores wool as more than just a material, viewing it as a complex, interconnected system. Through dialogues with actors in the wool sector across Transylvania and Banat, Lavinia Ghimbășan delves into traditional practices such as farming, shearing, dyeing, spinning, and weaving. By using design as a mediation tool, the project prototypes new collaborations that breathe life into local wool, transforming it into contemporary forms that harness its renewable, biodegradable, thermal and acoustic potential. *Back to Our Sheep* blends the forgotten with the contemporary, and its ambitious aim is to spark the regeneration of Romania's wool industry and craft traditions.

Lavinia Ghimbășan is a multidisciplinary designer and crafter with a passion for regenerative practices. In 2022, she co-founded Nalba, a bioregional design studio focused on reviving traditional craft techniques through contemporary design and research in Romania.

Credits

Oile / My Family / Capucine Robert - Lyon, Fr / Tudor Cioroiu - București, Ro / Ciprian Marin- Brașov, Ro / Ferma Rusu - Cincu, Ro / Marlene Herberth - Cincu, Ro / Aurelie Morillas - Agnita, Ro / Laura Bec - Ariege, Fr / Gaby Bouvier - Tarn, Fr / La Vâltori- Lisa, Brașov, Ro / Greavu Maria Viorica - Lisa, Brașov, Ro / Studio Nalba - Brașov/ Ro - Lyon/ Fr / Ana Bucuraș - Brașov, Ro / Cosea Wool - Cluj-Napoca, Ro/ Andreea Onaca, Cluj-Napoca, Ro / Uniunea Tehnologiilor Textile (UTT) - Timișoara, Ro / Constantin Dinca - Timișoara, Ro / Pasmatex - Timișoara, Ro / LanaTerm - Oradea, Ro / George Lupou, Oradea, Ro / Ana Ursescu - București, Ro

Date: 03.10-24.11.2024

Raw wool
Sourced from a farmer in Cincu, this container presents a current snapshot of the wool ecosystem in Transylvania and Banat—raw and real emphasising the artistry involved in transforming wool.

Credits
Photography by Tudor Cioroiu, Bucharest, Ro
Raw wool offered by Ferma Rusu, Cincu, Brasov, Ro

Wool Sorting
The felted diagram shows the forgotten craft of how a sheep's wool is sorted and graded. It is made through felting local Țurcana wool on industrial-purpose insulation, produced by LanaTerm.

Credite
Object created through felting on acoustic wool insulation provided by the wool insulation manufacturer from LanaTerm in Oradea.

Wool's new era
An installation of blocks of LanaTerm insulation felt emphasises wool's contemporary use in the construction industry as thermal and sound insulation.

Credits
Wool-Insulation Manufacturer LanaTerm, Oradea
Colored by Nalba Studio, Brasov


Rădăcini de Roibă
din colecția Ana Ursescu

Shepherd's coat
Fifteen years ago, in Ticușul Nou, Făgăraș, Lavinia Ghimbășan's grandfather sewed this shepherd's coat from Țurcană sheep's skin. It serves here as a reminder of Romania's forgotten pastoral practices and crafts.

Mediating wool practices
These trimmings reimagine paths between forgotten archaic practices with contemporary industrial manufacturing. Farmers' wool was hand-sorted, traditionally washed, naturally dyed and combed into slivers by a small-scale manufacturer, before being industrially threaded and woven at factories in Timișoara.

The final composition of the thread is: 40% Romanian Țurcană wool and 60% acrylic from France.

Credits
Ferma Rusu offered wool, with the support of Marlene Herberth; raw wool sorted by Aurelie Morillas, Laura Bec and Gaby Bouvier; washed at Archaic Wool Washing in Lisa, Brasov; colored with natural dyes by Studio Nalba; combed and roved into silvers at Cosea Wool / threaded by the Uniunea Tehnologiilor Textile / weaved in Pasmatex Timișoara

6.1.2 Back to Our Sheep — The Movie

MOVIE

Credits
Film making: Tudor Cioroiu, Bucharest, Ro
Shearer - Ciprian Marin, Brasov, Ro
Raw wool - Ferma Rusu, Cincu, Brasov, Ro
Craft mediator - Marlene Herberth, KraftMade, Cincu, Ro
Wool sorter and knitter - Aurelie Morillas, Agnita, Sibiu, Ro
Wool sorter and shearer - Laura Bec, Ariege, Fr
Wool sorter and shearer - Gaby Bouvier, Tarn, Fr
Archaic wool washing - Lisa, Brasov, Ro
Weaver - Greavu Maria Viorica, Lisa, Brasov, Ro
Natural dyeing - Studio Nalba, Brasov, Ro
Wool manufacturing - Cosea Wool, Cluj-Napoca, Ro
Industrial wool threading - Uniunea Tehnologiilor Textile (UTT), Timișoara, Ro
Industrial weaving - Pasmatex, Timișoara, Ro
Wool insulation manufacturer -LanaTerm, Oradea, Ro
George Lupou, Oradea, Ro

Date: 15.07-25.07.2024

Wool sorting in Cincu
Brașov County

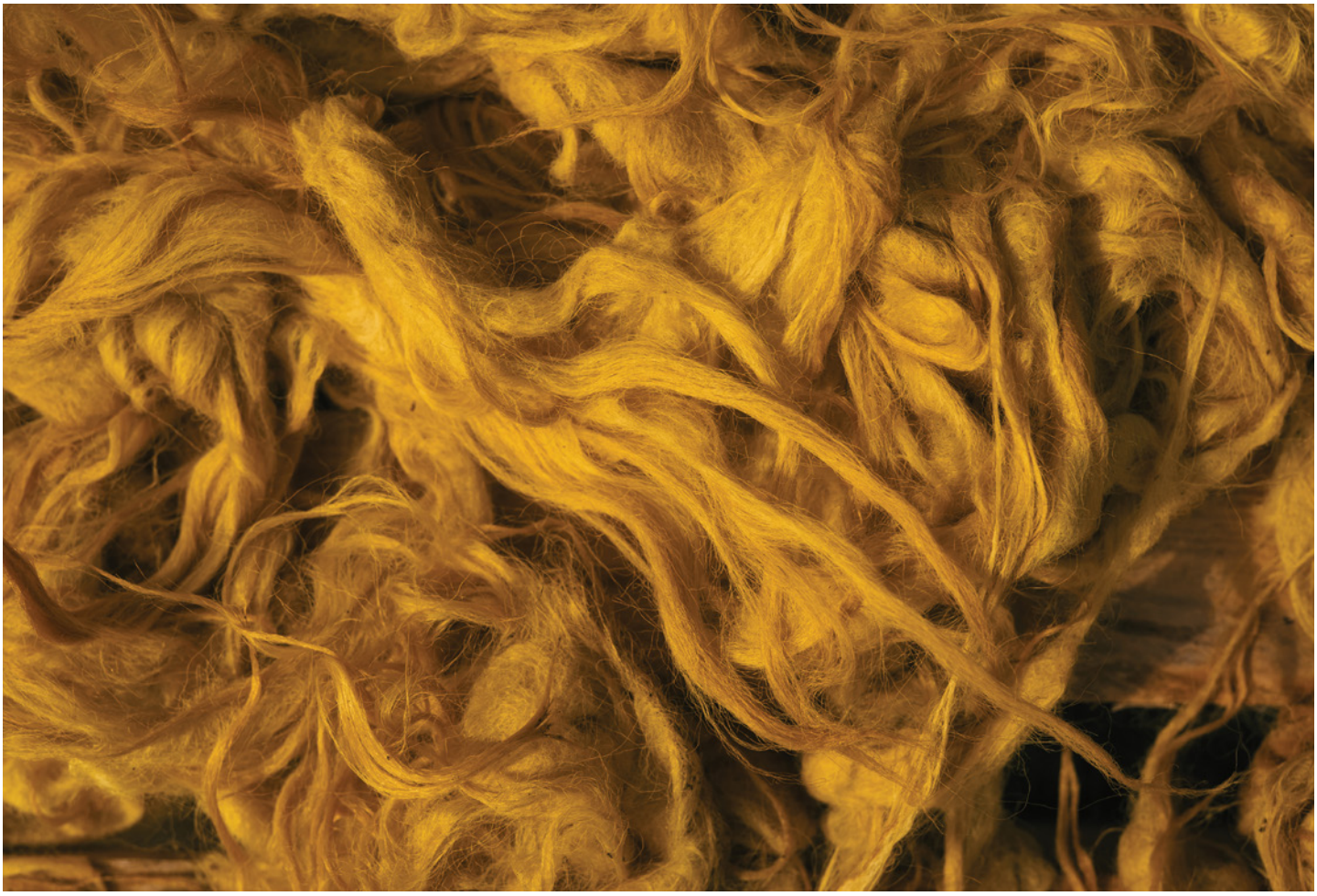
Shearing
Ciprian Marin in Brădeț, Covasna County

Wool sorting
Aurelie Morillas, Laura Bec, Gaby Buvier, Lavinia Ghimbasan, in Cincu, Brașov County

Archaic wool washing
Greavu Maria at „La Vâltori", Lisa, Brașov County

Archaic wool washing,
„La Vâltori", Lisa, Brașov County

Natural dying
Nalba Studio, Brașov, Brașov County



Carding the wool
Andreea Onacă from „Torcătoria Lânii" in Mihai-Viteazu, Cluj County

Industrial Threading
Constantin Dincă and Gary Wilson at Uzinele Tehnologiilor Textile, Timișoara, Timiș County

Industrial Threading
Constantin Dincă and Lavinia Ghimbășan at Uzinele Tehnologiilor Textile, Timișoara, Timiș County

Industrial Weaving
at Pasmatex factory in Timișoara, Timiș County

Wool insulation carding
eorge Lupou at „Lana Term" in Tileagd, Bihor County

6.1.3 The Design Shepherd: Towards the Future of Wool

INTERVIEW

Lavinia Ghimbășan

In *Back to Our Sheep*, designer Lavinia Ghimbășan, co-founder of Nalba Studio, looks at ways of reviving Romania's declining wool industry. Through deep engagement with local communities, traditional practices, and industry actors across Transylvania and Banat, Ghimbășan explores wool as a rich, multi-functional resource. By blending craft heritage with contemporary design, the project reimagines wool's potential for sustainable production, and reflects on the cultural importance of this increasingly forgotten material. Here Ghimbășan discusses the role of wool in Romanian culture, the challenges of reviving old knowledge, and the future of regenerative design in her work.

Date: 20.10.2024

***Back to Our Sheep* uses design not to come up with new products made of wool, but to explore the industrial, cultural and ecological networks that surround wool in Romania. How did you come to develop this approach to design?**

Lavinia Ghimbășan: My background is actually in space and light design, which I studied in Denmark, where I lived and worked for about ten years. Throughout my career, I've always been drawn to different artistic practices, especially those related to upcycling and using local resources. About two and a half years ago, I felt a strong urge to return to Transylvania, and that's when I co-founded Nalba Studio with my friend Capucine Robert from France. Our project about wool was the main reason I came back. Wool, which was once so valuable, has sadly become a waste product in Romania and across Europe. I wanted to explore how we, as designers, can start working from what we have available in our proximity, beginning with raw materials and local knowledge. Instead of imagining an object and then finding out where in the world it can be outsourced, within Nalba we tried to take a more holistic approach—one that respects the material, the land, and the traditional knowledge that still exists.

Through taking this holistic approach, what have you learnt about wool?

LG: Wool is a material that can't be reduced to just one thing. It has thermal, acoustic, agricultural and even fertilising properties. For example, we've explored wool's potential as insulation material. We've also used wool for more traditional applications, like creating threads for weaving, and documented the entire process—from shearing to spinning—through video and photography. One of the most eye-opening aspects of this project was realising that wool, when processed correctly, is an incredibly versatile material. I like to call it a generous material, because of the way it grows and the multitude of forms into which it can be transformed. But the sad reality is that a lot of wool is simply discarded or buried because there isn't a proper system in place for re-using it. That's why I found the current state of the wool ecosystem to be best described as 'wool cemeteries'.

How do you see the role of designer evolving, particularly in this project?

LG: I think the role of the designer is shifting from making objects to something more relational. Within Nalba we have come to describe ourselves as mediators—connecting different practices, people, and spaces. In Back to Our Sheep, we aren't just focused on producing wool-based products. We've gone into the field, almost like anthropologists, engaging with farmers, artisans, and manufacturers. It's about understanding the whole system and the relationships within it. We see our work as part of a larger conversation about sustainable design and craft.

How did you approach creating these collaborations that connect different actors in the wool industry across Transylvania and beyond?

LG: A lot of it came down to simply being curious and open—what could be called a humane model. We visited farms, small family-run businesses, and industrial producers, meeting people who still work with wool in different ways. Some of them were aware of each other, but others weren't, so our role became about reconnecting them and re-establishing a chain that had been broken. Design thinking allowed us to imagine new forms of collaboration. We managed to involve in the making of a local thread various practices, such as the archaic, the forgotten, the traditional and the industrial.

We also learned that some farmers use wool as a natural fertiliser, which is such a beautiful, resourceful solution. Sharing this knowledge could benefit other farmers who struggle with wool waste. It's been inspiring to see these pockets of hope amid the challenges.

The project takes a bioregional approach. What does bioregionalism mean to you?

LG: Bioregionalism is about designing within the context of a specific region, using its resources—both the material and the intangible. For Nalba Studio, that means looking at the traditional knowledge of wool farming, dyeing, spinning, and weaving in Transylvania, and bringing it into a contemporary context. For instance, we've explored natural dyeing with plants from our garden, a practice that used to be common but has been largely replaced by chemical dyes. By reviving these traditions, we're trying to bridge the past and the present and think about how we can create something meaningful for the future.

You've worked with wool in both Romania and France. How does this local-global exchange inform your approach to bioregionalism?

LG: It's been such a rich exchange of knowledge. For example, in France, they have a long tradition of wool processing and natural dyeing, and we've been able to learn a lot from that. At the same time, I'm deeply committed to preserving the local knowledge of Transylvania. It's important to protect what's local, but we're lucky to live in a time where we can also learn from other cultures and apply that knowledge in ways that mutually benefit our communities.

The exhibition includes several pieces that together show the journey of wool from raw material to finished product. What are some of the specific objects you've created?

LG: One of the key pieces is a container of raw wool, displayed in its unprocessed state, along with thistles—plants that get tangled in the wool and can damage machinery. The smell of raw wool is very potent, even disturbing. I wanted to show the reality of working with wool, even if it's not always pleasant. The exhibition also includes a felted wool piece. Felting is possible only with natural fibres due to their properties to interlock or matt. Basically I could 'draw' text and images with wool on another wool base. I chose to use the technique of felting to create a diagram of the wool sorting process since sorting is an essential step in safeguarding wool. This practice is rather forgotten, I didn't know much about it either, before this project. If wool isn't sorted, it's seen as waste. But if it's done right, it can be processed and used effectively.

There is also a shepherd's coat in the exhibition that ties the project to your family history. What is your personal connection to the project?

LG: Yes, my grandfather was a shepherd, and growing up, I was surrounded by wool, though I didn't think much of it at the time. It was just a part of life. Revisiting this material now, as a designer, feels like coming full circle. My grandfather's way of life—his slow, careful approach to nature and materials—has influenced me deeply. For the exhibition, I'm displaying one of his shepherd's coats, which he hand-sewed, as a way of honouring that connection. Romania has a long pastoral history, and it's meaningful for me to reconnect with that heritage, while also looking forward and asking how we can preserve it in a modern context.

It would seem that you are taking up the mantle of contemporary shepherd, a design shepherd for the wool industry. What do you envision for the future of *Back to Our Sheep*?

LG: I definitely have big dreams for the project. One day, I imagine having a wool laboratory or even setting up a wool washing facility in Romania, which is something desperately needed. I see the project growing as more people get involved, and more knowledge is shared. It's important to build something that's not only about preserving traditions but also about creating jobs and sustainable systems for the future. I don't see this as a solo endeavour. It's something that has to be done collectively.

Why is it so important to preserve the knowledge and heritage surrounding wool in Romania?

LG: It's about resourcefulness and being connected to the land. In the past, people transformed what was around them into useful objects, and there's something deeply sustainable about that approach. Each culture developed its own way of using local materials, and I think there's immense value in preserving those traditional practices because they offer solutions to the environmental challenges we face today. It's about finding a balance between heritage and innovation.

6.2.1

Caution! Rotating Blades

PROJECT

Alesia Cîdă

Caution! Rotating Blades sheds light on the complex process of textile recycling, a growing concern as Romania prepares for new EU regulations mandating separate textile waste collection by 2025. Romania ranks 7th in Europe for textile manufacturing, yet the industry struggles with the intensive processes of sorting, shredding, and repurposing discarded textiles.

To demonstrate these industrial challenges, a children's playground has been modelled on the workings of a textile shredder. The playground offers a tangible journey through the lifecycle of unwanted garments. Emerging from field research and collaborations with two textile recycling factories in Timișoara—Eco Cinix and IMP Romania—the work is built primarily from leftover materials donated by the factories. The installation not only highlights the labour-intensive and wasteful nature of textile recycling but also encourages rethinking consumption habits and taking greater responsibility in the face of waste.

Alesia Cîdă works across sculpting, painting, collage, and fashion design, drawing from her special collection of "junk" amassed over years. She graduated from the London College of Fashion.

Credits
Thanks to my mother and father for helping me complete the project / EcoCinix who provided shredded textiles in different formats / IMP Romania who provided volume wadding made out of recycled polyester / Speedwell who provided leftover materials from the 1 Iunie Factory / Gabriela Bordînc / Tailor Shop Maria

Date: 03.10-24.11.2024


breckenridge


THIS IS

6.2.2 Proceed With Caution: Recycling Is Not the Answer

INTERVIEW

Alesia Cîdă

Alesia Cîdă's *Caution! Rotating Blades* was inspired by the industrial textile shredders she encountered while researching the complex process of recycling textiles. The installation transforms the journey of unwanted garments into a children's playground, provoking questions about the labour- and energy-intensive nature of recycling, as well as the urgent need to find better solutions for dealing with textile waste. Here, she discusses her creative process and why she approaches complex ideas in a playful manner that encourages interaction, even from children.

Date: 23.10.2024

You have a particular approach to design, which includes having built up a collection of 'junk' over the years. How does your relationship with discarded materials inform your design practice?

Alesia Cîdă: My interest in junk started not as a part of my work, but as a form of self expression in high school. I was attending an art school and, for the first time, I didn't have to wear a uniform anymore. I wanted to express myself through my clothing, but I couldn't find anything I liked at the mall. That's when I started visiting second-hand shops. I'd buy clothes and alter them to fit my style.

Over time, I started noticing other things—bedsheets, curtains, even fabric scraps. I also began visiting flea markets, where I'd find objects that nobody seemed to want. It was all cheap, so I'd collect anything that caught my eye. It became a hobby, something I'd do with my classmates, but it was also the beginning of what would become my design practice.

How did that hobby evolve into an integral part of your design practice?

AC: It just happened naturally. I always had this stash of materials that I could dip into whenever I wanted to create something. I never thought, "Oh, I need to go buy new fabrics." Instead, I'd dip into my collection of random things and figure out how to use them.

For instance, I had this idea for creating hats out of bra cups back in 2019, but it wasn't until 2022 that I had enough bra cups saved up to actually make them. Some of the hats still have the actual bra cups, while others just use the shape. I never feel stuck for material, because my collection is like my own personal library, and it's full of potential.

For *Caution! Rotating Blades* you worked with two factories—Eco Cinix and IMP—both of which are involved in textile recycling. How did you find the experience of working with them, especially since they come from such a different side of the industry to the more creative, design-based approach you're more accustomed to?

AC: I was nervous at first because I'd never collaborated with actual factories before. But it ended up being a great experience. The teams at Eco Cinix and IMP were very helpful and open to the project. For instance, when I saw bags of what they considered trash—like waistbands and zippers—I asked if I could have them, and they were happy to give them to me. It was exciting to find all these industrial materials that I could incorporate into my work.

The title—*Caution! Rotating Blades*—reflects the dangerous machines involved in the shredding process. Why did you choose to model the installation as a playground?

AC: The idea came from looking at the lifecycle of textiles. I wanted to show different stages of textile waste, from whole garments to shredded material. I thought, "What if people could interact with the process?" So I turned the textile shredder into a playground. I wanted kids to engage with the installation, touching the textures and learning through play.

The title comes from a warning sign that I saw on a real shredding machine. By turning something dangerous into something fun and safe, I hope the installation teaches kids that recycling doesn't have to be boring. It can be something engaging and even enjoyable. My ideal scenario is that the experience stimulates children to start asking questions—where did this fabric come from? How was it made? If they leave feeling inspired or curious, that would be amazing.

How did you go about constructing the actual playground installation?

AC: The playground was quite a challenge! I only had two weeks to build the entire installation from scratch. A wooden frame forms the core structure and a lot of time was spent testing it to make sure it was sturdy enough for kids to use safely. Once the frame was secure, it was covered in leftover mattress padding from IMP, to make it soft and safe. After that, I spent a lot of time sewing by hand to cover the frame with textiles. My mom even came to help me on the last day, and we stayed up late to get everything finished.

Your mom helped you with the installation, and you also interviewed your grandmother as part of the project. Is exploring themes around family and community an important part of your practice?

AC: Definitely. In my interview with my grandmother, she told me how, back in the day, everything was reused—nothing went to waste. People were effortlessly sustainable because they had to be. Even the smallest scraps of thread were saved for later use. It was interesting to realise how resourceful people used to be without even thinking about it. They didn't call it 'sustainability', it was just how things were done.

The conversation strongly influenced my thinking on this project, but my grandmother is also the one who taught me how to sew, and she's one of the main reasons why I'm doing this kind of work. My dad is also an engineer, so he helped with the technical aspects of the project. My practice is very much about community, and involving my family in this process feels natural. It brings everything full circle.

What do you think are the biggest obstacles to creating a less wasteful textile recycling process?

AC: One of the biggest issues is that many items, like zippers and elastic bands, can't be recycled. I saw this firsthand at Eco Cinix. A simple solution would be to stop using these non-recyclable materials, but it's not that easy. The bigger problem is that we consume too much. The recycling process is labour-intensive, and even then, most recycled textiles need to be combined with virgin materials. We can't solve the problem just by improving recycling—we have to reduce consumption. People need to buy less, and when they do buy, they should choose second-hand or upcycled garments.

Do you feel like you're part of a larger movement against fast fashion, or do you feel more isolated in your approach?

AC: Personally, I feel like I'm in an echo chamber because everyone around me buys second-hand and upcycles. It's becoming trendy, which is great, but in the broader fashion industry, it's still easier for designers to follow traditional methods—buying whole fabrics, creating collections, and so on. I don't blame them; it's how the industry works. But I'm starting to move away from the fashion industry because that approach doesn't resonate with me anymore.

What role do you see for yourself as an independent artist and designer in Romania's textile industry?

AC: My role, as I see it, is to educate consumers. Instead of encouraging them to buy more, I want people to be more mindful of what they already have. My work focuses on showing how much waste is out there and how it can be repurposed. I want to put resources—especially discarded ones—at the core of my practice. The goal is to not create more, but rather to work with what already exists.

6.3.1

What's Next

PROJECT

Maria Dombrov,
Gabriela Rada

What's Next unravels the human side of the textile industry, focusing on the Uniunea Tehnologiilor Textile (UTT) spinning mill in Timișoara—one of Romania's last remaining industrial knitting yarn producers. Through interviews with eight factory workers, the project traces the relationship between the workers and the threads they handle daily. Each narrative captures the workers' personal experiences, knowledge, and perceptions, offering a broader understanding of the industry's impact on their lives.

By exploring the symbolic and cultural significance of thread, the project highlights how thread weaves together community and memory, challenging the notion that the textile industry's value lies solely in economic efficiency. While the economic sustainability of the UTT spinning mill remains uncertain, *What's Next* serves as a testament to the enduring legacy and cultural heritage of Timișoara's textile sector.

Maria Dombrov is a fashion designer and cultural mediator. She studied and exhibited in Romania and France, and completed an internship at Uniunea Tehnologiilor Textile in Timișoara.

Gabriela Rada studied fashion design in Timișoara, Paris, and Shanghai before becoming a business developer for Uniunea Tehnologiilor Textile, where she was responsible for the European market.

Credits
François Vulliet / Gary Wilson / Gianina Gheorghiu / Vasile Carabeț / Florin Rusu / Denis Fekete / Constantin Dincă / Eugen Târjoianu / Video-Daniel Rada / Darius Gabriel Dorobanțu / Uniunea Tehnologiilor Textile

Date: 03.10-24.11.2024


an "update" on the quality of
the yarn would be good.

6.3.2

What's Next — Video Interviews

INSIGHT

Maria Dombrov,
Gabriela Rada

In *What's Next*, video interviews with eight UTT workers are each presented alongside a specific type of yarn selected to capture the essence of the interview subject and their work at the factory. Here, Rada Maria Gabriela explains the connections.

Date: 03.10-24.11.2024

REACTIVITY

Francois is the administrator of the factory who taught us about reactivity. We associated him with the elastic yarn because UTT adapted its machines to produce elastic during the pandemic, addressing the significant demand for elastics for masks at that time. At the time, factories producing masks faced a shortage of elastic, as it wasn't manufactured in Romania and had to be imported from China, Turkey, and other distant locations, resulting in long waiting periods of one to two months. Given the urgency, UTT decided to try producing it in Timișoara, successfully meeting the local need. Thus, 'reactivity' not only describes Francois but also represents the proactive approach we adopted at the factory in Timișoara.

INFINITY

In her interview, Gianina discusses fashion and shares personal stories. She mentioned that one spool of yarn, if unwound, stretches the distance between Timișoara and Arad. This insight led her to believe that yarn can represent something infinite. We chose the word 'infinity' to encapsulate this idea, represented by a special, sparkly yarn. 'Infinity' also reflects the limitless possibilities UTT has in production; when UTT mixes yarns to create special effects, it can produce countless new options.

UNIFORM

The production manager, Gary, is from England and has worked for over 20 years at UTT in Timișoara. He prefers when everything is running smoothly, and he's happiest when there are no problems. We associated him with a black acrylic yarn (3009- 100% acrylic HB, NM 2/28), which is UTT's most basic and top-selling product. This yarn is the easiest to produce and sell. The word 'uniform' was chosen to describe both his approach and this yarn.

RAW

Denis is UTT's youngest employee, having worked at the factory for two years. We associated him with the raw material used at UTT, which represents the first stage of production—how the material arrives at the factory. This raw material is made from petroleum and comes in large quantities, often weighing several tonnes. The word that describes both him and the material is 'raw.'

SURPRISE

In his interview, Florin shared that on his first day at the factory, he was shocked by the enormous machines and advanced technology in use. Over time, he was not only able to work on these machines but also to understand the entire process, which was a pleasant surprise for him. The yarn we chose is also surprising; it's quite different from the others. Made on a machine similar to a crochet but on a very small scale, it produces a tiny, circular yarn known as tape yarn in the industry. This yarn is mixed with polyamide, giving it a shiny appearance, resulting in a surprising and unique fabric.

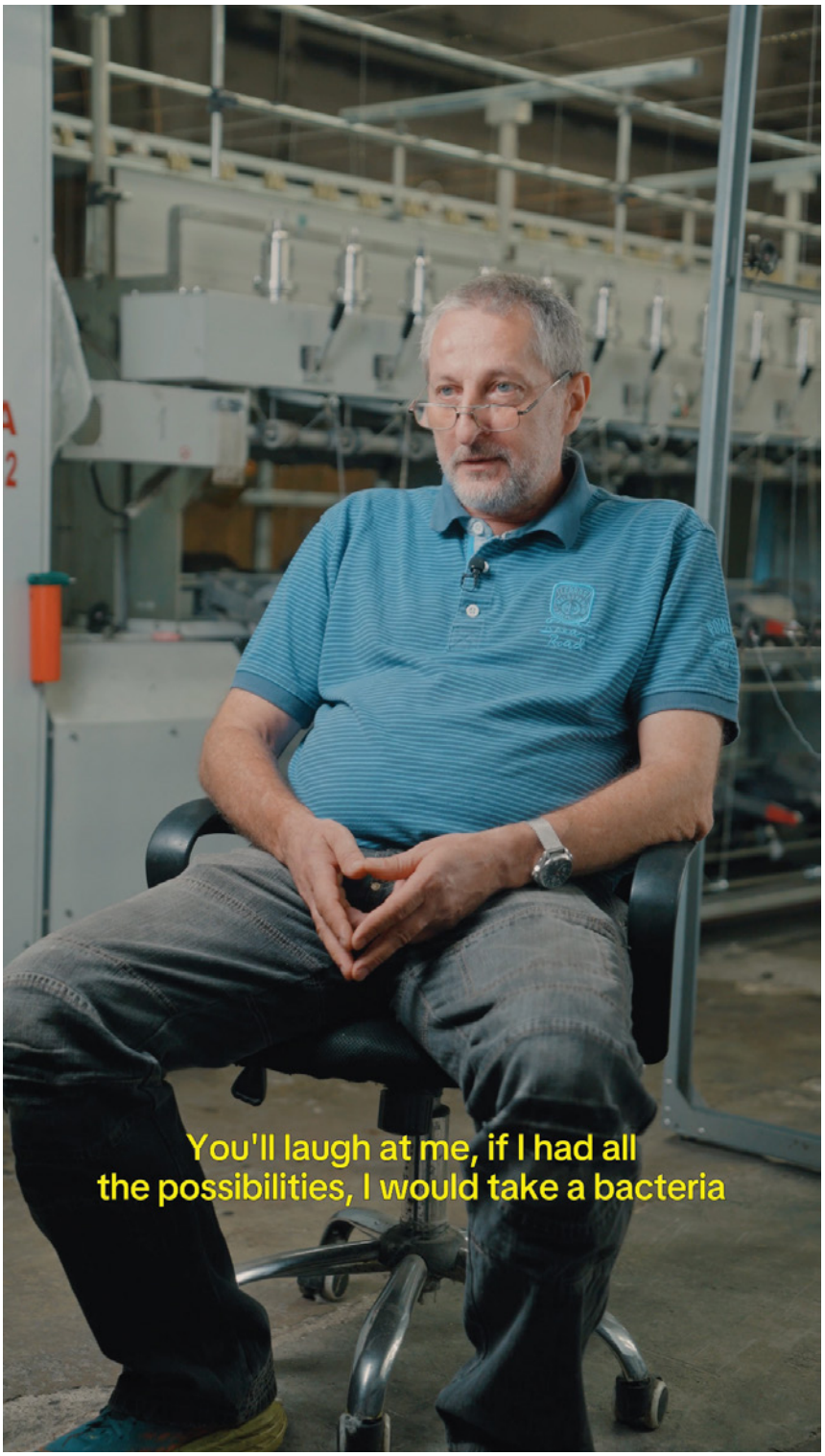
FASHION

In his interview, Vasile correlated the colours in the factory and the yarns with the fields of flowers he admired in his childhood. He was particularly impressed when he entered the factory, noting that the vibrant colours reminded him of the flowers he used to see while living in the mountains.

We saw this as a great opportunity to showcase this type of fibre, which is the next stage of production after raw fibre; our example is already processed halfway. Vasile's word is 'fashion', as UTT's yarns are widely used in the fashion industry. We felt it was important to highlight this specific, colourful, and highly tactile yarn because everyone wants to see it.

QUALITY

Constantin is an engineer and a mechanic, working with the machines while also focusing on innovation. With his assistance, this year UTT successfully produced the most expensive wool in Timișoara. This yarn is made from 100% wool and is the thinnest count ever produced in the factory. He played a crucial role in adapting the machines to create this more precious yarn, which is more valuable in the market and represents a new product. The word we chose to describe this connection is 'quality', reflecting both the high standard of the yarn and his contribution to making its production possible.



INNOVATION

We associated Eugen, UTT's inventor, with the concept of 'innovation' because he is working on machines that have never been created before and is constantly exploring new methods for producing yarn. An example of his work is a unique acrylic yarn that is extremely resistant and cannot be easily broken; notably, it is not twisted, which goes against the conventional belief that a yarn must be twisted to achieve strength. What is shown is just a sample resulting from an experiment, not yet a final product, but it is hoped that it will be in the future. Eugene facilitates this innovative process and is always seeking ways to reduce energy consumption and pollution in production. His goal is to make the manufacturing process more sustainable.

6.3.3

A Common Thread: The People Spin Timișoara's Textile Legacy

INTERVIEW

Rada Gabriela,
Maria Dombrov

What's Next sees fashion designer Maria Dombrov and product manager Rada Maria Gabriela explore where the Romanian textile industry is headed, by drawing on interviews with workers at Uniunea Tehnologiilor Textile (UTT)—one of Timișoara's last remaining yarn spinning mills. In this interview, they speak about their process, what they learned from their interview subjects, and how the true value of the textile industry lies beyond simple considerations around economic productivity.

Date: 12.10.2024

What is your relationship with UTT and how did this collaboration come about?

Rada Gabriela: It started with me, because I've been working with UTT for almost seven years. After I graduated, someone I knew worked there and suggested I try it out, as it aligned with my field of study—fashion design. I started as a business developer and stayed on for six and a half years. During that time, Maria also had an internship there, as we studied fashion design at the same university. That's how our collaboration began. We worked together, experimenting with various textiles and projects.

UTT is one of Europe's last remaining producers of industrial knitting yarn. How do you think globalisation and fast fashion have affected them?

RG: Globalisation has had a significant impact on UTT. Many customers who used to buy locally produced yarn have shifted their production to cheaper markets, often outside of Europe. The rise of fast fashion and ultra-fast fashion has made it harder for local producers to compete. UTT has had to find new markets and products to stay afloat. They've had to adapt by improving efficiency and sustainability, but it's a tough landscape when global competition is so fierce.

What is UTT's place in the local community of Timișoara?

RG: UTT has been in Timișoara for over 25 years and is one of the last remaining spinning mills in the city. It's unique because it's owned by a French company, with the parent company based in northern France. However, the local workers are deeply rooted in the community. Some have worked there for over two decades. In a time when so many factories are closing, UTT has managed to adapt and stay relevant, constantly looking for ways to innovate and improve. Their willingness to embrace challenges is what keeps them motivated and allows them to continue operating in a difficult industry.

You've interviewed eight factory workers as part of the *What's Next* project. What inspired you to focus on these personal stories?

Maria Dombrov: I was deeply inspired by the workers when I first visited the factory. It was amazing to see how passionate they are about their work. Each person has a unique relationship with the yarn and the machines they operate. We wanted to capture those individual stories because they reflect not only the technical side of textile production but also the emotional connection these workers have with their craft.

RG: It was also interesting to see how each worker approached the same questions in different ways. For example, one worker associated the colours of the yarn with fields of flowers from his childhood. Another worker spoke about how he never imagined he could operate such complex machinery and how it opened a whole new world for him. And another recalled how his grandmother would be amazed at the speed of modern machines compared to the slow, meticulous work of handweaving. These insights made us realise how personal the relationship with yarn can be, how it transcends mere production to evoke memories, emotions, and even a sense of pride in their craftsmanship.

What role did the stories play in *What's Next*?

RG: The workers' stories were crucial in shaping the project. Initially, we weren't sure how to present everything, but by listening to their experiences, we realised that their voices needed to be at the centre. They provided insights, ideas, and even a vocabulary that guided the project's development. Their enthusiasm and willingness to share their stories made it what it is.

What was the workers' response to the project?

RG: The workers were so excited to participate in the interviews because they wanted people to know that textiles are still being produced in Timișoara. One of the workers even mentioned the idea of starting a school for those wanting to learn how to produce textiles, so that future generations can learn this craft. I hope that this project helps highlight the importance of UTT and inspire people to take more interest in the local textile industry.

The project seems to challenge the idea that the value of the textile industry lies solely in economic efficiency. What would you say is the real value of the textile industry?

MD: The real value goes beyond just economic output. Clothing is something deeply personal—it's something we wear every day. The emotional connection to textiles is significant. In Romania, textiles are part of our cultural heritage, something that's been passed down through generations. There's a deep sense of pride in the craft, and that adds value to the products we create. It's not just about making something to sell; it's about continuing a tradition.

What is behind the title *What's Next*?

RG: The title reflects the uncertainty that many people in the industry are feeling right now. Everyone is asking, 'What's next for the textile industry? What's next for our community? What's next for the workers?' This title captures both the anticipation and anxiety around what the future may bring, as well as the need to think about the future, not just for UTT, but for the entire textile sector.

What do you think has allowed UTT to keep its doors open while so many other factories have closed?

RG: Honestly, it's the passion of the owners. UTT is part of a family business that's been running for generations. They're committed to keeping the textile industry alive, both in France and in Romania. They've made strategic investments to weather difficult times, and they care deeply about the workers and the community. That dedication is what has kept UTT going when others have had to shut down.

What do you think the future holds for UTT?

RG: UTT is flexible and creative. Their future lies in their ability to adapt. They're focusing on improving their machinery to reduce energy consumption and make their production processes more sustainable. For example, they are working on reducing gas usage due to rising costs and are exploring how to produce yarn more efficiently with fewer resources. These improvements help them stay competitive without sacrificing quality, even in a market that's increasingly driven by fast fashion.

You both have international experience, having studied in places like France and China. Do you think this has altered your understanding of Timișoara's textile sector?

RG: Definitely. Studying abroad gave us a new perspective on what we have here in Timișoara. When I studied in China, I learned about knitwear and yarns, and it made me realise that the same kind of production was happening right at home. Coming back to Romania after studying abroad made me appreciate our local textile traditions even more. We sometimes undervalue what's in our backyard because it seems so familiar. Studying abroad helped us see the value in keeping these traditions alive.

MD: I agree. After studying in France, I became more aware of the importance of preserving local traditions. There's something special about having a distinct cultural identity, and it's important not to lose that in the push towards globalisation and uniformity.

How do you balance the creative and commercial aspects of your work, especially in a project like this that has a specific cultural and social value?

RG: It's a challenge, for sure. Maria focuses more on the artistic side, while I handle the business and economic aspects. But what we've realised is that business isn't just about numbers—it's about people. The success of UTT comes down to the relationships between the workers, the community, and the owners. That's what keeps everything running smoothly. It's the human element that bridges the gap between creativity and commerce

7 Continuations

7.1

Knitting, Night & Day

PROJECT

Amalia Săftoiu

Knitting, Night & Day is a manifesto piece for Ami Amalia, which blends technology with tradition and art with industrial production. Ami Amalia is a direct-to-consumer knitwear brand that opened its own knitting factory in Transylvania in 2019, redefining knitwear production by shifting from mass manufacturing to creating limited, custom pieces for private clients.

The project focuses on the iconic Ami Amalia knitted cape, recognised for its blend of craftsmanship and technological innovation. In collaboration with artist Felicia Simion, *Knitting Night & Day* transforms two of Simion's self-portraits into a double-sided cape. One side uses a jacquard technique to replicate the photograph closely, while the other reinterprets it through traditional knitwear structures. Crafted from premium natural yarns sourced in Europe, the cape is produced in Ami Amalia's Oradea atelier, showcasing the harmony between contemporary art and timeless craftsmanship.

Amalia Săftoiu is the founder of Ami Amalia. She holds an LL.M. in Public International Law from University of Oslo and an Executive Master in the Management of Energy from BI Oslo, ESCP and IFP Paris.

Credits

Felicia Simion created the photographic project *Day & Night*, in which the people portrayed wear capes made by Ami Amalia.

Date: 03.10-24.11.2024

7.2

Balkan Baroque

PROJECT

Dinu Bodiciu

Cultural Intersections from the Thrift Market in Timișoara

Balkan Baroque explores the rich cultural tapestry of Timișoara, a city shaped by both the Ottoman and Habsburg empires. The project brings together traditional, handcrafted macramé textiles—symbols of domestic craft and cultural heritage—with mass-produced, globalised garments in the form of sportswear. The items, which blend intricate, locally significant crafts with industrially produced fashion, are offered for sale, creating a juxtaposition that reflects the collision of two opposing worlds.

Inspired by Timișoara's Aurora thrift market, where these eras, crafts and products meet on the same pavement, *Balkan Baroque* symbolises the devaluation of cultural artefacts in the face of rapid modernisation. By combining these contrasting elements, Dinu Bodiciu questions the impact of global capitalist identities on local traditions, urging viewers to reconsider the value and meaning of these cultural intersections in a rapidly changing world.

Dinu Bodiciu is a Romanian-born designer and educator, and the founder of the sustainable fashion label Made With Time. He is currently a PhD candidate at the University of the Arts London.

Date: 03.10-24.11.2024


FOTEX


VOLKSWAGEN


MJENJAČNICE
4

7.3 Culture Clash: Romanian Lace Meets Disposable Sportswear

INTERVIEW

Dinu Bodiciu

Fashion designer Dinu Bodiciu combines a traditional crochet technique— known as Romanian lace—with mass-produced modern sportswear in a single garment. The juxtaposition of these two disparate approaches in the resulting collection, titled *Balkan Baroque*, highlights the tension between handcrafted and mass-produced items, tradition and modernity, as well as local techniques and the production chains of globalisation. In this interview, he reflects on his design process, uncovering the many layers through which the project can be understood.

Date: 23.10.2024

***Balkan Baroque* juxtaposes handcrafted crochet textiles, known as Romanian lace or macramé, with mass-produced sportswear. What is macramé and what is its significance in your project?**

Dinu Bodiciu: Let me first clarify that what we're talking about is not actually macramé. In Romania, people often refer to these crocheted table runners or decorations as macramé, but technically, they aren't. They're just crocheted pieces. There is a specific type of crochet called Romanian lace, which is what I use in this project. Macramé is actually a different technique altogether.

These crocheted pieces were once considered valuable heirlooms, passed down from mother to daughter. They were an important part of domestic life, decorating furniture like wooden cupboards filled with the family's best porcelain. This fashion persisted into the 1980s, but after Romania's revolution in 1989, their popularity waned. Now, they're mostly found in thrift markets like the Flavia market in Timișoara, sold alongside hardware, tools, and second-hand clothes, including sportswear. I find it fascinating how these objects, once symbols of cultural and familial value, have been devalued and displaced by mass-produced fashion, which is why I bring them into conversation with sportswear in my work.

So when you say the project juxtaposes these two elements, are you actually merging them into one garment, or are you keeping them separate?

DB: I don't merge them in the sense of layering one fabric over the other. Instead, I cut the fabrics and replace parts of the sportswear with sections of crochet or lace, creating a stark contrast. It's a radical juxtaposition. The goal is to maintain the integrity of each element, highlighting the collision between local traditional craftsmanship and the globalised industrial production of sportswear. It's not about blending the two; it's about letting them confront each other in a very visible way.

What inspired you to use these crocheted pieces in combination with sportswear? What does this juxtaposition represent for you?

DB: For me, this juxtaposition symbolises the tension between the local and the global, between slow hand-made traditions and fast industrial production. These crocheted pieces, which I've been collecting for a few years, are deeply rooted in local traditions, but they're now seen as outdated or even worthless in the modern context. Meanwhile, sportswear represents something very global—mass-produced, industrially made fashion that's everywhere. By placing these two elements together, I'm asking questions about how global capitalism impacts local traditions and crafts, and whether these once-valuable items still hold meaning in a world driven by fast fashion and consumerism.

Your work makes a strong statement on the devaluing of traditional crafts. Do you see this work more as clothing to be worn, or are you making an overtly political statement?

DB: There are definitely multiple layers to the project. For some, the work might just be a playful mix of materials, but for those willing to look deeper, there's a more serious commentary. I've written conference papers and texts on this topic, delving into the political and cultural implications. On the surface level, my brand, Made With Time, seeks to give new value to objects that have lost their significance. It's about rescuing and repurposing these pieces in a creative, fun way. So, I'd say it's both a reflection on the state of modern fashion and an attempt to elevate these cultural artefacts that are at risk of being forgotten.

What about the future of these traditional crafts? Do you think Romanian lace or similar techniques will survive, or are they at risk of being lost completely?

DB: It's hard to say. There are still communities in Romania and elsewhere that practise these techniques, but their presence is shrinking. Some brands are incorporating Romanian lace into modern designs, but the overall aesthetic has shifted. The craft will probably evolve, but whether it survives in its traditional form is uncertain. In my work, I try to preserve the original character of these textiles while giving them new life. I don't want to transform them so drastically that they lose their identity. It's important to me that they remain recognisable as the cultural artefacts they are.

Is each piece you create unique?

DB: Yes, each garment is one-of-a-kind. The crocheted pieces I use are all second-hand, often stained or damaged, and I restore them using natural dyes like coffee or avocado. The goal is to maintain their authenticity without completely altering their appearance. I don't want to erase their past; I want to build on it. Some pieces can even be detached from the garments, allowing them to be preserved as they are. It's a delicate balance between preservation and reinvention.

You mentioned earlier that the sportswear and traditional textiles don't overlap physically in your designs. How do you handle the contrast

between these two worlds—fast fashion and traditional craftsmanship—in your process?

DB: It's about creating tension, really. I don't want to blend the two into a harmonious whole. Instead, I make deliberate cuts in the sportswear and insert the crocheted pieces. The contrast is striking—on one side, you have this mass-produced, synthetic material, and on the other, a hand-crafted textile with deep cultural roots. I think this visual and conceptual clash makes people stop and question the value of both elements. It's about forcing the viewer to confront the dissonance between these two worlds.

Do you think fast fashion has affected how people in Romania and elsewhere view traditional crafts like crochet or lace?

DB: Absolutely. Fast fashion has completely changed the way people consume clothing. The younger generation, in particular, is used to the idea of constantly buying new things, but they don't necessarily value what they buy. Everything is cheap and disposable, and that's affected the way people think about craftsmanship. I've noticed that even at the thrift markets, where I buy these crocheted pieces, you find more and more fast fashion brands like Zara and H&M. The perception of value has shifted, and traditional crafts are no longer seen as special or worth preserving.

Speaking of fast fashion, many people are concerned about the environmental impact of this industry. What role does sustainability play in your work?

DB: Sustainability is central to Made With Time. I refuse to use new raw materials. Everything I work with is second-hand or upcycled. I'm also trying to challenge the traditional fashion cycle—no seasonal collections, no mass production. It's all about slow fashion, taking the time to create something meaningful from what already exists. I see my work as a radical reaction to the fast fashion system. By using what's already out there, I'm testing whether fashion can exist in a different way.

It seems like there's a fine line between your work being wearable fashion and being art. How do you see that balance?

DB: That's a great question, and it's something I think about a lot. Some of my pieces do blur the line between art and fashion, and I think that's intentional. I want people to wear them, but I also understand that they might be seen as art objects because of the intricacy of the crochet and the boldness of the designs. That said, I design them to be worn. These aren't meant to be displayed in a glass case—they're meant to be out on the street, making a statement. People often tell me the pieces are too bold or too delicate to wear, but I think that's part of the challenge—learning to embrace something different and unique.

How does *Balkan Baroque* reflect Timișoara's cultural history as a meeting point between the Ottoman and Habsburg Empires?

DB: The title, *Balkan Baroque*, reflects that intersection of cultures. Timișoara has been shaped by both the Ottoman and Austro-Hungarian Empires, and that influence can still be felt, especially in the architecture. By combining the term 'Balkan,' which evokes the Ottoman influence, with 'Baroque,' which speaks to the European, Austro-Hungarian side, I'm acknowledging the cultural intersections that define this region. It's a way of exploring how these histories coexist and continue to influence the present.

How do you see Balkan Baroque evolving in the future?

DB: *Balkan Baroque* will continue to evolve, but its core will remain the same—upcycling these traditional textiles in a way that respects their history while giving them a contemporary voice. Moving forward, I want to expand the project, but always with the focus on preserving and reinterpreting these cultural artefacts in a modern context. There's a quirky, clashing aesthetic to the work, and I think that's what makes it relevant and exciting.

8 Young Matters

8.1 Young Matters: Expanding on Existing Foundations to Create Alternative Pedagogies

INTERVIEW

Martina Muzi,
Oana Simionescu

As part of the *Woven Secrets* program, the week-long Young Matters workshop brought together students from a wide array of disciplines, including engineering, architecture, medicine, and urban planning, to explore interdisciplinary approaches with the help of three tutors representing a diverse array of methodologies, perspectives, and practices. In this interview, Oana Simionescu, Director of the FABER cultural centre, and Martina Muzi, the program's curator, discuss how Young Matters' exploratory approach to pedagogy could help bridge the divide between academia and the cultural fabric of Timișoara, as well as the importance of fostering new perspectives among students through creative experimentation.

Date: 22.10.2024

I wanted to start with Atlas of Distances, held last year as part of the *Bright Cityscapes* program, because it feels like Young Matters is an extension of the ideas and frameworks established during this multidisciplinary workshop. To what extent is this true, and in what ways did Atlas of Distances make Young Matters possible?

Martina Muzi: What brings the two workshops together is the process we are establishing within the *Design Signals* program.

Atlas of Distances can be seen as a predecessor or the first phase of the school program, focusing on testing educational foundations through various pedagogical methods. This involved collaboration with different schools in Timișoara, specifically with the Department of Architecture at the Politehnica University of Timișoara.

From our experience with Atlas of Distances, we realised that the concept of distance wasn't just thematic; it also pertained to the literal distances between different courses and universities in Timișoara. So, the term "distance" is important as we continue our exploration.

Young Matters is more site-specific to Timișoara than last year's program. The main difference between the two is that Atlas of Distances encompasses different curricula from three departments across three schools, while Young Matters starts more autonomously from pre-existing curricula.

It aims to create a space for what matters to young people in Timișoara, as well as for the young practices that evolve from educational matters, which are significant ideas for us at FABER. This is also where the title Young Matters comes from.

The concept of distance has expanded this time around, both conceptually and curatorially. We have aimed to reduce distances between design and other educational disciplines, including landscape architecture, medicine, chemistry, computer science, and engineering. This is within the framework of an alternative educational program that is independent of traditional curricula and academia silos.

Expanding on the idea of overcoming distances, as someone representing FABER, Oana, to what extent do you see a distance between the worlds of academia and the culture of Timișoara as a whole? How do you see programs like Young Matters bridging these distances?

Oana Simionescu: I think Timișoara has been fortunate in that since winning the European Capital of Culture award in 2023, a lot of effort has been made to bridge the significant distance between academia and the cultural world. This effort has increased over the last year, not only through our program but through initiatives driven by local universities. For example, the *Bright Cityscapes* program we implemented last year was done in partnership with the Politehnica University of Timișoara, through an exciting platform they developed, called The Creative Campus, which serves as a bridge between students, the academic environment, and the city.

We are continuing to build this bridge through Young Matters, which is ongoing. We have an open campaign inviting students from all over the city, regardless of their field of study, to express their perceptions of the city and to send us ideas for possible initiatives. This entire program will culminate in a debate on November 12th, where students and relevant stakeholders will discuss how this distance can be overcome.

What was the thought process behind the selection of the three tutors for the Young Matters workshop?

MM: In the context of the *Woven Secrets* direction, the school program operates as a space for young ideas to become more tangible and directly represented. It also serves to expand the various tools that design can use for communicating and visualising ideas.

Young Matters started with an open call asking young students to present ideas that were important to them, relevant to the future of Timișoara. In this context, I looked at the *Woven Secrets* exhibition and the designers already involved. I wanted to invite tutors who, through their practices, critically engage with media, beyond just their application in industry. This way, they could create scenarios and provide a workshop environment for students to experiment with different tools, such as using images in unconventional ways or merging field research with digital media.

The choice of these specific tutors—Domitila Debré, Bianca Schick, and Conor Cook—was guided by the need for practitioners who work with digital and material media and narrative tools that go beyond traditional design methods. They were invited to share their perspectives and methodologies, inspiring students to expand their toolkits for communicating their ideas and merging personal stories with technology to tackle broader planetary questions.

Oana, do you see the role of a cultural institution like FABER as helping to direct the procedures of such a complex multidisciplinary project, or do you see FABER as rathgar offering support without necessarily influencing the project's outcomes?

OS: I think our role is crucial for connecting different stakeholders. In this case, we aim to connect students who have never met before, as well as link their professional backgrounds with design practices that are quite unusual for this context.

Our role, along with the complex team we've formed under Martina's coordination, is to create new opportunities for thought and to provide fresh perspectives from both the students and the tutors. This allows the tutors to practise in a context they're not used to, as they typically work more directly with design students. Bridging these diverse perspectives in a way that's new and relevant for all parties, within a local context, is our main goal.

During the recent *Woven Secrets* conference, Martina, you mentioned that together with Oana and FABER, you see part of your pedagogical approach being to encourage your students to step outside of academia? Why, from both of your perspectives, is this important?

MM: First of all, academia is a fantastic environment for students to experiment. It's a place where they can make mistakes without serious consequences—except for a bad grade. That's a great aspect of academia, but at the same time, this safety can lead to a very sterile environment.

It's crucial for students to step outside of this safe space and engage more directly and with different methods with the current realities around them.

OS: I would add that every academic institution has networks with companies and laboratories where students can do internships or collaborate on various assignments. In the context of our design program, it's important to recognize that design has the potential for industry collaboration.

Getting out of academia doesn't mean disregarding what happens within it; rather, it means creating a new access point to the design industry. A pedagogical design program that merges disciplines allows students focused on clear career paths—like engineering or chemistry—to explore alternative avenues, creating a safe space where the process matters more than the outcome.

By considering design techniques, media, and strategies, we can help students expand their paths and create opportunities where design can be seen as a viable future practice. Nurturing design as a possibility for integration into the economy is a general goal that begins in school, and I think it's essential.

Building on the idea of academia contributing to society instead of existing in a closed space, Oana, how do you envision the students' work potentially impacting the culture of Timișoara?

OS: By integrating design processes into various fields and connecting pragmatic subjects like engineering with the creative potential of contemporary design, we create significant opportunities for students to imagine their projects and capabilities beyond the limits of their training.

This is fundamental for a healthy society, as it teaches students to step out of their shells and be curious about different types of production and thinking. It also serves as an effective tool to connect students from different faculties and identify common goals while collaborating on projects.

Currently, this kind of collaboration is lacking in our environment; academia here is very powerful yet strongly niche, with everyone working in their own little boxes. Connecting ideas and processes can greatly benefit students.

Speaking of bridging gaps and making connections, Young Matters involved students from a range of age groups. What is the significance of this idea of bridging distances between generations through the workshop?

MM: Especially within the context of *Woven Secrets*, this cross-generational bridge has become fundamental. Different generations possess different knowledge, and there isn't always space for exchange. This often happens because we're constantly busy with our daily responsibilities. In education and academia, cross-generational exchanges typically occur only between scholars, tutors and students.

In the case of Young Matters, we tried to develop a workshop format that would allow this exchange. The decision was made collectively by the tutors, and supported by Oana, the team, and myself. We chose to start from the context of the neighbourhood, which is a space where generations interact daily, but it is not usually considered an object of study or a resource for reflection.

This year, the tutors are young practitioners, and the FABER team is also relatively young. So, in this edition of Young Matters, the concept of cross-generational collaboration was examined through students' questions about how to engage with various research topics, starting from the neighbourhood, looking at topics such as mobility within the city, health issues, infrastructure, and natural resources like the Bega River, which connects all generations living in the area.

In this specific edition of the program, we aimed to make sense of the past and the present, as well as to interrogate issues surrounding the future. The cross-generational effect manifested mainly in this context. This was not necessarily the central element of Young Matters this year, but it certainly played a role.

The *Woven Secrets* program is specific to the textile industry. You could have approached Young Matters by inviting only fashion designers or focusing solely on textiles. Instead, Young Matters was open to students from a variety of disciplines. Why did you decide to go this route?

MM: The textile industry is indeed a very niche topic. We aimed to use the exhibition to challenge the perception of it being too niche. For the Young Matters program, the way it was constructed didn't allow space to confine it strictly within the textile context. We decided to anticipate this issue and draw inspiration from the title itself: what matters to young people is important to us.

We chose to broaden the focus away from the textile industry and realised, through the development of the general program, that the textile industry is present in many layers that don't necessarily need to be addressed solely from a textile perspective. We guided the students to articulate what matters to them today, using the workshop methods to reconnect with the neighbourhood, which historically has strong ties to the textile industry.

Our approach emphasised the students' ideas, and through workshops and field research, we established that connections would emerge organically. We viewed the city not as a finite space but as a constantly transforming environment with socio-economic and political variables that change daily.

Additionally, some methods used in the workshops—like image creation, mapping, information collection, drawing, and writing—are familiar within the textile industry from a design perspective. However, we approached it from a broader lens, considering the systems influenced by the textile industry, particularly the city itself.

OS: I'd like to add that many textile factories were historically active in the neighbourhood where Faber is located. We used this reality pragmatically within the Young Matters program, including site visits to these factories with the students.

If we had chosen to focus strictly on the textile industry and confined ourselves to the fashion design or textile departments within the arts faculty, it would have been too far removed from our collaborative approach, where interaction between different fields is key.

Therefore, it was more consistent with our methodology to extend the question to any field and create connections through the students' perspectives. The site visits and insights into our research allowed us to integrate the thematics of the textile industry into the workshop, emphasising it as a way of thinking rather than a strict subject to work with.

I wanted to ask both of you for your reflections on the work the students created as participants in Young Matters. What surprised you about it, and what did you learn from it?

MM: The most beautiful part was the excitement the students expressed while constructing their visions through CGI, 3D scanning, and rendering. The feedback we received was fantastic, highlighting how students were able to merge their specific theories and disciplines with a medium flexible enough to materialise and visualise their stories introduced by the tutors.

OS: I was really impressed by how quickly the students learned to think differently. When they first entered the workshop, it was remarkable to see how emotional they were about trying something new. Only one of them had a background in design.

I was truly amazed by what they could accomplish within just one week—the quality of the work, and, of course, their excitement. It was a fantastic exploration, and I'm really looking forward to continuing this. For me, it was a successful test to spark interest in creativity and design among students who typically don't engage with these areas in their usual work. This was rewarding for everyone involved.

MM: I'd like to add that the biggest proof of the workshop's impact was the huge turnout for the opening. That's the most rewarding aspect—seeing students bring in their peers. We found that word-of-mouth is the most effective communication tool within the student community. This vibrant opening, full of young people engaged in Young Matters, is the greatest demonstration of its impact, and a great argument for us continuing with these methods.

8.2 Young Matters: Exploring Timișoara and Designing its Future

CONVERSATION

Cristian Blidariu
Connor Cook
Domitille Debret
Martina Muzi
Bianca Schick

2023's Atlas of Distances workshop, a collaboration with various academic institutes and the FABER cultural centre, established an experimental approach to pedagogy spanning different disciplines and involving collaboration and exploration. Those involved at the time were adamant that these experiments would not end with the *Bright Cityscapes* programme of which the workshop formed a part. In many ways Young Matters, a multidisciplinary workshop that forms part of 2024's *Woven Secrets* programme, picks up where Atlas of Distances left off.

Date: 05.10.2024

With the intention of establishing a connection between Timișoara students and design as part of *Design Signals* program, Young Matters was initiated through an open call extended to the two main universities of the city, Politehnica University of Timișoara and West University of Timișoara. The open call invited current students to apply with an idea from their studies which would inspire the future of the city. Meanwhile three international practitioners were invited to imagine a workshop in relation to their practices and educator experiences.

Over the course of a week-long Ideathon, the selected students explored new approaches to design and sustainability. The tutors created a framework in which students from different disciplines, from medicine and town planning to construction and computer science, could collaborate with design.

What follows is an edited transcript of a panel discussion at a recent conference held as part of *Woven Secrets*. The programme's curator, Martina Muzi, sat down with the tutors invited for this iteration of Young Matters—Bianca Schick, Domitille Debret, and Connor Cook—as well as Politehnica University of Timișoara's (UPT) Cristian Blidariu, to reflect on the workshop's broader impact.

Martina Muzi: As tutors, how did you create a framework allowing the students' original creative visions to encounter the diverse range of methodologies you introduced?

Connor Cook: At a high level, what we were trying to do was honour the students' original ideas but also take them on a journey through different methodologies, so we could bring them back to those ideas with a fresh perspective. Each student came with a project they wanted to work on which roughly speaking encompassed different visions they had for the future of the city.

We wanted to honour that initial starting point, but also take them on a detour that allowed them to arrive back at the initial starting point in a reconfigured way, without losing track of what we really found inspiring—which was the optimism and ambition of the students and this quite pragmatic desire to really make a change.

We took them through each of our methodologies which, as Martina mentioned, were quite different in nature. It first started with a practice of gathering content from the city, so using tools like 3D scanning, taking photographs, or even navigating Google Street View. The idea was to build a library or archive of representations tied to their initial interest in the city.

Domitille Debret: One important aspect was the grounding of their ideas in traces they could find in the city, and this was something that was interesting and challenging for them, as we invited them to scale their approach up or down and to refine their ideas. We hoped to make each of their propositions stronger, and get them to look at it from different angles and levels, so that's why we worked with this sort of investigative methodology, encouraging students to go into the city and take photos or use Google Street View to find traces that illustrated their projects.

MM: Could you share some examples of the students' initial ideas and how you were able to develop them through the workshop?

Bianca Schick: The ideas were quite varied. One student wanted to create an awareness campaign about using sunscreen due to the high rates of skin cancer in Romania. Another was focused on the Bega River, frustrated that there were no leisure activities around it, and that the boats were mostly unused. Other projects included introducing composting in neighbourhoods and creating a shared library system where people could exchange books through vending machines placed around the city. These ideas were practical, but of course executing them is often complex.

CC: One of the practices that emerged was writing a letter to the city. One student, who was working on a project relating to the a River complex, was so passionate about his project that we asked if he had written a complaint letter. This led us to encourage the students to write letters—whether complaint letters or love letters—as a way of framing the problems they were addressing. One of the issues we came across was the notion of scale, which is that some of the students had very ambitious projects, and at that level of ambition it becomes harder to make a concrete impact, particularly when you're talking on too high a level about your project, so through the format of the letter we tried to get them to focus on one particular detail or one location in the city. We then asked them to supplement these letters with images from Google Street View to create a visual narrative. This helped them better define the problems before moving on to more solution- or utopian-oriented thinking, which became the focus in the second part of the workshop.

MM: Cristian, you've been involved in similar educational formats before, particularly last year where we first tried these pedagogical approaches for the first time during the Atlas of Distances workshop, as part of the *Bright Cityscapes* programme, in collaboration with Delft University and the Design Academy of Eindhoven. As a Dean, you got to see how engagement with the methods we established took place within your curriculum. How from your perspective did this workshop impact the students and the university?

Cristian Blidariu: The experience we had last year with the *Bright Cityscapes* project and Atlas was very impactful. It was a new format for us, where students from different years worked together on briefs that evolved as we went. They learned to create their own briefs –or respond to calls,and share knowledge with students outside their year. Some of them even continued with these themes, entering architectural competitions or even challenging the school system and some of the studios we have right now.

Although it was complicated to implement, I think it is super-important for students to have these types of experiences. It wasn't just the school's programme that was influenced, by the end of the academic year when we had our meetings and reunions in the university, there were echoes of what we did at *Bright Cityscapes* in the research programme, where connections were created between designers and researchers.

I know this was also a very hard process, especially for our researchers who were not used to working in this format, but they were all enthusiastic and proud of what they had accomplished, and they were describing this process months after it was finished, which validated the whole process in

itself. Our university is fully committed to supporting this project in the future.

MM: I always say that within education time can move rather slowly, even if the students themselves are fantastic because they respond so quickly, the magic that happened during Young Matters was incredibly fast paced, so I want to talk more about the media that allows that and the strategies you guys found.

But there is an element of the generations within a school, I think that's the most beautiful and empowering form of cross pollination, the one that occurs between different years and that indeed requires time and in a way repetition. Oana (Simionescu, director of FABER) and I always say we are trying to enter into pedagogy in different forms, by linking to academia but also by inviting students to get out of academia, and one thing we repeated between these two different formats—*Bright Cityscapes* and Young Matters—is the idea of exploration, really embodying these experiences and visiting spaces.

Something I thought was really beautiful, was looking at how can we think of future ideas from within a context, so that these ideas are not necessarily a copy paste of what we may generally think is exciting, but rather a process of generating ideas by learning from what we have and by reconnecting with it differently, from different scenarios.

This to me embodies the second part of the workshop you did with the students, and I would love a bit of insight into this process.

CC: We tried to translate this notion of repurposing within a context through our methodologies, by setting pretty strict constraints for the students. The first half of the workshop, the gathering and scanning and taking photographs of the city, became the raw material to create these utopias in the 3D modelling program Blender.

It was important for us to think of utopia not as something that emerges from nowhere, but as something that is constructed from an already existing context. In the sight visits we did throughout the week—for example we went next door–we saw real examples in the city of the loss of this industrial heritage, so we were interested in this methodology of reappropriating what already exists.

So more practically speaking, the students would scan say a bench or a chair in the city and by just using the affordances of the 3D modelling program they could scale that bench up, and suddenly that's a big shade structure or something similar for their project. So we wanted to get them thinking about scaling up and down, scanning and going out into the city as a method of creating rather than 3D modelling in the software from scratch.

This kind of a method, a kind of collage, is what we ended up on, which then produced this specific visual language because everything is textured from the city itself.

MM: Bianca, your practice is focused on communication and media. How was the experience of guiding students in narrative forms outside their typical disciplines

BS: It was the most interesting part for me, it was nice to think on a more media-related level with them, for example the idea that a screenshot can be photography as long as you correctly frame it, then thinking about formats. For example, we checked out the PechaKucha format and thought let's use this as a base, but let's play with it and not just use it in a normal way, so in the end what comes out is an editing process, and I feel like that's actually where everything happens.

DD: It was quite interesting to see the students interacting with 3D modelling as a format, most of them had never had this experience. With 3D what's interesting is that they had no limitations to their ideas when it came to the modelling of it, so it was fascinating to see how far they could push their ideas because they could model anything. When using more traditional methods like photography or text or images, they created work that was more according to reality, and as soon as they engaged with Blender, something clicked in their mind that they could create a visual world.

MM: I wanted to ask you something Domitile, because you work with information and also with stretching the idea of what information is. Within *Design Signals* at large, but also ourc ollaboration with the architecture school last year, and with different disciplines and different laboratories of UPT, information is really central. And having worked with Rasvan (Zamfira, data visualisation designer, participant of *Woven Secrets*) I was really excited to have an information designer as a tutor for the Young Matters programme this year.

So I wanted to ask you what information can mean in the context of the forms of experimentation within pedagogy, for example field research or narrative or editing...

DD: So the first reference that we introduced the students to was this book An Attempt at Exhausting a Place in Paris by Georges Perec, where Perec sits in this one square in Paris and observes reality and describes everything around him, trying to exhaust everything you can witness and see. This is something quite influential in my work, the idea of sitting and observing the very small details and discovering what they could reveal. But this approach was quite challenging with the students, because at first they were looking at very diverse things rather than finding connections.
This was when we decided to focus them within the

constraints of Google Street View, because this meant that they really had to investigate, search and reinterpret images they found rather than the other way round. For example, for the project involving composting, the student had to go on to Google Street View and find images of landfills and of trash in the street. It was quite interesting to see that for all of their projects there was something existing they could find, and this meant it was quite fast in the end for all of them to find traces of their project in the city.

MM: This year's Young Matters program brought together approaches to design that not only apply technology but also question technological tools themselves. Connor, this approach makes me wonder how this question of investigation can also be applied to software. Is there an important element there from a pedagogical point of view, and how would you present that to students?

AC: Something that really informs my own work and my approach to pedagogy is using these tools not only as creative mediums but as objects of critique, and looking at the different power structures embedded within these systems.

That wasn't super explicit in this workshop, but we did choose to use Blender, which is an open source software that's free to download, free to use and has a really amazing community of users, people building plugins and modifying the software as they go. This was important in the context of this programme, to provide the students with tools that are free to use, very accessible and have this large community of users behind them.

So in terms of this investigative approach I like to take, I feel that the affordances of the tools, working within the software, this is a form of research in its own right, that looks different to going on Google or looking at theory books. Being able to scale up or down, to change materials, and to really play around in space in time in quite an open way. While I don't know if I'd call it investigation, it certainly enables a very specific way of engaging with the research that wouldn't be possible using legacy formats such as drawing.

MM: I want to conclude by asking Cristian, if you were to write one of the letters Connor mentioned earlier, which letter would you write? Let's say that within this process of working with students, it's also a special moment where the students can be very central. So as an educator to your students, what is your utopia or small dream about what could happen? It doesn't have to be something big, it could be something that could even happen tomorrow in your studio...

CB: One of the main challenges that we had was creating engagement with the students, and I think that's something I would try to address by writing a letter. I don't know exactly who I'd address it to, but somehow I would poke the students and try to make them more curious about stuff, particularly some stuff that's not necessarily part of their curriculum, or things they wouldn't normally do to get their grades.

That's why it's super important to have these alternative routes you are creating with these programmes, even if you do occasionally have to poke the students, to say 'this is super cool, go out and do this because you'll learn a lot'.

As you said, it's about taking small steps, and I believe in time the value of the program will be more evident to more students, more people, and this is just the beginning. But I think it's a good beginning.

MM: Maybe it's about how experimental programs and formats can help when it comes to building trust?

CB: Indeed

From:

To:

Date:

As part of the Young Matters workshop

Dear ...
city, citizens, mayor, neighbours, passerby, policy makers, sun, river, street etc...

Dragă ..
oraș, cetățeni, primar, vecini, trecători, factori de decizie, soare, râu, stradă etc...

Write a letter that expresses your thoughts, concerns, ideas, frustrations, or desires connected to the city, or an aspect of the city. The letter can take any form—such as a complaint, love letter, open letter, or even a message of protest—and it should be addressed to a specific group, institution, individual, or even a non-human entity (e.g., nature, technology, future generations...)

Scrieți o scrisoare în care să vă exprimați gândurile, preocupările, ideile, frustrările sau dorințele legate de oraș sau de un aspect al orașului. Scrisoarea poate lua orice formă - cum ar fi o plângere, o scrisoare de dragoste, o scrisoare deschisă sau chiar un mesaj de protest - și ar trebui să fie adresată unui anumit grup, instituție, individ sau chiar unei entități non-umane (de exemplu, natura, tehnologia, generațiile viitoare...)

8.3 From – To: Letters to the city

PROJECT

Bianca Schick,
Connor Cook,
Domitille Debret

Students
Raul Miculaș / Alexandra Floarea / Evelina Elena Tănasie / Diana Huțuleac / Anthony-Charbel Esber / Andra Petrică / Cristina-Elena Gătăianțu

From – To is the collective outcome of a pedagogical workshop, part of the Young Matters program. It consists of letters written by students, addressed to the city of Timișoara-its neighborhoods, citizens, and passersby. These letters, presented as image essays, use Google Street View to capture past scenes, inviting reflections on future possibilities. They were later translated into virtual worlds, using 3D scans captured across the city, continuing the exploration of what Timișoara could become.

Young Matters is the pedagogical component of Design Signals aiming to bridge the design discipline with local ecosystems, including academia. It encourages students to experiment with innovative design approaches by participating in a collaborative learning environment that merges academic knowledge with hands-on experience. Through this program, students gain valuable insights, build interdisciplinary networks, and contribute to the broader conversation on sustainable design and innovation in Romania, with a link to the evolving textiles industry. This year, an open call invited students from Timișoara universities to submit their study-related projects. Selected participants then joined a day-long Ideathon during which students and tutor teams were formed. Over a week-long intensive workshop three expert tutors provided guidance to further develop the projects.

Bianca Schick is a designer, design researcher, and image creator based in Rotterdam. Her extensive practice includes multimedia projects, visual communication and commissioned design projects. She is concerned with the politics of representation and interested in how systems operate and how the media influences these systems.

Connor Cook is a media artist and researcher from California, currently based in Amsterdam. Primarily works with game engines and other real-time software systems, transforming the technical operations of machines into visceral and collective experiences.

Domitille Debret is a designer, technologist, and educator. Focused on interactive and informational design, she works with databases, digitized collections, and archives, trying to find the most relevant formats to display the unique content of each. She is also actively involved in teaching, participating in juries, design courses, and workshops.

Date: 23.09-03.10.2024

From: Cristina-Elena Gătăianțu

To: A passersby

Date: October 3, 2024

robotic trees
shade
sun
skin

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear citizens of Timișoara,

45.7584, 21.2639

The Bega River—what do you really want it to be?

45.7601, 21.2585

A stagnant piece of water, or something else? I asked myself, why are we settling for less?

45.7614, 21.2555

Why are the banks of the Bega so dull? We could paint them—graffiti, street art, i don't know.

45.7506, 21.2354

The river should be alive, not a brown backdrop we ignore.

45.7537, 21.2393

Have we forgotten what a river should feel like?

45.7486, 21.2261

White and yellow water lilies, lotus flowers, rushes, reeds, swans, turtles, variety of fishes ...

45.7503, 21.2180

We could bring back ducks. The last time there were ducks on th Bega River in the city was 2011—and they were rubber ducklings.

45.7421, 21.1950

Parks could be populated with squirrels, birds and rabbits...

45.7387, 21.1844

It's not about nostalgia; it's about reviving a river that grows,

45.7108, 21.1035

that feels like more than just a reflection of neglect.

45.6946, 21.0505

Why limit the Bega to transport boats? They are empty most of the time.

45.6984, 21.0629

Rowing, canoeing, kayaking, paddleboarding at dusk. Fishing spots for quiet reflection. Picnic spots for a Sunday brunch.
A place to relax when you need it...

45.7295, 21.1576

It's a lot, I know. But the Bega is right here. It could be something more, or we can keep pretending it's fine as it is.

Raul

From: Raul Miculas

To: The the citizens of Timișoara

Date: October 3, 2024

white and yellow water lilies
lotus flowers
rushes, reeds
swans, turtles, fish
squirrels, birds and rabbits
canoes, paddleboards
fishing spots
color

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear Timișoara,



45.7866, 21.2674

Where do you stand between tradition and innovation? Technology comes and offers ease. But with every new tool, what do we exchange?

45.7766, 21.2225

Imagine your citizens using their bodies to create energy while waiting at a smart bus station. Will every step they take count?

45.7479, 21.2255

What if footstep-powered walkways could provide energy for public services?

45.7520, 21.2008

And soul-charging stations, quiet spaces for meditation.

45.7520, 21.2008

Or a *Library of Shared Experiences*, where we could borrow wisdom from others?

45.7032, 21.2337

Efficiency, yes. But what if technology also encouraged us to slow down?

45.7318, 21.2668

What if vending machines offered more than snacks?

45.7696, 21.2265

A time-travelling vending machine, or one to *rent a friend* when companionship is needed?

45.7536, 21.21059

In your parks, people still sit with books, pages turned, not swiped. Handwritten letters wait for replies.

45.7536, 21.21059

Gentle acts of anarchy, against the the stream of updates.

45.7742, 21.2584

But while these quiet moments remain, what about the work that disappears, taken over by machines?

45.7498, 21.2110

Imagine IoT connecting actions, spaces, and people, technology enhancing life, not replacing it.

45.7742, 21.2584

Moving forward, let progress respect what keeps you grounded, a future where the new meets the old.

Two ordinary citizens,
Diana & Chary

From: Diana Hutuleac and Anthony-Charbel Esber

To: The city of Timișoara

Date: October 3, 2024

soul charging capsule
time travel vending machine
«rent a friend» vending machine

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear neighbours,

45.7316, 21.1857

The days when we all lived in small houses and animals took care of our trash, are gone.

45.7296, 21.2129

Today, there are more of us, packed closer together. We have bigger houses, more cars, and more stuff.

45.7631, 21.2501

We earn more, eat more, go out more, consume more. We buy food constantly, year-round, all the time.

45.7767, 21.2626

And with all this, we create more trash, more bins, more types of waste. More signs, more recycling policies, more rules.

45.7419, 21.2379

And against all odds, it works well together. We have clean streets and yards because waste goes *away*. But what is *away*? Where is *away*?

45.7736, 21.2643

Our landfills are the *away*.

45.7972, 21.7591

45.8226, 21.2527

Away is Ghizela, Parta, Covaci, the side of the road, the fields...

45.7736, 21.2643

where waste goes to stay.

45.6794, 21.1648

Nothing disappears. Everything is still here.

45.7666, 21.2547

How can trash become soil?

45.7878, 21.2339

And how can *away* be right *here*? What if there is *a way*?

45.7600, 21.2603

What if *away* is the very soil that grows our parks? Or the soil tha grows our gardens, our food?

What if we compost for change?
Andra Petrica

From: Andra Petrica

To: Some neighbours

Date: October 3, 2024

homes
businesses
restaurants
cafés
apartment buildings
transport channels
composting stations
parks
gardens

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear anonymous guy,

45.7545, 21.2266

You surely can't remember me.

45.7545, 21.2266

But I remember you—scaring me while I was riding my bike.

45.7555, 21.2274

You thought it was funny.

45.7419, 21.2380

Because for you—and others like you—this isn't a problem.

45.7545, 21.2266

Let me be clear: it wasn't funny. I could've been hurt. But you don't care, do you?

45.7545, 21.2266

Still, here's what you don't get: I care.

45.7555, 21.2274

I care about people like me, who get shaken up for no reason,

45.7419, 21.2380

who live in quiet fear,

45.7545, 21.2266

while you laugh and move on. You wouldn't like it if someone did that to you, would you?

45.7545, 21.2266

Is respect really that hard? Life could be easier, even beautiful, if we just respected each other.

45.7555, 21.2274

But I guess that's not a language you speak—yet.

45.7419, 21.2380

It's easy to harm when you don't have to think, when consequences are for someone else.

45.7545, 21.2266

But let me tell you something: There's a whole world of us who've had enough.

45.7545, 21.2266

We don't owe you silence or softness.

45.7555, 21.2274

You're not the first, and sadly, you won't be the last.

Ioana Alexandra Floarea

From: Ioana Alexandra Floarea

To: An anonymous guy

Date: October 3, 2024

women in protest
symbols of resistance
a platform for expression

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear able society,

45.7560, 21.2232

In your city, people are always on the move: walking, navigating sidewalks, crossing streets.

45.7378, 21.2414

But for many, these spaces tell a different story.

45.7380, 21.2404

The infrastructure we all rely on isn't always made for every body

45.7545, 21.2266

Curbs, ramps, crosswalks, entrances, even the clothes we wear, shape how we move through the city.

45.7545, 21.2266

Movement should be easier, and care for the city's infrastructure reflects care for all its inhabitents.

45.7545, 21.2266

Mobility, whether on foot, wheels, or crutches, depends on the choices made in the spaces around us.

45.7390, 21.2412

Yet, not everyone experiences the city in the same way. The chair that offers rest for some is a tool for movement for others.

45.7419, 21.2380

As time passes, bodies change and may, temporarily or permanently, require more accessible infrastructure.

45.7555, 21.2274

When the city's design meets diverse needs, mobility become a true experience,

45.7555, 21.2274

and places to rest, seating, and accessible public transportation are not just luxuries.

45.7389, 21.2347

Accessibility in the city is a deep concern for the quality of life of every citizen.

Evelina Tănasie

From: Evelina Tănasie

To: The able society

Date: October 3, 2024

handrails
ramps
wheelchairs
accessibility markers
adaptive clothing
seamless building access

As part of the Young Matters workshop
September 24 — October 3
Images captured from Google Street View

Dear passersby,

45.7378, 21.2414

Today I walked by the oncology hospital, it looks worse inside than outside.

45.7688, 21.2534

Later, I walked beneath the sun, and for now,

45.7682, 21.2536

I'm just enjoying my own shadow.

45.7688, 21.2534

I've been thinking about this for a while, and as I sit here, the problem comes into focus.

45.7489, 21.2189

SPF 15, 20, 25, 30, 40, 50—do you know what that means? Is sunscreen something you laugh at?

45.7476, 21.2219

Do you need faith to believe in protection, or is it just numbers you choose to ignore?

45.7574, 21.2479

Do you believe in sunscreen?

45.7546, 21.2263

You walk in the sun like it's a blessing, but what happens when the light is too much, when we trust the warmth too easily?

45.7448, 21.2253

The sun gives, yes, but it also takes away—quietly, slowly,

45.7569, 21.2289

until one day, your reflection is someone you barely recognize.

45.7491, 21.2086

They say "You look good in the light."

45.7663, 21.2550

But what if the light is hiding something?

45.7467, 21.2165

Protection isn't a choice, it's a responsibility. The question is—when will you start to care?

Warmth,
Cristina-Elena Gătăianțu


OPEN ME!
FEEL FREE TO
TAKE A LETTER
WITH YOU

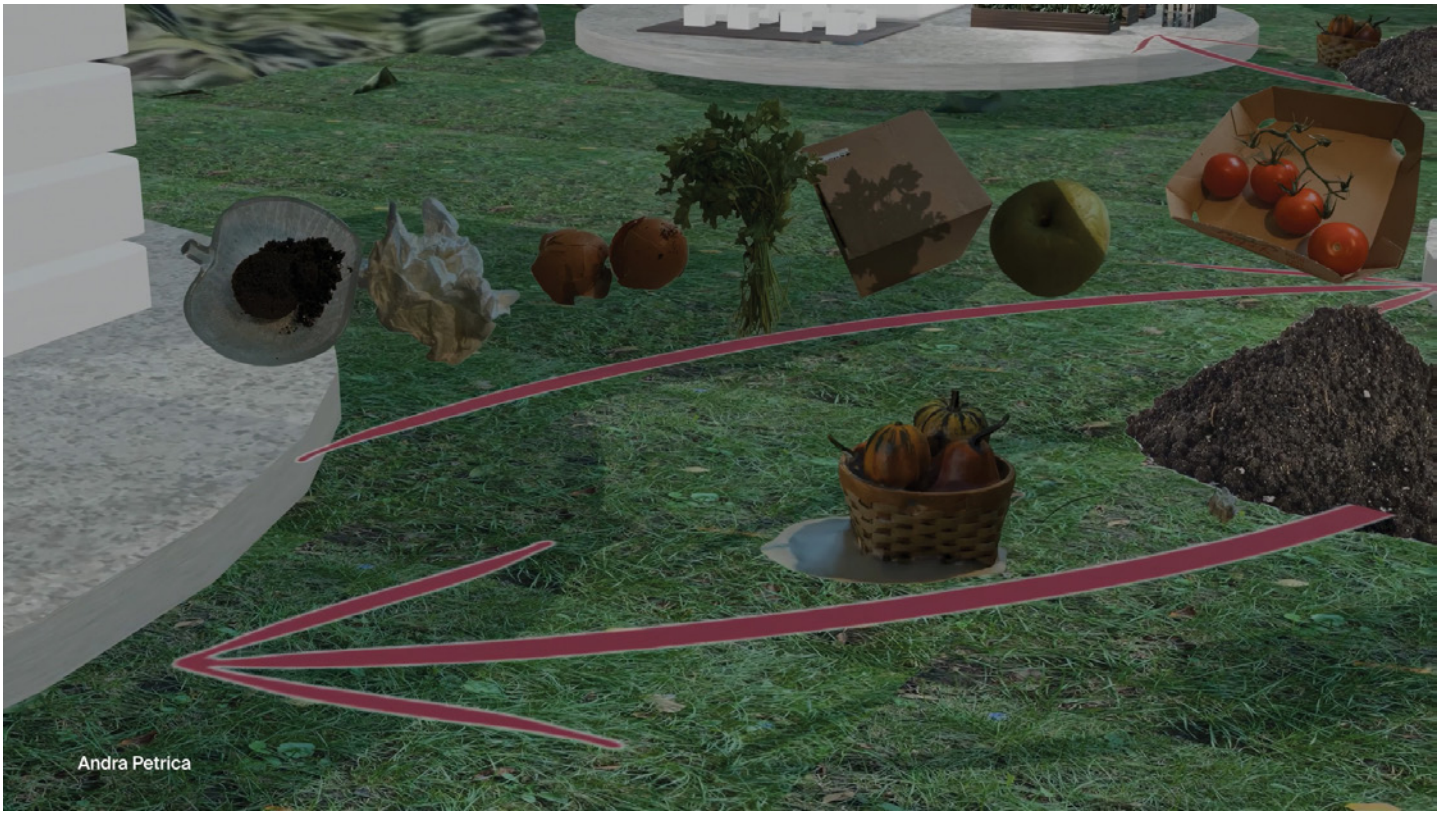
8.4 From – To: Generated Imagery

VISUAL ESSAY

Date: 03.10-24.11.2024

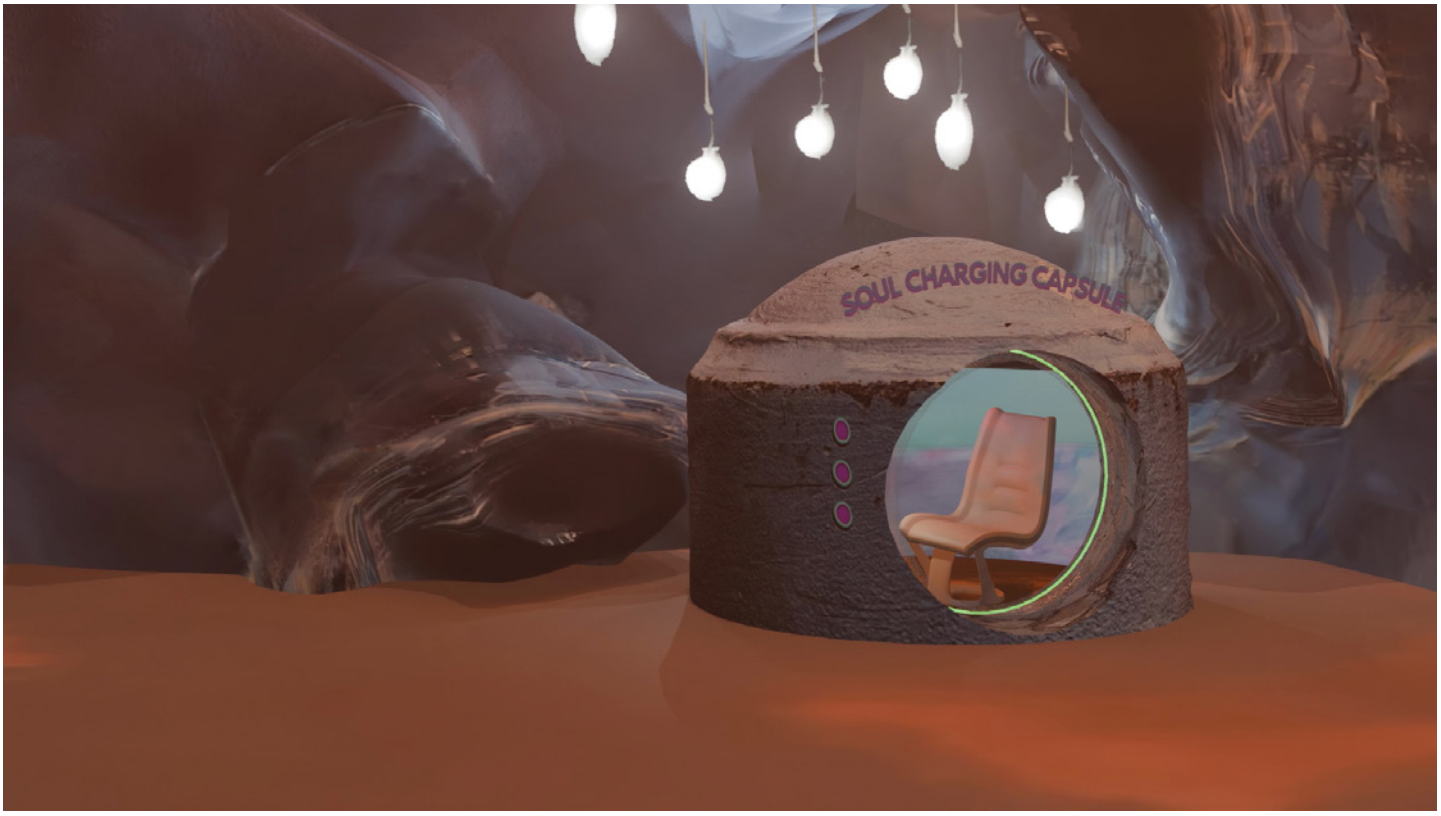
From: Ioana Alexandra Floarea
To: An anonymous guy
Date: 03.10.2024

From: Andra Petrica
To: Some neighbours
Date: 03.101.2024



From: Cristina-Elena Gataian
To: „A passersby"
Date: 03.10.2024

From: Diana Hutuleac and Anthony-Charbel Esber
To: The city of Timișoara
Date: 03.10.2024



From: Evelina Tanasie
To: The able society
Date: 03.10.2024

From: Raul Miculas
To: The the citizens of Timișoara
Date: 03.10.2024

9 Reflections

9.1 Woven Secrets – The Multifaceted Processes Behind the Clothing we Wear

ESSAY

Marina Oprea

In contemporary consumer culture, clothing is often viewed primarily as a finished product, with little attention given to the processes behind its creation. This perspective reduces textiles to a commodity, a mere object for purchase, use, and eventual disposal. Consumers engage with clothing on a superficial level, appreciating its aesthetics or branding without considering the labour, craftsmanship, and environmental costs involved in its production. Fast fashion, in particular, exacerbates this issue, encouraging rapid consumption and disposability, where garments are worn briefly before being discarded. The complex social, economic, and ecological implications behind clothing remain largely invisible, as fashion is increasingly treated as transient and replaceable, rather than as a meaningful cultural artefact.

2022's documenta 15 in Kassel, one of Germany's most significant contemporary art events centred around a distinctly non-commercial approach – positioning itself as a critical space for artistic experimentation rather than a marketplace for art, presented a spectacular and eye-opening installation by the multidisciplinary Nest Collective from Nairobi, Kenya. Return To Sender - Delivery Details took the shape of a pavilion entirely constructed out of bales of used garments discarded by the industries of the Global North in Africa. Placed on the backdrop of a lush, pristine recreational garden, Return to Sender acts as a jarring confrontation with the dark underbelly of the textile and fashion industries, raising important questions about its ethics and so-called sustainability. The bales of old clothes, unfit for recycling, coupled with the art-documentary displayed inside, reveal harsh, yet unseen truths.

This is just one facet of the sprawling global textile industry made visible in the context of contemporary art, which has the potential to also illuminate the social, economical and even the emotional side of fashion and craftsmanship. The second edition of FABER's *Design Signals* research program, so aptly titled *Woven Secrets*, highlights the transformation of Timișoara's textile industry and its role in the city's economic and social development through a candid and thought-provoking approach.

Set as an exhibition of knowledge, structured on multiple layers of meaning, *Woven Secrets* brings together new works by Romanian designers, historical artefacts, reclaimed and restored items and documentary photography. In this sense, the exhibition proposes multiple ways of seeing and engaging with textiles: tactility, immersion, memory and data analysis, a balanced blend of historical facts and subjective narratives. It encourages a layered understanding of textile design and industry by positioning the various works in dialogue with one another, allowing viewers to begin with familiar, everyday interactions with clothing,

deepening into more complex topics such as recycling or the less visible aspects of the industry – the inner workings of textile factories and the overlooked lives of factory workers – and ultimately zooming out into a macro-level analysis of global market trends. The works, the artefacts, the sleek design and emotional charge of *Woven Secrets* offer a comprehensive perspective on the multifaceted processes behind the clothing we wear.

Our interaction with textiles is often immediate and instinctive, rooted in their primary function to cover and protect the body. When encountering a piece of clothing, our first response is almost always tactile – we reach out to touch it. While textiles serve a practical purpose, they also carry personal significance, influencing our expressions of identity and experiences of comfort. However, this engagement often occurs subconsciously, as we tend to overlook the intricate processes involved in its production.

Amalia Săftoiu's *Knitting Night & Day* and Dinu Bodiciu's *Balkan Baroque* are two approachable pieces that cater to the familiarity of clothing in our everyday lives, while also urging us to consider their craftsmanship and cultural background. Knitting Night & Day, an exquisite knitted cape crafted by Ami Amalia – a Transylvanian brand direct-to-consumer brand – is a masterful mix of traditional and contemporary techniques. The complex garment, featuring two self-portraits by artist Felicia Simion, exemplifies how the design process can necessitate continuous readjustments to the workshop in order to create unique pieces. This adaptability implies a labour of love that subverts capitalist expectations of production turnaround, emphasising the value of craftsmanship and creativity over mass production, which often lacks the efficiency or economic feasibility required for certain items.

Similarly, *Balkan Baroque*, Bodiciu's line of experimental streetwear were handcrafted using thrifted mass-produced sportswear and traditional macramé textiles – a nod to Timișoara's Ottoman and Hapsburg heritage – and were the only items for sale in the entire show, at quite a hefty price. This clash of styles opens an important discussion on gentrification and the influence of global capitalism on local traditions, as well as the practice of recycling and repurposing old garments. As such, both works encourage viewers to reevaluate the complex relationship between design, production methods, and economic realities, and consider the dedication and passion that go into creating each piece.

Unsolved Patterns, the collaborative work of Andreea Pleșa, Mihaela Vișovan and Cătălin-Cristian Botean, delves further into textile repurposing and reveals the inner workings of textile mass-production and waste. The artists' investigation at the Cottontex factory focused on standardised production processes that leave seemingly unusable textile remnants in their wake. The irregular shapes of fabric – jersey, in this case – resulting from standard pattern cutting are refashioned into wearables through various methods of minimising waste. This multilayered display also features videos that illustrate a number of ways in which these pieces could be reconfigured into new experimental clothing, challenging our current notions of waste and recycling.

While there is a growing concern for recycling and sustainability, there is often a significant gap in our understanding of the complexities involved in recycling processes, including the limitations, inefficiencies, and environmental impact of certain recycling practices. The work *Caution! Rotating Blades* by Alesia Cîdă explores the final stage of the production system through a collaboration with a new recycling centre in Timișoara, active for the past two years.

Fascinated by the textile shredder, the designer recreated its process into a playful interactive installation aimed at children. Factory machinery, particularly large and dangerous equipment like this one, is often difficult for the public to fully comprehend or engage with, as it exists outside the realm of everyday experience. These industrial processes, though essential, remain largely invisible and abstract to most. However, this installation simplifies and humanises this concept and presents it in a more accessible and digestible way, successfully

demystifying the machinery but also inviting viewers to better understand the complexities of textile waste and recycling through a tangible, approachable medium. *Caution! Rotating Blades* also highlights the challenge of unrecyclable components, such as the white threads and tags on our clothing. Recycling, as the work demonstrates, is labour-intensive and involves numerous compromises.

Waste, recycling, machinery, it all boils down to the human element, the invisible lives of factory workers, the unsung heroes of the textile industry. Coming back to *Unsolved Patterns*, this work also confronts the public with the unseen and less glamorous side of the fashion world: the tedious manual labour that factory workers are subjected to. A distinct piece of clothing, resembling a polo shirt – typically associated with the upper echelons of society – made out of a fragile transparent material – comes into stark contrast with the rest of the garments on display, symbolising the vulnerable conditions in which textile workers operate. The accompanying video work makes use of artificial intelligence to trace the repetitive movements of textile manufacturers during sewing processes in the factory, translating these motions into a new clothing pattern. This approach honours the labour and skill of the workers while also exploring speculative ways of integrating cutting-edge technology with manual craftsmanship. Here, only the workers' hands appear at the forefront.

The candid work *What's Next* by Maria Dombrov and Rada Maria Gabriela makes space and gives voice to eight factory employees who tell their personal stories of their daily threads. The two designers worked closely with a diverse crew of craftsmen from Timișoara's UTT spinning mill, one of Europe's last remaining industrial knitting yarn producers. Some interviewees are new on the factory floor, while others have been here for over thirty years, yet each have a special relationship with yarn, a material whose production dates back to the stone age. Their sincere testimonies reveal the uncertainty of this ancestral craft as they ponder on whether they might be UTT's last generation. Each of the eighth portrait-monitors is correlated with woven frames of yarn in varying techniques, styles and raw materials, all akin to be touched. This work redefines the factory, traditionally valued for its economic efficiency, by emphasising the importance of community and craftsmanship within the endangered mill. The stories of What's next serve as a social and archival node within the exhibition, connecting the historical artefacts present throughout the space.

Communist memorabilia dating back from the 1960s, like the renowned Tetra cotton valued for its comfort, ease of maintenance and durability, or a warm welcome letter, received by new employees on their first day of work, are meant to highlight the golden days of the local textile industry. Other items, such as eighty spools of thread, as well as all the reconditioned chairs and tables used in the exhibition were recovered from the soon to be demolished 1 Iunie Factory and serve as a stark reminder of the city's unforgiving real-estate development. Not only are individual jobs at risk because of global economic shifts, but heritage industries face a similar threat, as traditional skills, practices, and local economies tied to these crafts are rapidly declining.

Back to Our Sheep by Lavinia Ghimbășan of Studio Nalba is a complex series of works centred around the pastoral heritage of wool, yet another ancestral material with a crucial role in the development of early civilizations. The series begins with the recognition that Romanian wool, once a valuable resource, has largely fallen out of use in the country's textile industry, leaving farmers burdened with disposing of surplus wool. This material, now often discarded due to its poor condition at harvest, is difficult to process on an industrial scale, leading to its gradual disappearance from local economies.

In this context, Ghimbășan proposes we go back to basics when it comes to wool, focusing both on its historical and cultural significance and its potential use in the future. By revisiting traditional practices such as shearing, spinning, and weaving, and considering the local history of small producers and shepherd's garments, the project creates a dialogue between past and present.

One striking installation within this series is *Wool*'s spatial experience, a sound booth insulated with locally sourced wool, invites the audience to experiment with the acoustic properties of this material. This soft construction is also meant to evoke the very animals that produce wool, with its dusty colours and hoofs for legs, and can be stylistically paired with the shabby shepherd's coat, as part of the same series, and the antique loom exhibited across the room. Through collaboration with industry partners, the project explores innovative methods to reintegrate this overlooked resource into modern production systems.

Can wool be processed into a high-quality fibre while still preserving archaic traditions? *Back to Our Sheep* explores these possibilities by blending Romanian wool with acrylic fibres, woven into a piece exhibited right across from the shepherd's coat, further highlighting this interplay between the past and the future. In fact, this is the leitmotif of this entire series, in which wool is reimagined as not merely a discarded byproduct, but as a material with immense potential, breathing new life into the local industry, blending the forgotten with the contemporary and exploring wool's material qualities through sustainable and innovative design approaches.

The various works, documents and artefacts presented in this exhibition are successfully woven together to uncover the secret facets behind the textiles that are so common in our lives. From familiar concepts, like thrifting and recycling, to more nuanced topics, like the economic disparities within the industry and endangered practices, from wool, yarn, sheers and looms, to communist textile samples and towards the AI powered automation of tomorrow, the exhibition *Woven Secrets* manages to capture every side of Timișoara's rich textile industry.

This nuanced curatorial approach is also grounded in hard data, seen in the infographic series by Norbert Petrovici, Studio Interrobang and Victor Ionichi, and in work with the local youth, through the Young Matters program. These two components look at the industry through both a macro and micro lens, respectively. While the infographics pinpoint the role of Romania's textile sector within the ever-shifting global markets, revealing current economic realities, Young Matters indulges the viewers with a utopian vision of Timișoara as envisioned by the students that took part in the program, through a series of personal letters which became the basis for an experimental video work.

All in all, *Woven Secrets* tells a complex story that encapsulates history, craftsmanship, passion, labour, beauty and loss. It pays homage to the past, acknowledges the present and proposes a positive outlook on the future of textiles as a whole. The exhibition challenges our perception of clothing and textiles, so often polarised between two extremes: the allure of high fashion and the anonymity of mass production. With *Woven Secrets*, however, these extremes are bridged, shedding light on everything in between – exploring overlooked design processes, artisanal craftsmanship, and the complex socio-economic systems that lie beneath the surface of the fashion industry.

9.2 All is Here – The Ethics (Or Lack Thereof) Behind Modern Textile Supply Chains

ESSAY

Philipp Hindahl

It is tempting to imagine a garment as having something like a life cycle; an animate being, born of the factory. It is worn close to the body, it ages, and as time goes by, marks appear, cotton fades, wool frays, nylon disintegrates. Then, it is discarded, and here things become more obscure. Is it recycled? Does it end up in a landfill, or as rags, or as a new garment?

While consumers donate their clothing hoping that it will attain some kind of garment nirvana, the chances of your discarded clothes being repurposed are slim. Only 14.7 percent of clothing was reclaimed in 2018, according to the United States Environmental Protection Agency.

Just as consumers have no information on the afterlife of a garment, the things that happen before production are also often shrouded in mystery. The textile industry is anything but simple, and it isn't helpful to think of it in linear and organic terms.

Before a garment is born, its material must progress through a series of complicated supply chains. These can resemble rhizomes, which are the underground stems that create the shoot and root systems of a new plant. Supply chains can be similarly interconnected and intricate, non-linear, largely invisible, but never entirely subterranean. Many companies, distributors and suppliers are involved in the creation of a single item of clothing. From designing the garment to sourcing the raw materials, producing the fabric, manufacturing the end product, and finally selling it, a variety of actors are involved.

Frequently, the production of fabric and the manufacturing of the garment take place in the Global South. The old market liberal dogma of division of labour for efficiency is in full effect here: Cotton may be grown in China, woven in Cambodia, sewn in Thailand, and assembled in Italy, which is where the label is added. The claim 'Made in Italy', then, can obscure a long assembly line that can stretch over four countries and two continents. For the sake of efficiency and profit maximisation, the steps involved in producing an item of clothing and the process of marketing it are divorced from each other. It's usually at the very moment when an idea like "craft" is on the verge of extinction that it becomes obsessively evoked, perhaps even fetishised, and the garment industry is no exception.

When, in late April of 2013, an eight-storey building collapsed at Rana Plaza in Dhaka, Bangladesh, the interconnectedness of textile production was dragged into the light, as if the market woke up to a harsh reality. The structure gave in, likely as a result of skirted safety regulations. It was crowded with workers who, making minuscule wages, sewed clothing for the mass market, and over 1,100 people were killed in the accident. Fashion companies are often far removed from accountability, and obscured supply chains are not a bug but a feature. And although pressure on textile manufacturers mounted, realistically, the revelation of inhumane labour conditions has proven to be mainly a PR issue.

"We absolutely don't need any more clothes in the world," writes the journalist Jonah Weiner in his fashion and culture newsletter *Blackbird Spyplane.* "If I pause for ~5 seconds to consider the hyperabundance of garments currently in existence," he continues, "a hyperabundance whose creation and perpetuation has poisoned ecosystems, drained aquifers, annihilated species, turned arable land to desert, pumped carbon into the atmosphere, plastic into the seas (...), literally enslaved and otherwise immiserated millions of workers (...)—I find myself party to a moral obscenity so gross, vast, and seemingly irreversible that all I can do is feel an intense, paralysing sadness."

Weiner speaks about something that affects much more than the textile industry, as if the sector was a cursed hyperobject, a fuzzy-bordered entity that bleeds into ecosystems and societies alike, while overproduction to the rhythm of relentlessly fast trend cycles continues perpetually. As Alesia Cîdă demonstrates with her installation, *Caution! Rotating Blades*, textile waste and recycling are complex issues. The designer recreates the machinery used to sort, shred, and press textile waste out of those very rags, as a sort of soft, playground-like interactive piece. But the underlying takeaway is that purity in waste is rare, and that recycling itself creates an abundance of waste.

Economic constraints on the industry are enormous, and the hunger for fast fashion, which inevitably ends up in landfills, has not receded. Although Romanian textile exports have seen two significant moments of growth—one in the late 1970s, at the same time when Western European countries embarked on a long and steady process of deindustrialization, and another in the 2000s, after Romania joined the European Union—manufacturing sites are relocated to low-income countries, such as Bangladesh. Throughout the past decades, the European textile industry has changed. The luxury sector keeps producing in Europe, at least nominally, industrial textiles are still manufactured within the Union, and although much of apparel production has moved away, it remains an important area. Italy, and more recent member states, such as Romania and Poland, are among the main employers in the sector.

The production of apparel is labour intensive, and there is little room for technological innovation, as sewing techniques have barely changed throughout the past hundred years—in capitalism, manufacturers only innovate if it promises more profit. An OECD report from 2011 classified the textile sector as a low-technology industry. But this is only the macro-economic perspective.

There is another perspective, and it looks very different—the design point of view, grounded in the imperative of innovation almost by definition. Take Andreea Pleșa and Mihaela Vișovan's

work *Unsolved Patterns*, which takes on textile waste. Blended materials are difficult to recycle, which is why this project investigated the factory Cottontex in Timișoara. The designers repurposed cuttings from the production process to make new garments, even from the difficult to recycle composite materials, as if this was some form of modernist collage that does not go against the grain of rationalist productivity, but instead offers a way out of its waste conundrum. Is it a coincidence that the pieces look like something worn by the creative class to a rave?

Designer and consumer occupy two ends of the supply chain, and there are fundamental, ethical questions buried in this relation. Since the rise of industrial mass production, design seeks the good form, the good standing in for efficient, useful, beautiful, each evaluated according to the conviction of the designer. But ethics? "Not so long ago," writes Vilém Flusser in the early 90s about morality and design, "this would have been an unnecessary question."

Morals don't apply to things, writes the philosopher, ethical judgments are passed by authority or by consensus, and moral responsibility resides with the person using an object, not with the one devising it. The philosopher, who was born in Prague and was forced to flee Nazi persecution as a young man, wrote this in the shadow of the Gulf War, a highly mediated conflict, which, viewed from Europe and North America, appeared remote. It seemed to take place on television, and it existed in the public imagination as much as on the battlefield.

Flusser invokes a vague sense of the postmodern: At the end of the 20th century, within a fractured public sphere, the authority of moral guidelines had eroded. At the same time, the networks necessary for industrial production, including design, spread further and had become more complex. Who has an overview anyway: "The mass of information available to a producer goes way beyond the capacity of individual memory," says Flusser.

Design is no longer the work of a single, artist-like creator, or even a collective, but it is carried out along intricate supply chains that stretch globally; authorship is dispersed. Perhaps this entails a shift in moral accountability; while in the past it lay with whoever used a product, it had begun, by the time Flusser wrote, to be more diffuse.

Flusser's essay, which is just over three decades old, seems dated in many ways—we have become so accustomed to the fractured public sphere that it barely needs mentioning, and the idea that there is an ethical aspect to design appears self-evident to the point of cliché. But the shift of authorship—from the individual to the collective—seems intensified, and its moral questions are heightened.

A new type of consumer has emerged, too—remember how Jonah Weiner writes that he feels party to a moral obscenity when buying clothes? This sense of responsibility is deeply internalised. Consumption is no longer just about conspicuously displaying wealth, but about tangible buying choices reflecting intangible things like identity, personality, and morality, while systemic ethical questions are increasingly reframed as individual responsibilities.

Design is a self-inquisitive discipline, and its tasks are routinely being remapped. Only a few years ago, when design's future was being envisioned, the focus was often strikingly distant from any ethical concerns. Optimism pervaded; technology was expected to solve problems. For example, an exhibition at the Victoria and Albert Museum in London, presented in 2018, was titled *The Future Starts Here*, and it was rife with promises: drones were expected to make internet access ubiquitous, Silicon Valley luminaries vowed to abolish ageing, 3D-printing was to do away with scarcity. The self, the digital, the globe were all expected to change. Innovation seemed inevitable, and the new world was supposed to look radically different from the old one.

Not much later, the vibe has shifted to a different sentiment. At least since the 2020s, the fragility of supply chains and the very material threads that bind international trade and production have come into focus. Shortages, wars, and global crises appear to be as contagious as the pandemic. When in March 2021 the Ever Given, a giant container ship, got stuck in the Suez Canal between the Red Sea and the Mediterranean, the frailty of the network was exposed. No matter how long the distance, if one thread is touched, the whole web quivers.

Perhaps what designers envision for the future has evolved from the tech-optimist schemes of a few years ago, but maybe the idea of shorter, more resilient supply chains has also been around for a long time. Lavinia Ghimbășan and Studio Nalba's *Back to Our Sheep* demonstrates why the ideal of local proximity can be complicated. Wool is at the centre of their work, and at the outset, the designers were surprised that Romanian wool is not used in garment production in Romania (or elsewhere).

Raw wool, after being shorn, is burnt or buried, because the facilities to ready the fibres for the next step are lacking. It is complex to process wool, which makes it less profitable. Ghimbășan took it upon herself to make a yarn out of local Romanian wool, in collaboration with a manufacturer from Timișoara. Farmers provided the raw material for free, but the production proved challenging. It was not possible to create yarn made out of pure wool, so the designers settled for one that was forty percent wool, sixty percent acrylic.

However, Ghimbășan concedes, in the future a higher percentage could be produced. Ghimbășan demonstrates that wool might as well be used for thermal and acoustic insulation in buildings. Sometimes the supply chain creates dead ends, and for this particular one, the designer found a way out. The exhibition *Woven Secrets* might seem like an assembly of artefacts, and in a way it is. But it also presents processes and proposals that are still in flux. While as part of Maria Dombrov and Rada Maria Gabriela's *What's Next* it was revealed that 100 percent wool thread has been created by yarn producers Uniunea Tehnologiilor Textile (UTT), it is not yet being marketed. Perhaps, in the future, it will be.

Designers are facing a puzzle. Supply chains come with a heavy ethical charge, and to design means to position oneself within them. Timișoara is a unique place because of the different threads that cross here. The words fabric, Faber, and Fabrik, the name of the old industrial quarter, which is rapidly gentrifying, bear this in their name; making, weaving, and industry share an etymological origin, everything is here. Likewise, the local and the global meet in this place, where textiles are produced for the world market, with material sourced from across the globe.

9.3 Timișoara's Textile History – the Pride of Dressing the West

ESSAY

Raluca Moșescu-Bumbac and Laura-Maria Ilie

In just a few months, it will be 100 years since the founding of one of Romania's most productive textile enterprises—the 1 Iunie knitwear factory in Timișoara—and nearly 10 years since its bankruptcy. Currently in the process of demolition to make way for a residential complex, this iconic building within the Fabric neighbourhood still holds symbolic and emotional power, drawing former employees back home. Many left soon after the factory's local production of children's clothing could no longer compete with market demands imposed by the capitalist system.

The factory is one of countless cases of faulty post-1989 privatisations of state enterprises, once the so-called flagships of Romanian industry during the socialist era, which all followed a similar trajectory: from impressive production capacities serving Central and Western Europe, Russia, Canada, and even the Middle East, to illegal sales, legal proceedings spanning years, a lack of investments, unprofessional management, and ultimately, bankruptcy and demolition. This sad chapter in Timișoara's textile history played out similarly for the Hosiery Factory, the Paltim Hat Factory, the Leather and Upholstery Factory Dermatina, the Garofița Textile Factory, and the Industria Lânii SA complex.

Before the 1989 revolution, the Ministry of Light Industry (established in 1945, according to national archive documents) gathered together around 200 high-performing textile factories that continuously produced stockings, lingerie, knitwear, hats, cotton, wool fabrics, linen, hemp, and more, placing our country among the top international exporters of premium clothing catering to audiences across a range of categories.

Calculating based on the number of employees—especially female employees (800,000 by the end of the '80s)—working conditions (in three shifts, including Saturdays and Sundays), the number of invention patents, and production capacity—at times reaching 1 million pieces per month in a single enterprise—when it came to textiles Romania at this time could easily have been considered Europe's most productive (and best-dressed) country.

About ISCOADA
ISCOADA is a publishing platform that hosts written articles and multimedia materials that present, in a synthesised and accessible format, research in anthropology and related socio-human disciplines. ISCOADA's mission is to fight against social polarity by deepening the various practices, phenomena and issues of human societies.

Clothes Make the Man, Providing Pride for the Maker

"It was also delivered domestically, but very little. Most went to Germany, then to France and the United Arab Emirates." — former worker, Timișoara Textile Factory

Depending on the region and the amount of local investment in production equipment, between 60% and 80% of the volume achieved by the textile industry during the communist period was exported.

This was possible due to a period of expansion and modernisation in the early '70s. The 1 Iunie children's knitwear factory in Timișoara, for example, reached its peak between 1975 and 1985, increasing its production capacity by 80% and reaching a record number of 4,800 employees. Over 90% of those employed were women, often at the beginning of their professional careers.

"I worked at 1 Iunie when I was a girl. I think I was 16, maybe 15. I worked in sewing, and well, I already knew how to sew because I had a machine at home, but it was one with pedals. When I got here, I loved it, and when I saw how well those machines ran I caught on immediately, and all the supervisors liked me. Then, after a day or two, they put me on exports. Boys' and men's underwear, things like that." — former worker, 1 Iunie

This example is not singular; all textile factories in Banat, even those still active, like the Timișoara Textile Factory, delivered finished products to international markets overwhelmingly, with quality standards far above national ones. Although local raw materials were used, Romanians' access to export-quality textiles and knitwear was limited, only possible through informal purchasing methods specific to the era (under-the-table procurement), worn mostly by factory employees and their acquaintances or friends.

"What was good and high quality rarely reached Romanians, so if you had a contact in the factory at that time—and maybe even now, I don't know—you would be sent a piece of high-quality fabric. You'd go there, say your name was Simionescu, they'd give you the fabric, and you'd give them the money. That's how it worked. Some of it surely went to those fashion houses where they had tailors, but, you know, less." — former engineer and department head, Industria Lânii SA

Compared to the current period of decline in Romania's textile industry (due to exploitation, lack of liquidity, the volatility of international markets, and difficult-to-meet EU regulations), exacerbated by the exaggerated consumption of imported clothing (fast fashion and ultra-fast fashion phenomena), being involved in the production process of Romanian-made clothes in the communist era was in itself a form of local pride and professional fulfilment. These were considered to be of the highest quality and were globally appreciated for the quality of their materials, designs, execution, and stitching.

"Yes, only the wool was from Romania, and we sent the goods for export. I got a suit and pants for my husband. The fabrics were very good; that's why we worked mostly for export... the showrooms were always well stocked... but mainly we worked for export, like most factories. I have a very nice winter suit made of that fabric; I got it from the factory's creation department... it was a more limited production, not meant for big sales, but we, the workers, had access." — former weaver-spinner, Industria Lânii SA

Seemingly drawn from the propaganda arsenal of the time, the profound sense of belonging to a shared past among former Timișoara's textile workers in the socialist factories is fueled, on the one hand, by the exclusive nature of their work—which was mainly for export—and, on the other hand by the experience, training, and guidance obtained over time in the enterprises where they worked.

"It was something extraordinary for us. We were proud. Whenever I have entered a store after the revolution or gone to a mall, I just go for fun, but I don't feel the same pleasure, it doesn't satisfy me. What we worked on compared to the rubbish now, I mean in terms of quality... It's incomparable. I'm sorry I don't have anything to show you, so you could see the quality that was made at that time and compare it to the quality of what's out there now."— former workshop head, Bega Confecții Factory

Nostalgia for the Process

"If you didn't meet the quota, you weren't in the five-year plan. A five-year plan is five years of production at the highest standard... to be in first, second, third, fourth place... to be on the honour board. We exceeded the quota, and we had fairly high salaries. If I had a salary or pension like I had back then, I'd be a lady now."— former worker, Cotton Factory

Regardless of the positions held in different sectors of production, the machines they worked on, the shifts, or the commutes they often made from Timiș County localities, memories of professionalisation and continuous improvement in the industrial environment dominate discussions and recollections from this era. The work processes they engaged in, as well as the qualifications and recognition they received, were often mentioned as the motivation for staying in the same job for decades.

The value placed on work, relationships with superiors, and active participation in a transparent creation process were the main reasons workers dedicated their lives to production, showing up each morning at 6:00 a.m. Hired immediately after finishing general, high school, or vocational studies—usually around ages 16 to 18—new employees began with practical training internships. Based on their abilities and progress, they were assigned to specific production lines, sections, and machines.

"At first I joined the cutting section, meeting the quotas and earning the salary of those working there. After a piece came out of the cutting machine, other women packaged it, placing the pants, hat, and all components needed for a set. Then the chief accountant decided it was a shame for me to stay there and moved me to the unfinished goods warehouse, where I worked with uncut bales. There, I trained people who moved goods for cutting, finishing, and dyeing... there were two drivers... I handled their salaries and tracked entries and exits, first from knitwear, then from dyeing, and then from the other sections, and so on."— former accountant, 1 Iunie

Even after half a century, retired workers vividly recall their experiences and the general atmosphere in former socialist enterprises. Bonds with colleagues, superiors, and even machines gained emotional significance, as captured by a comment from a former administrator from 1 Iunie: "They worked in Germany and returned to see if the factory was still there, kissing the machine they once operated." A former workshop head from the same factory, meanwhile, remembers a social reality where after work "you left tired but not stressed."

"I worked in several key stages. The first was on the 'triploc,' or three-thread machine, which stitched and simultaneously trimmed excess fabric from each piece. After mastering the three-thread stage, I moved to other tasks, like the linear machine, the tack machine—which mimicked hand sewing—and the Rimoldi, a machine that made elastic seams on T-shirts. Each machine served a distinct purpose. At one point, I became frustrated, feeling like a 'ping-pong ball' being moved from one stage to another. As a child, I didn't realise this experience would later be invaluable." — former worker, 1 Iunie

Contrary to dominant post-1989 narratives, the relationship between local management (factory directors) and central authorities in Bucharest was not strictly hierarchical but

involved continuous negotiation of work plans and quotas. Often, local production and performance influenced significant decisions at a central level.

Likewise, portrayals of socialist workers as unmotivated, dissatisfied, or alienated within an uncompetitive system that hindered professional growth are challenged by firsthand accounts. Those who spent their lives around machines and production lines describe their work as fulfilling and rich, and have emotionally significant memories of community.

Community, Organisational Culture, and Enviable Benefits

"It was a harmonious life, with big-hearted people, where we understood each other, collaborated, and sought advice to progress. In our free time, we'd take trips to Herculane, Orșova, Moneasa, and Muntele Mic." – former worker, Cotton Factory

In addition to trips organised by the unions, employees also enjoyed private events, such as birthday celebrations, holiday festivities, artistic performances, water polo and volleyball matches, sports competitions and swimming. Union-sponsored bonuses, gifts, coastal vacations, leave, and facilities for mothers were integral to the enterprise culture.

As this was a predominantly female workforce who worked in fast-paced shifts (two to three per day), industrial complexes provided daycare centres, kindergartens, and cafeterias. Colleagues and management showed empathy and flexibility regarding family situations—a prominent memory among female workers. Additionally, employees had access to specialised medical services, including a gynaecologist at the factory dispensary.

"I had children, and they understood. They let me take leave when I needed it, allowing me time with my kids. My supervisor was very understanding." — former worker, 1 Iunie

Housing and financial security were also priorities, with the socialist state's housing policy ensuring accommodation for relocated rural workers before the 1970 cooperative reform. Textile factories in Timișoara offered options like studio apartments or dormitory rooms, which still exist today. Stable, satisfactory wages for all staff levels, along with paid overtime, internships, training, international exchanges, and innovation competitions within departments contributed to a collective memory of belonging, interpersonal connections, and a distinct social reality.

"*The salaries were good... very good. With just one salary, I took my family on a two-week vacation and even acquired an apartment by the sea*" – former workshop head, 1 Iunie

"If you open it now, we'll come back."

This strong, idealistic statement from former employees of the 1 Iunie knitwear factory, who emigrated after privatisation and later returned for visits, reflects two ongoing themes in Romanian society: nostalgia for the "golden age" with its complex mix of challenges, social connections, and emotions, and the mass exodus of Romanian workers to Western Europe in the post-1989 transition.

"I had friends from all walks of life, many of whom I still keep in touch with. Yesterday was St. Mary on August 15, and I made numerous calls; on St. Constantine and St. Helen, I received 50-60 calls. I only have fond memories of the factory... it had a past, a present, and a future." — former craftsman, Cotton Factory

"Even now, I keep in touch, although I am retired. We helped each other through the production process. It was tough but also fulfilling." — former engineer, Industria Lânii SA

Those who remained at home after the collapse of Timișoara's socialist textile industry, either retraining or retiring, speak of social relationships that they have maintained over time, about the bonds they built and nurtured. While this took place within a political regime often considered oppressive, those who lived through it speak of cooperation, mutual aid, and resilience. As always—in the shadow of eras, buildings, and constructed spaces— it's the people who keep the memory of these places and times alive.

Note
This material is based on over 20 interviews (filmed and transcribed) with former textile industry employees and is part of the *Woven Secrets* curatorial program by the FABER cultural centre in Timișoara. This initiative frames Romania's textile industry as a complex sector that reflects broader economic trends across Europe and global production systems. The accompanying exhibition highlights design's potential to transform production models and showcases innovative approaches to making, producing, and collaborating. It is open until November 24 at FABER, Timișoara.

10 Addendum

10.1

Analyzing The Shifting Landscape Of The Romanian Textile Industry In Global Context (1962–2022)

RESEARCH

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The global textile industry in Romania has experienced significant transformations over the past sixty years, shifting from a major global trade component to a relatively smaller share of economic activity. This paper investigates the evolution of textile trade, highlighting the trends, complexities, and economic dynamics within the sector. The analysis traces the trajectory of the textile industry in the context of global trade growth, examining shifts in production geography, value addition, and the industry's changing role in global supply chains. The methodology utilizes a combination of historical data, complexity indices, and hierarchical clustering to explore how textile products and production geographies evolved in response to broader economic and political changes. The major findings indicate a clear divergence between the growth in absolute textile production and its diminishing relative contribution to global GDP and trade. The industry's evolution has been influenced by factors such as labor cost dynamics, trade liberalization, foreign direct investment, and integration into global supply chains, leading to geographic shifts in production and changing competitive advantages. By uncovering these trends, the paper contributes to a deeper understanding of how traditional sectors adapt and reposition themselves within an increasingly complex global economy.

INTRODUCTION

The global textile industry has undergone significant transformations over the past six decades, shaped by broader processes of globalization and technological advancements. Between 1962 and 2022, global trade as a proportion of global GDP showed a steady upward trend (Komlosy, 2021), indicating growing economic interconnectedness (Baccaro et al., 2022; Krugman, 1991). However, the textile sector diverged from this overall trend (Alexander & Lund-Thomsen, 2020), demonstrating a different trajectory characterized by both growth in absolute terms and a decline in relative importance within global trade (Curteza, 2024). We aim to understand the complex dynamics underlying the evolution of the Romanian textile industry, paying particular attention to its changing role in global value chains (Brooks, 2013) and its specific trajectory within European context (Grodzicki & Geodecki, 2016).

The evolution of the textile industry is intrinsically linked to global shifts in economic complexity and trade dynamics. Existing literature, such as Hidalgo et al. (2007) and Hausmann & Hidalgo (2011), has introduced the concept of the "product space" to explain how different industries, including textiles, evolve in relation to national capabilities and accumulated tacit knowledge. The textile industry's trajectory, particularly the relative decline in its share of global GDP, reflects broader structural shifts towards sectors with higher technological intensity and added value (Abernathy et al., 1999; Hidalgo, 2021). Additionally, Ban & Adăscăliței (2022) and Bohle & Regan (2021) provide insight into the post-socialist transformation that influenced the development of industries like textiles in Central and Eastern Europe, highlighting Romania's integration into global markets after 1990 especially through FDI-led development.

Despite the substantial body of work exploring global trade integration and the economic complexity of various sectors, there remains a gap in understanding how specific traditional industries, like textiles, adapt and maintain relevance amid the rise of more complex sectors. The post-socialist transformations of Romania, coupled with its positioning within European and global textile supply chains, offers an illustrative case to bridge this gap and understand the how traditional industries diversified and transformed within the economic landscape.

The primary objective of this paper is to explore the evolution of the global textile industry between 1962 and 2022, with a particular focus on Romania's role within this context. Specifically, it aims to: (1) examine the trends in global textile exports and their share in global GDP; (2) analyse the geographic shifts in textile production and exports, particularly the rise of Asia and the decline of Western Europe; and (3) evaluate Romania's integration into global textile trade, considering its post-socialist economic transformations, (4) and map the geography of the sector by 2022.

To achieve these objectives, the paper employs a mixed-methods approach that integrates quantitative analysis of trade data from sources like the World Bank and the Atlas of Economic Complexity, with qualitative insights drawn from relevant literature on economic complexity, globalization, and post-socialist transformations. The quantitative analysis includes time-series evaluation of textile export values, trade shares, and economic complexity indices, while the qualitative analysis contextualizes these trends within the broader literature on global trade and economic development.

The analysis reveals several key findings. First, the share of global trade in GDP showed a consistent upward trajectory from 1962 to 2022, highlighting the growing interconnectedness of economies (Baccaro et al., 2022). However, the textile industry's share of global GDP followed a different path, initially increasing but then declining as higher-value-added industries gained prominence (Gereffi & Memedovic, 2003; Schamp, 2016). Despite this relative decline, the absolute value of global textile exports grew substantially, from $451 billion in the mid-1990s to $1.4 trillion by 2021, indicating the industry's resilience and ongoing demand.

Second, the geographic distribution of textile production experienced significant shifts, with Asia, led by China, India, and Bangladesh, becoming the dominant exporter by leveraging lower labour costs and expanding manufacturing capacity. Western Europe's role diminished, though it maintained a significant presence in high-value-added segments (Abernathy et al., 1999; Alexander & Lund-Thomsen, 2020). Romania's experience reflects broader trends within Central and Eastern Europe, where the transition from centrally planned to market economies enabled increased integration into global supply chains. Despite this integration, Romania's textile industry remained largely focused on labour-intensive, low-wage production, which constrained its ability to transition into higher-value segments.

Finally, the analysis of Romania's textile sector within the context of the product space reveals that, while the sector showed strong comparative advantage (RCA) during the 1990s and 2000s, its complexity remained below that of other industries such as electronics and vehicles (Hidalgo, 2021). This highlights the challenges faced by traditional sectors like textiles in adapting to changing global economic dynamics and moving towards more complex production capabilities.

The findings of this study emphasize the importance of understanding traditional industries within the evolving landscape of global trade. The textile industry's trajectory, particularly in Romania, underscores both the resilience of labour-intensive sectors and the challenges they face amid economic restructuring and the rise of high-value industries. By analysing the "woven secrets" of the textile industry, this paper contributes to the broader literature on economic complexity and post-socialist economic transformation, providing insights into the persistence and diversification of traditional industries in a technological changing economy.

The study is structured into several key sections, each designed to systematically address the various facets of the global textile industry's evolution and its economic impact. The first section offers a historical overview of the textile industry's role in global trade from 1962 to 2022, highlighting shifts in production, trade volume, and economic significance. The second section focuses on regional contributions, analysing the shifts in dominance between Western Europe, Asia, and Central and Eastern Europe. This is followed by a detailed exploration of Romania's integration into global textile trade, examining its historical fluctuations, integration into European markets, and current export-import dynamics. The analysis further includes a mapping of Romania's textile business verticals, identifying key industries and their role in global value chains. Finally, the paper presents the spatial distribution of textile production within Romania, illustrating regional disparities and the geographic concentration of textile-related economic activities. By structuring the analysis in this way, the paper aims to provide a comprehensive understanding of both macro and microeconomic trends in the textile industry, highlighting Romania's evolving role within this context.

LITERATURE REVIEW

The global textile industry has witnessed profound transformations over the past six decades, influenced by globalization, technological advancements, and shifts in economic

policies. While global trade has increased as a proportion of global GDP, the textile industry's share has followed a divergent path, growing in absolute terms but declining in relative importance due to structural shifts toward higher-value-added and technologically intensive sectors (Hidalgo, 2021; Krugman, 1991). This phenomenon underscores the complexities faced by traditional industries like textiles in adapting to an increasingly interconnected and technologically driven global economy (Françoso et al., 2024).

The integration of CEE countries into global value chains (GVCs) exemplifies the challenges and opportunities presented by globalization. Romania's textile sector, in particular, serves as a case study for how traditional manufacturing industries in CEE navigate GVCs while encountering barriers to economic upgrading. Nas & Moalla (2022) examine vertical specialization within the ICT sectors in CEE, revealing patterns relevant to the textile industry. Their findings suggest that while CEE countries leverage proximity and cost advantages to integrate into GVCs, they often remain confined to basic production tasks, limiting technological advancement and value addition. Similarly, Frensch et al. (2016) explore trade in parts and components across Europe, highlighting how CEE countries like Romania function within GVCs as suppliers of intermediate goods. This role facilitates integration into global markets but constrains these economies to lower-complexity tasks within the textile sector. The specialization in labor-intensive production underscores a dependency on European markets and reflects core-periphery dynamics within the EU (Grodzicki & Geodecki, 2016).

The core-periphery framework provides insight into the economic relationships within the EU, where Western European countries constitute the 'core' and CEE countries the 'periphery.' Grodzicki & Geodecki (2016) discuss how CEE economies function as peripheral suppliers within European GVCs, maintaining a comparative advantage in labor-intensive production due to lower wages. This arrangement reinforces dependencies on Western European markets for exports and limits control over higher-value segments of the supply chain. Schamp's (2016) study on the spatial restructuring of the European footwear sector illustrates these dynamics further. The relocation of manufacturing to CEE countries, including Romania, positions them as hubs for low-wage manufacturing supporting Western European industries. This outsourcing strategy hinders sectoral advancement and exposes CEE countries to competitive pressures from Asian economies, which exert downward wage pressures globally.

Apparel and textiles have been identified as potential catalysts for economic development in CEE countries, contingent upon favorable GVC participation and regional integration. Whitfield (2021) examines the apparel industries' role in industrialization across CEE, Turkey, and North Africa. They argue that while integration into GVCs offers opportunities, countries like Romania remain focused on basic assembly and low-wage production, sustained by proximity to EU markets and preferential trade agreements. For economic upgrading, Whitfield (2021) suggest that targeted policies are necessary, including investment in technology and skills to enable the sector to move beyond its current low-value position within GVCs. Martinelli (2023) extends this argument by emphasizing that without substantial skill development and technological investments, Romania's textile sector is unlikely to overcome the structural limitations of GVC integration. The persistent focus on labor-intensive tasks within the textile supply chain underscores the need for institutional shifts toward skills-based industrial policies.

The challenges faced by traditional industries like textiles in adapting to changing global economic dynamics are well-documented. Fernandez-Stark et al. (2022) highlight that while CEE countries have integrated into global textile GVCs as suppliers of labor-intensive tasks, the lack of local value retention poses a long-term risk to sectoral sustainability. Upgrading requires policy interventions focused on fostering innovation, skill enhancement, and the adoption of advanced technologies. Coe & Yeung (2015) framework on GVCs suggest that reliance on foreign investment and technological inputs limits sectors like Romania's textiles from moving up the value chain. Their GPN model advocates for local capability-building

policies that could help countries like Romania capture higher-value production stages, such as design and marketing, thus enabling them to transcend their peripheral status. Which indeed is what happened, Romania transitioned towards a FDI-led export reliant growth model (Baccaro & Hadziabdic, 2023; Ban & Adăscăliței, 2022).

Emerging discussions on sustainability and digital integration present alternative pathways for the textile industry in CEE countries. Alexander & Lund-Thomsen (2020) propose that adopting sustainable practices within GVCs could allow countries like Romania to redefine their roles, catering to the growing demand for eco-friendly production. By prioritizing sustainable manufacturing, Romania could differentiate its textile exports and secure a more competitive position within GVCs, aligning with broader European trends toward sustainable economic development. Similarly, Kwon & No (2023) highlight the potential of digital integration in GVCs to transform supplier roles, even within traditionally labor-intensive industries like textiles. They emphasize that first-tier suppliers can leverage digital technologies to upgrade their GVC positions, offering a viable strategy for Romania's textile sector. Digital integration could mitigate reliance on low-wage competitiveness by enhancing productivity and enabling access to higher-value segments of GVCs.

Despite extensive research on GVC integration and the challenges faced by traditional industries, there remains a gap in understanding how specific traditional sectors, such as Romania's textile industry, adapt and maintain relevance amid the rise of more complex industries. While studies have examined the limitations of GVC participation and the potential for upgrading through technology and sustainability, limited exploration exists on the mechanisms through which traditional industries persist and transform within an increasingly complex global economy. This paper addresses this gap by analyzing the evolution of the Romanian textile industry within the global context from 1962 to 2022. It examines how traditional sectors adapt to economic restructuring and the rise of high-value-added industries, contributing to a deeper understanding of the persistence and diversification of traditional industries in a technologically changing economy.

The transition in Romania did not happen primarily through digitalization, as suggested by Alexander & Lund-Thomsen (2020) and Kwon & No (2023), but through related diversification in the sense of Boschma (2016) and integration with other industries. We follow (Ban & Adăscăliței, 2022) to argue that Romania's FDI-led growth model facilitated this integration, allowing the textile sector to become a key component in more technologically advanced industries, such as automotive and aerospace manufacturing, where textiles are essential for components like upholstery and composites. This layered and often concealed influence highlights the sector's transformation and key role in supporting other industries. Romania's textile industry illustrates both the resilience and limitations of such industries within the modern global economy. By investigating the specific trajectory of Romania's textile sector, this paper contributes to filling the literature gap, offering insights into how traditional industries have repositioned and maintain competitiveness in an increasingly complex global market, trough becoming woven into new technologically advanced sectors.

THE GLOBAL TEXTILE INDUSTRY

Between 1962 and 2022, global trade as a proportion of global GDP proved a steady upward trajectory, reflecting the growing interconnectedness of economies. All values in this text are expressed in current USD and are deflated to 2015 value of the GDP of the US economy, and referred as real USD. As visible in Figure 1, in 1962, global trade accounted for roughly 8% of global GDP, a figure that would gradually rise over the following decades. The most significant growth occurred during the 1980s and 1990s, a period characterized by increased economic liberalization and the expansion of global supply chains. By 1990, global trade had reached nearly 18% of GDP, a marked increase from earlier decades. This trend continued into the early 2000s, as global trade surged past 20%, culminating in a peak in

2008, when trade represented 31% of global GDP. The global financial crisis of 2008 caused a temporary decline, but global trade quickly rebounded and stabilized in the following years. By 2021, trade accounted for approximately 30.2% of GDP, before slightly decreasing to 29.9% in 2022. These shifts indicate the significant transformation in global economic patterns over the past sixty years, with trade increasingly becoming a central driver of global economic activity.

In contrast, the global textile industry followed a different trajectory during the same period. As Figure 2 points, in the 1960s, textiles were a significant component of global trade, comprising approximately 10.6% of global exports in 1962. However, the textile sector's relative importance has gradually diminished over time. The sector's share of global GDP was relatively stable, starting at 0.9% in 1962 and reaching a peak of 1.5% in the mid-2000s, coinciding with the peak of global trade. Nevertheless, since then, the share of textiles in global GDP has gradually declined, settling at 1.3% in 2022. Although the relative share of textiles in global trade has decreased, the absolute value of global textile exports has increased substantially. In the mid-1990s, the global textile market was valued at approximately $451 billion, but by 2021, this figure had grown to $1.4 trillion. This expansion in market size illustrates a significant increase in global demand for textiles, tripling over the decades.

Over the past six decades, global trade as a share of GDP has risen markedly, highlighting the deepening economic integration and increasing globalization. The global textile market expanded by 210% from 1995 to 2021, driven by large-scale investments in infrastructure, technology, and logistics that enabled increased production and distribution. The sustained global demand for textiles indicates the industry's capacity to adapt to changing economic conditions and maintain its relevance in the global economy.

In contrast, the textile sector, while experiencing significant absolute growth, has seen its relative share of both global trade and GDP decline. This divergence between overall global trade and the textile industry's position within it suggests that, although textiles remain an important sector, other industries have grown more rapidly, leading to a reshaping of the global trade landscape. The evolving composition of global trade reflects broader structural shifts in the global economy, where sectors with higher added value have gained prominence.

The sector's absolute expansion is juxtaposed with a declining relative share in global trade and GDP, reflecting both its enduring importance and the changing dynamics of global production. The divergence between global trade growth and the textile sector's relative decline points to the broader processes of globalization and economic restructuring, where the composition of trade and economic activity has shifted in favor of other emerging industries.

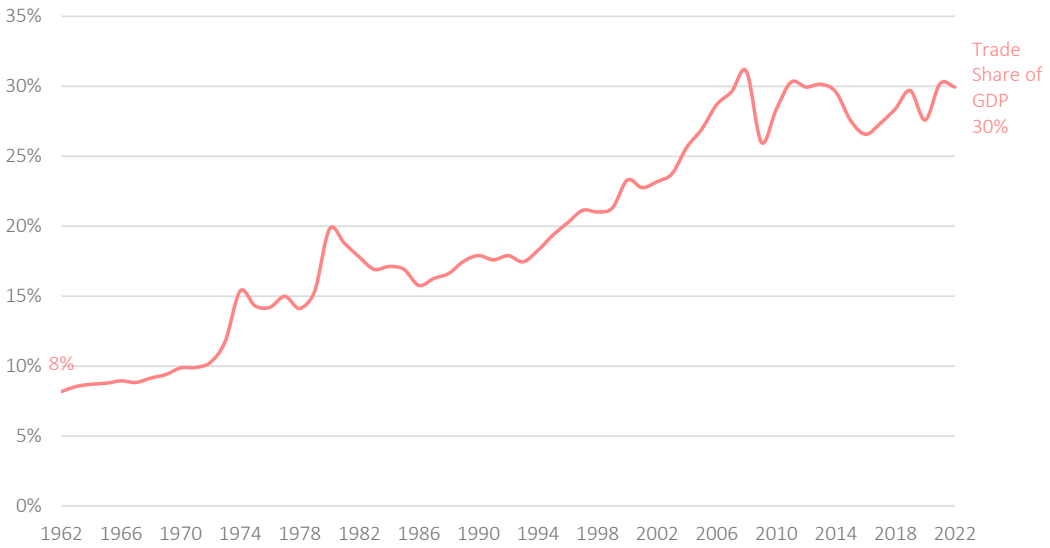


FIGURE 1

Share of Global Trade as a Percentage of Global GDP

Data sources: World Bank Data, tables: BX.GSR. GNFS.CD, NY .GDP .MKTP .CD, NY .GDP .DEFL.ZS.

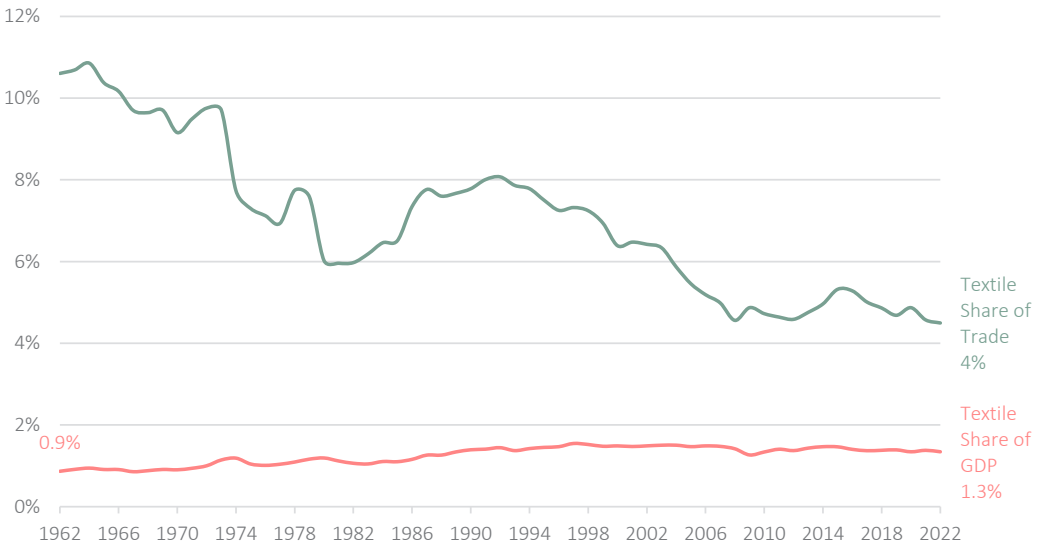
Technical details: All values were expressed in current USD and deflated to 2015 US GDP .

FIGURE 2

Share of Global Trade in Textile Products as a Percentage of Global GDP and Global Exports

Data sources: World Bank Data, tables: BX.GSR.GNFS.CD, NY.GDP.MKTP.CD, NY.GDP.DEFL.ZS; Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.



THE GLOBAL GEOGRAPHY OF TEXTILE INDUSTRY

The most significant contributors to global exports were the countries from Europe and Asia, key players in increasingly globalized supply chains. Countries within these continental blocks have specialized in different aspects of textile production, sometime leveraging comparative advantages such as lower labour costs or, on the contrary advanced manufacturing technologies. Figure 3 points to Western Europe historically dominant role in global textile exports, saw its share of the market gradually decline, though it remains significant in absolute terms. Western Europe's textile exports grew from $38.5 billion USD in 1962 to $320.1 billion USD in 2022, maintaining a substantial share of the global market. However, as Figure 2 illustrates, this growth did not keep pace with that of Asia, whose share of global textile exports rose from 24% in 1962 to 55% by 2022. Western Europe's share, by contrast, dropped from 47% in 1962 to around 27% in 2022. This shift reflects broader structural changes in the global economy, with production increasingly concentrated in Asia due to lower labor costs and expanding manufacturing capacity, while Western Europe focused more on higher value-added textile goods and retained a strong foothold in design and innovation.

Central and Eastern Europe also saw considerable growth in its textile exports, although its share of the global market remained relatively modest compared to Asia and Western Europe. In 1962, Central and Eastern Europe's textile exports were valued at just over $1 billion USD, accounting for approximately 1.2% of the global market. By 2022, this figure had risen to $67.9 billion USD, representing about 6% of the global textile market. The region's growth is linked to its role as a supplier of relatively low-cost labor within Europe, particularly during the transition from centrally planned economies to market economies in the 1990s and 2000s. Countries like Romania and Poland became important centers for textile production during this period, although the region never fully captured the scale of export growth seen in Asia.

The rise of Asian countries in the textile sector is closely linked to the global shift in production toward regions with lower labor costs, a hallmark of the ongoing globalization of supply chains. China, India, and Bangladesh emerged as dominant players in the textile market during the 2000s, taking advantage of their competitive labor markets and the growing demand for cost-efficient manufacturing. This shift marked a broader trend in global production, where comparative advantages in labor costs played a critical role in determining global trade flows. As a result, indicated by Figure 4, Europe's share of the global market declined from 42% in 1995 to 28% in 2021, while Asia's share grew to 2.2 times that of Europe by the same year These trends suggest that the market size has expanded steadily with the demand for textiles being robust over the last decades, and more importantly, shows the ongoing globalization of the textile

supply chain. While the global textile market has grown in absolute terms, the distribution of this growth across regions reveals the increasing importance of Asia and the relative decline of traditional textile producers in Europe and the Americas. The figures provide a clear visual representation of these trends, with Asia's rapidly expanding export volumes driving the overall growth of the global market, while other regions have experienced more gradual increases in textile exports. These shifts reflect broader economic trends, including the relocation of labor-intensive industries to lower-cost regions and the increasing specialization of countries in specific stages of textile production, from raw materials to finished goods.

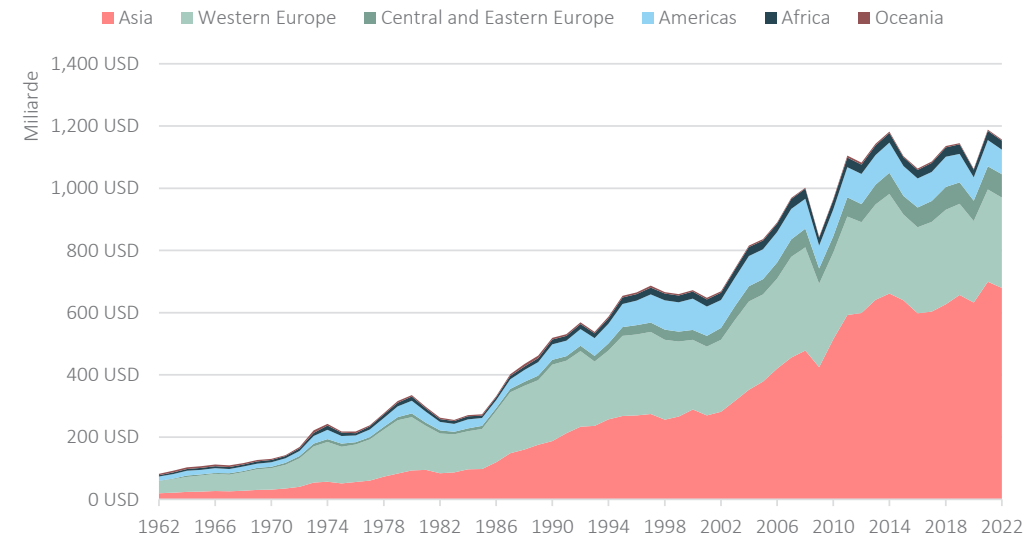


FIGURE 3

Export textile market volume increase of each continent.

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.

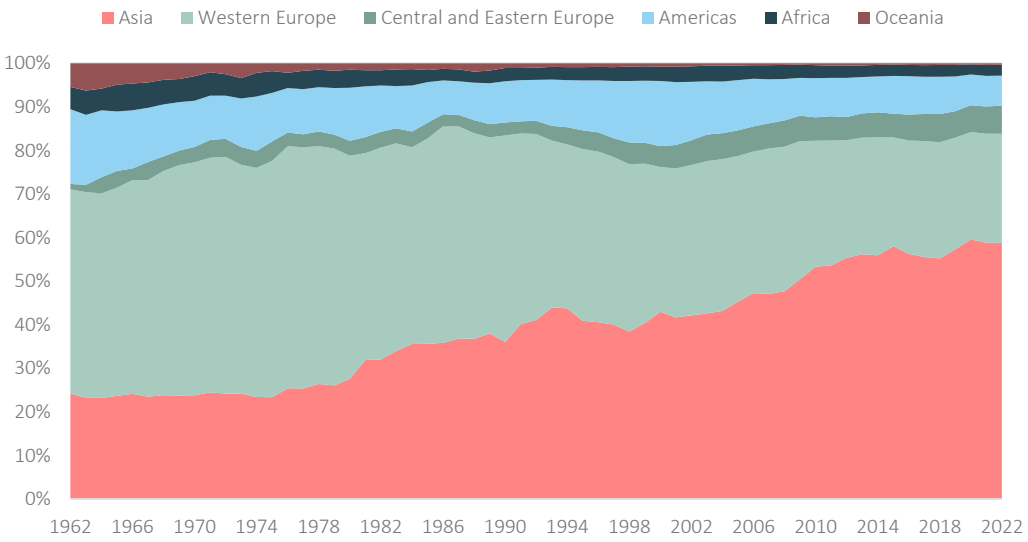


FIGURE 4

Export textile market share of each continent.

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.

ROMANIA'S INTEGRATION INTO GLOBAL TRADE: 1962–2022

Romania's real GDP expanded from $97 billion in 1962 to $260 billion in 2022, marking a threefold increase over the period. In contrast, global GDP grew ninefold during the same timeframe. Romania's economic trajectory exhibited significant fluctuations. In the 1970s, GDP peaked at approximately $153 billion, followed by a sharp contraction throughout the 1980s and early 2000s, dropping to around $93 billion. A robust recovery occurred during the 2010s, with GDP surpassing the 1970s peak, reaching $211 billion, and continuing to grow to $260 billion by 2022.

Imports and exports mirrored this fluctuating pattern in relation to GDP, represented in Figure 5. Romania's share of global exports peaked in the 1970s at 0.34%, before experiencing a steep decline in the 1980s and 1990s, bottoming out at 0.22%. These declines were closely linked to the broader economic disruptions and political instability associated with the collapse of the communist regime in the early 1990s. However, the mid-1990s marked the beginning of a steady recovery, driven by Romania's reintegration into the global economy, trade liberalization policies, and steady opening to foreign direct investment (FDI). In the early 2000s, the recovery continued modestly, with Romania's export share averaging around 0.28%. A marked acceleration in export growth began in the mid-2000s, especially following Romania's accession to the EU in 2007. By 2022, exports had surpassed $100 billion, with imports also growing to $109 billion. The sharp rise in GDP during this period, reaching $267 billion by 2022, highlights Romania's increasing integration into global markets. By the same year, Romania's global share of exports reached 0.49%, while its share of imports stood at 0.43%. This growth underscores Romania's expanding role in international trade, primarily as an exporter.

Romania's exports and imports as a share of GDP from 1962 to 2022, as depicted in Figure 6, reflect the country's deepening integration into global trade networks. Prior to the 1990s, Romania's trade-to-GDP ratio was relatively low, though comparable to global trade-to-GDP ratios. While it may be tempting to attribute this low pre-1990s integration solely to the inward-looking economic policies of socialism, the data indicate that Romania's trade performance must be understood in the context of global trade dynamics. During the communist era, exports and imports remained under 10% of GDP. However, in the 1970s, Romania pursued an ambitious export-oriented strategy, like other developing countries at the time. This strategy backfired in the 1980s, largely due to external pressures, particularly the soaring value of the US dollar. The inflationary spike in USD, followed by the Federal Reserve's aggressive interest rate hikes, severely impacted countries with significant USD-denominated debt, including Romania. The resulting economic burden exacerbated Romania's financial difficulties, contributing to the economic instability that defined much of the 1980s and 1990s.

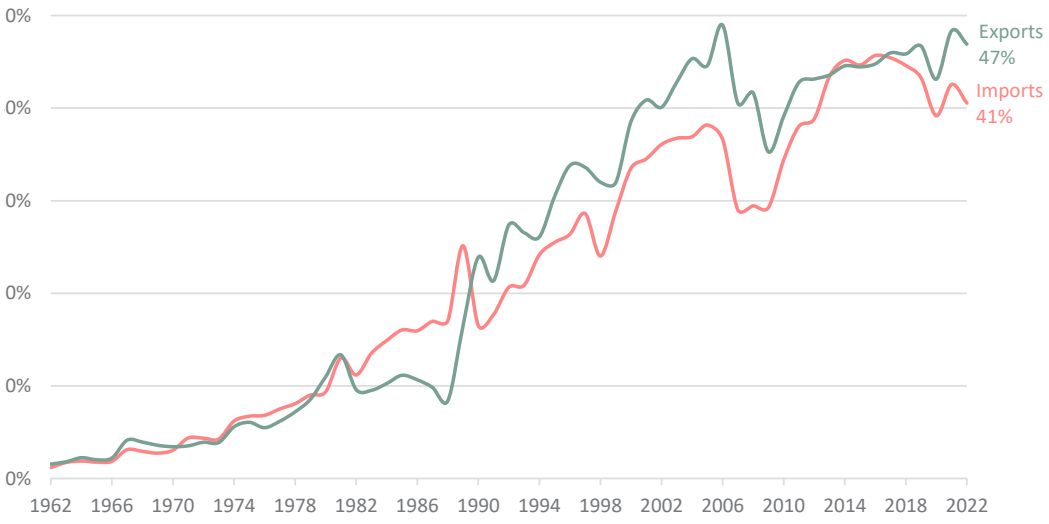
Romania's accession to the European Union in 2007 marks a pivotal point in its economic history, with exports and imports as a share of GDP increasing dramatically in the following years. By the early 2000s, exports and imports had reached approximately 40% of GDP, and by 2022, exports accounted for 46.9% of GDP, while imports made up 41%. This indicates a significant degree of trade openness, with Romania now highly dependent on exports for its economic performance.

FIGURE 5

Romania's Share of Exports and Imports from GDP

Data sources: World Bank Data, tables: BX.GSR.GNFS.CD, NY.GDP.MKTP.CD, NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP.



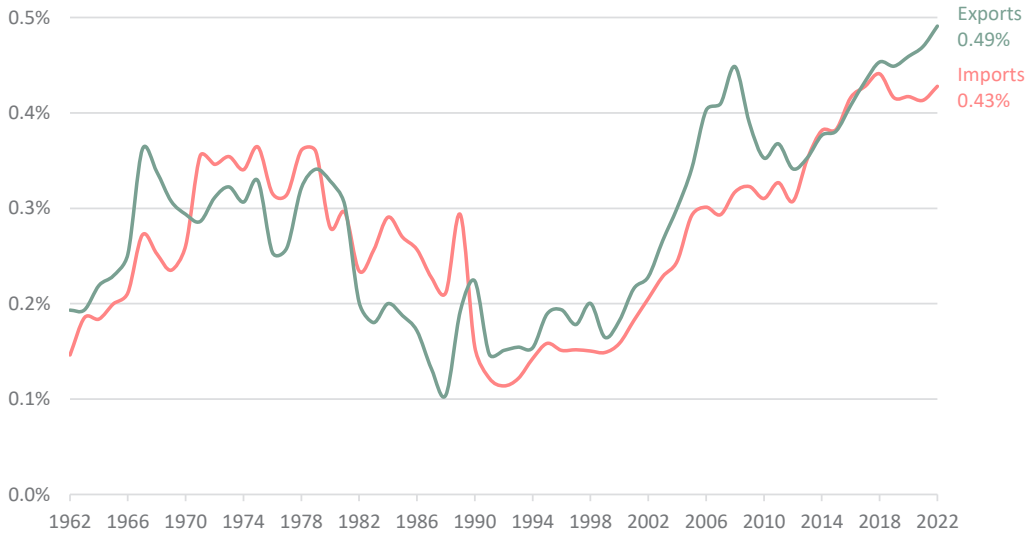


FIGURE 6

Romania's Share of Exports and Imports from Global Sections

Data sources: World Bank Data, tables: BX.GSR.GNFS.CD, NY.GDP.MKTP.CD, NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP.

TEXTILES IN ROMANIA AND CEE COMPARED TO EUROPE

Figure 7 presents the market volume of textile exports in millions of USD, contrasting the performance of Central and Eastern Europe as a region with that of Romania specifically. In 1962, textile exports from Central and Eastern Europe amounted to just over $1 billion USD. The region's export volume increased modestly until the 1990s, at which point there was a dramatic acceleration. By 2022, Central and Eastern Europe's textile exports reached $74.8 billion USD, reflecting the region's growing importance within the European and global textile markets.

This rapid increase can be linked to the post-communist transformations in the 1990s and early 2000s, when many Central and Eastern European countries repositioned their economies as providers of labour-intensive providers within the continental and global supply chains. These developments made the region a significant production hub for textile goods, particularly as countries like Poland, the Czech Republic, and Hungary became important destinations for foreign direct investment in manufacturing. The region's relatively lower labor costs, proximity to Western European markets, and established industrial base made it an attractive option for textile production and exports. Romania, on the other hand, presents a more modest trajectory in terms of absolute export volumes. In 1962, Romania's textile exports were valued at around $250 million USD, and growth was gradual but steady throughout the communist era with the textile sector as a key sector for exports. In the 1990s Romania's textile export volumes grew sharply, peaking at around $7 billion USD in 2022. Despite this growth, Romania's textile exports have remained significantly smaller than the overall volume for Central and Eastern Europe.

Figure 8 shows the share of textile exports from Central and Eastern Europe and Romania as a proportion of the total European textile export market. In the 1960s, Central and Eastern Europe's share was relatively small, fluctuating around 5%, but by the mid-1990s, the region's share began to grow significantly. This growth is particularly marked after 2000, coinciding with the region's accession to the European Union and the increased integration of its economies into European supply chains. By 2022, Central and Eastern Europe accounted for 20.5% of Europe's textile exports, reflecting its status as a major production hub for the continent's textile industry.

Romania's share of the European textile market follows a different trajectory. In the 1960s, Romania held a small but stable share, hovering around 1%-2% of the European market. This share increased somewhat in the 1990s and 2000s as Romania's textile industry expanded,

driven by the same factors that supported growth across the region—namely, lower labor costs, market liberalization, and continental re-integration. However, despite these favorable conditions, Romania's share of the European market has remained modest, at around 1.9% in 2022. This limited growth in market share suggests that while Romania has benefitted from its role within European textile supply chains, it has not been able to scale its production capacity or shift into higher-value segments of the textile market to the same extent as some of its Central and Eastern European neighbors. Romania's textile exports remain largely concentrated in labor-intensive, low-wage production, which has constrained its ability to capture a larger share of the market.

FIGURE 7

The market volume of textile gross exports of Eastern Europe and Romania

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.

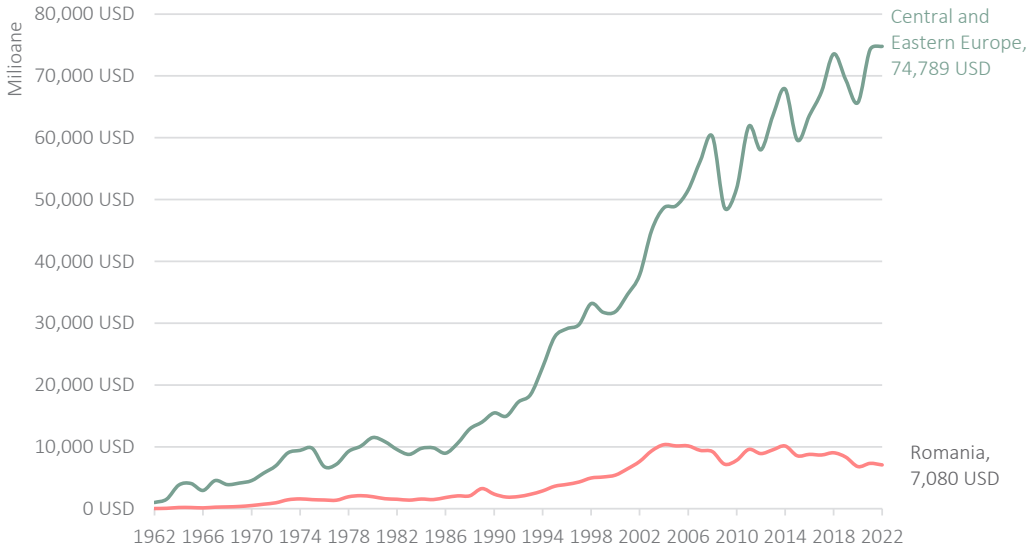
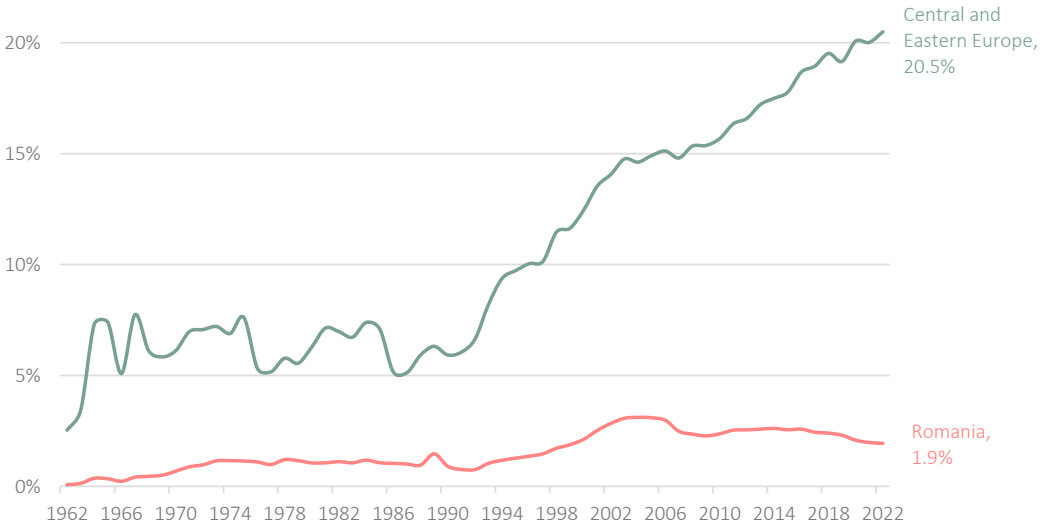


FIGURE 8

The share of textile gross exports of Eastern Europe and Romania out of the European market

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.



THE ROMANIAN TEXTILE INDUSTRY

Textiles played a central role in Romania's exports, becoming a key sector both during the 1970s economic boom, and in 1980s amid global currency turbulence. From the 1990s to the mid-2000s, textile exports held the highest share in Romania's export basket, accounting for 25% of total exports. By 1998, the prominence of textiles had increased significantly to 36%, making it the largest export category up until mid-2000s. However, in the post-2008 Global Crisis era, the textile sector's share significantly declined to 6.9% by 2021.

Based on the annual share of Romania's exports as a percentage of the global value for various product sections from 1962 to 2021 – depicted in Figure 9 –, and distinctively on the annual share within the Romania's basket – depicted in Figure 10 –, we have used hierarchical clustering analysis of the years, to categorized the into five distinct clusters that reflect changes in Romania's export structure over time, corresponding to major economic and political transitions. Both classifications yielded the same clustering of the years. Below are the clusters and the export dynamics observed in the charts:

Early Socialist Era (1962-1970) based on the exports suggest an agrarian-based economy, with early signs of industrial growth with an emerging Textiles and Chemicals sectors. During the 1960s, agriculture was the leading export sector, reflecting the largely agrarian economy that Romania had at the time. The share of agricultural products was significantly higher, reaching above 0.6% of global exports. Textiles were in the early stages of growth, while chemicals gradually began to gain a small but noteworthy presence. Mineral exports were also an important component, driven by Romania's emphasis on extracting natural resources.

The Developmentalist Industrial Era (1971-1978) marks the early stages of industrial diversification with the decline of Agriculture, and growth of Textiles and where metals, chemicals, started to grow. This period is characterized by a shift away from agriculture towards a more industrial-based export structure. Textiles experienced substantial growth, becoming a significant portion of exports by the end of the cluster period. Agricultural export shares started to decrease, signaling the beginning of industrial diversification. Metals and chemicals also started gaining momentum, reflecting Romania's industrial push during the socialist years. These sectors were instrumental in building a more diverse economy focused on heavy industry.

The Global Turbulence Era (1979-1988) showcases the use of the already developed industrial base to navigate the global turbulence of the 1980s, with textiles emerging as the dominant export, supported by the heavy industrial base. During this period, textiles became Romania's most important export, reflecting the country's integration into labour-intensive global supply chains. The sector's contribution peaked during the mid-1980s, reaching a significant share of global exports. Metals, chemicals, and machinery also grew during this period, showcasing Romania's increased emphasis on heavy industry, driven by centralized socialist economic policies.

The Market Liberalization Era (1990 to 2004) is a period when textiles increased steadily, starting at 0.46% in 1994 and reaching a peak of 1.27% of global exports in 2004 reaching $ 8.54 billion. This period marked a significant expansion in Romania's textile exports, making it the country's product category with the largest share in the global market at that time.

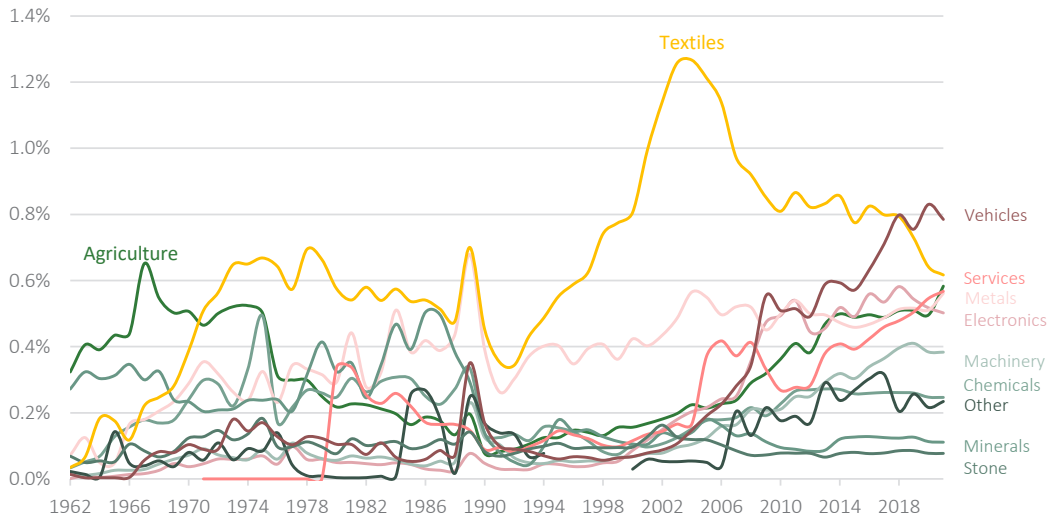


FIGURE 9

Annual Share of Romania's Exports in the Global Value of the Section (1962-2021, HS92 Sections)

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

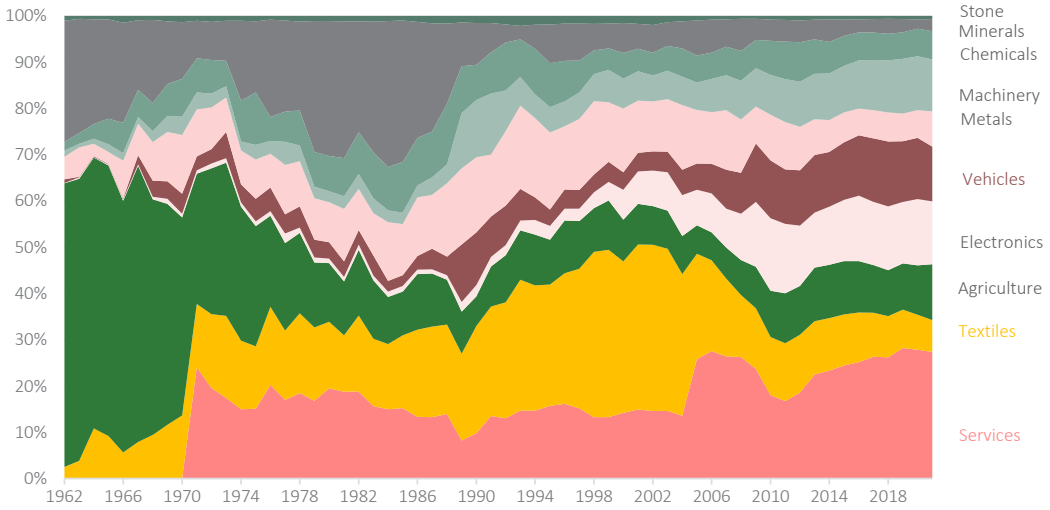
Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.

FIGURE 10

Annual Share of Romania's Exports in the Global Value of the Section (1962-2021, HS92 Sections)

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP. Data from the Atlas of Economic Complexity for 1962–1994 were classified under SITC2 and converted to HS92.



The period captures the restructuring of market and industrial relations, characterized by significant structural changes, including the initial peak and subsequent decline of textiles and the emerging Vehicles and Services. From 2001 to 2004, the share of textiles in exports fluctuated but remained substantial, peaking at 36% in 2002 (Figure 9). Metals, minerals, agriculture, and stones contributed smaller shares, collectively representing about 28% of the export mix. These were also Romania's most competitive exports as a share of the global economy, particularly metals and agriculture (Figure 10). However, overall, the total volume of exports was relatively small, at $9.54 billion, which was 26.9% of the GDP, and the products were capitalizing on cheaper labour costs and low complexity.

The era of opening to FDI (2005 to 2014) was characterized by fluctuations and a general decline in Romania's textile market share. After peaking in 2005, the global market share dropped to 0.85% by 2009, with the market value plateauing at an average of $8.60 billion, a level it has maintained to this day. Despite the relative stability of textile exports, a notable change occurred in 2005 when the services sector surged to 26%, surpassing textiles, which dropped to 23%. This shift was driven by an average annual increase of 22% in exports since 2000, largely due to Romania's improved ability to attract FDI investments. Much of the export growth was fueled by FDI-led companies, which also diversified the composition of exports. Electronics and vehicles saw moderate increases, further indicating this diversification. This trend continued in subsequent years, with services maintaining a dominant position, reaching 27% by 2006 and becoming the leading export sector by 2014. Meanwhile, textiles continued to decline, representing 20% of exports in 2006 and 17% in 2007.

In the export-led growth mode era (2018-2022) a gradual decline set in for the textiles from 2018 to 2022, culminating in a market share of 0.62% by the end of this period, amounting to $8.4 billion. Importantly, Romania's textile exports remained relatively stable around this value in the post-2008 Global Crisis period. This trend suggests not a weakening of Romania's position in the global textile sector, but rather an overall growth in the globalization of the textile supply chain, with increased market value transacted globally, heightened competition, and shifts in global supply chains. By 2022, the share of textiles in Romania's exports had further declined to 6%, while services had increased to 30%. Electronics maintained a 14% share, and vehicles were at 12%. The aggregate values of agriculture and metals remained stable, representing around 12% of exports, reflecting their continued importance in Romania's economy. Machinery and chemicals contributed 10% and 7% respectively.

The hierarchical clustering model of the years based on export profiling, using five clusters, had an R^2 value of 0.889, indicating a high level of explained variability. The AIC and BIC values were 100.380 and 205.090, respectively, demonstrating the model's quality. The average silhouette score for all clusters was 0.550, indicating moderate cohesion and separation

between clusters. Individual cluster silhouette scores varied from 0.311 (Cluster 2) to 0.638 (Cluster 1), suggesting that Cluster 1 had the most distinct separation, while Cluster 2 showed less cohesion. The Calinski-Harabasz index of 110.326 further supports well-defined cluster separation. These results effectively capture the segmentation of Romania's export evolution, showing the impact of political and economic shifts, global integration, and Romania's strategic adjustments in export composition over six decades.

TRADING COUNTRIES

Europe has been Romania's main textile trading partner since the mid-1990s, with 86% of imports and 90% of exports conducted with European countries, as depicted in Figures 11 and 12. Among these, Italy, Germany, and France stand out, accounting for 66% of Romania's export destinations and 40% of its import sources. Other notable export destinations include the USA, China, and several European countries such as Poland, the Netherlands, Austria, and the UK, though their contributions are smaller compared to the leading European partners. The steady growth in exports to China, especially in the past decade, and the peak of exports to the USA around 2013-2014 are key indicators of Romania's engagement with global markets beyond Europe.

Romania's textile exports primarily consist of intermediate goods, such as textile fabrics and components used in the automotive and furniture industries, reflecting its role in the global value chain as a supplier of essential products for further manufacturing. In addition, Romania exports high-value finished goods like women's and men's suits, overcoats, and footwear, showcasing its capacity to produce complex consumer products. The export trends peaked around 2007-2008 and again around 2013-2014, with a notable decline afterward, particularly after 2015, while exports to China have shown sustained growth during the same period.

On the import side, Romania relies heavily on European partners for textile products, with Italy, Germany, and France leading as key suppliers. Romania's imports primarily consist of intermediate goods, such as textile fabrics and synthetic fibers, which are vital for domestic production processes in industries like automotive and furniture manufacturing. While imports of finished goods like apparel and footwear cater to domestic consumption, the emphasis remains on raw materials and intermediate goods for further processing and re-export. Besides European countries, Romania has diversified its import sources, with significant activity from Turkey, Poland, Hungary, Spain, the Netherlands, and Bulgaria, alongside a growing share from China, which has become a critical non-European supplier.

Romania's textile imports have seen a sustained increase, peaking around 2016-2017, and remaining robust thereafter. This growth suggests that Romania's domestic manufacturing and re-export activities are highly dependent on imported textile products, especially raw materials and intermediate goods. While export volumes have stabilized at lower levels since the mid-2010s, import volumes have remained high, indicating an ongoing dependency on foreign textile supplies. China, in particular, has emerged as a major supplier, with consistently high import volumes, while Turkey has also played an important role in diversifying Romania's sourcing strategy from global markets.

The focus on the period from 1995 to 2022 is significant due to Romania's transformation from a post-socialist economy to an integrated player in European and global markets. This period includes Romania's EU accession in 2007, which likely impacted its trade patterns, especially with European partners. It also covers critical shifts in global trade dynamics, including China's rise as a dominant textile exporter and Romania's evolving role in the global supply chain. The figures also capture the effects of global events such as the 2008 financial crisis and the subsequent stabilization of trade patterns, with Romania showing sustained import levels even as export volumes declined post-2015.

FIGURE 11

Top 10 Countries Romania exports of textile products (1995-2022)

Data sources: Atlas of Economic Complexity, 1995–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP.

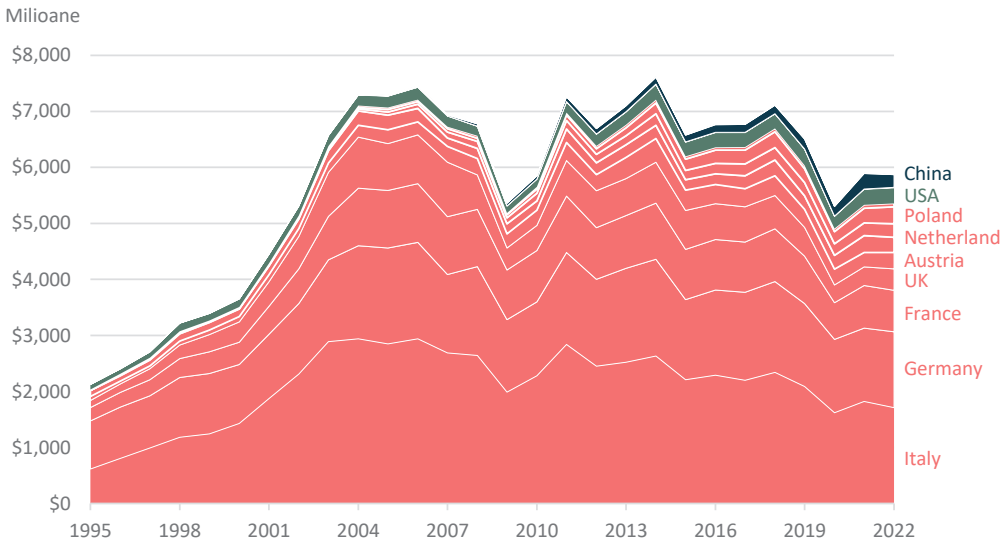
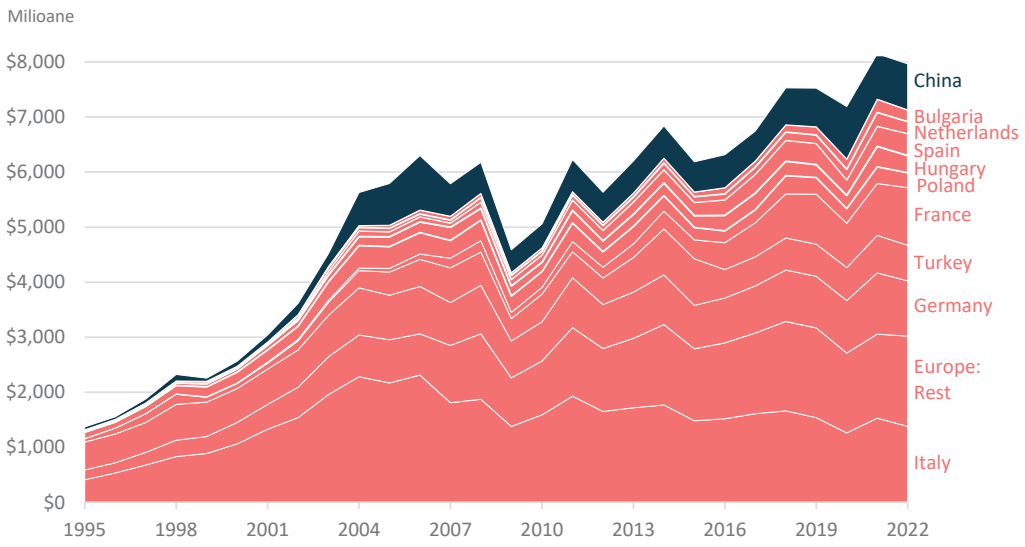


FIGURE 12

Top 10 Countries Romania imports from textile products (1995-2022)

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector. World Bank Data, table NY.GDP.DEFL.ZS.

Technical details: All values are expressed in current USD and deflated to 2015 US GDP.



BUSINESS VERTICALS

The term business verticals refer to specific sectors or industries that focus on a particular market or set of related products and services within a larger industry. In the context of Romania's textile exports and imports, these verticals represent the different industries that either produce or consume textile products. Each vertical is a specialized area within the broader textile and manufacturing ecosystem. Below is a detailed breakdown of the business verticals used in this research of Romania's textile products.

The *apparel industry* is the largest vertical, accounting for 27% of Romania's textile exports, as shown in the figures. This vertical includes the production of finished clothing products such as women's and men's suits, overcoats, blouses, knitwear (e.g., T-shirts), and other garments. Romania exports high-complexity garments primarily to European markets like Italy, Germany, and France, including women's suits (5.03%), men's suits (4.03%), leather footwear (6.00%), and women's overcoats (3.86%). Additionally, lower-complexity garments like knit T-shirts (0.97%) and socks and stockings (1.03%) are exported, showcasing Romania's diverse product range within this vertical.

On the import side, Romania's apparel industry relies on key raw materials and components imported from countries like Italy, Germany, and Turkey. Major imported materials include nonwoven textiles (2.22%) and synthetic filament yarn (2.07%), which are critical to the

production of high-complexity finished garments like women's suits (3.09%) and men's suits (2.60%). Romania also imports lower-complexity garments such as knit T-shirts (3.09%) and socks and stockings (0.96%), reflecting its dependency on a wide range of textile inputs to support its manufacturing sector.

Romania's *footwear industry* accounts for 14% of textile exports and focuses on the production of leather and rubber/plastic shoes, exported to European and global markets. The country exports leather footwear (6.00%) and other footwear components, while importing essential materials such as leather and parts used in footwear manufacturing. The industry is a significant player in Romania's broader textile trade, with its exports supporting the country's reputation for high-quality footwear production.

The *automotive industry* is another key vertical, contributing 13% of Romania's textile exports. Romania plays an important role in the global value chain by exporting intermediate goods like car seats (19.68%) and synthetic fibers used in automotive manufacturing. These exports primarily serve automotive giants in countries like Germany and France, underscoring Romania's position as a supplier of essential components in the automotive sector.

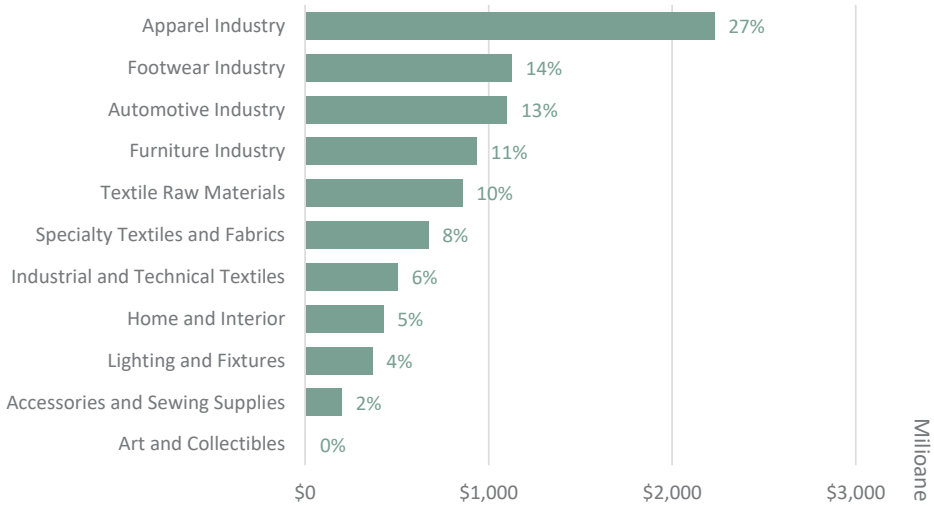
Romania also imports critical components for the automotive industry, including synthetic fibers and woven fabrics of synthetic filament yarn (3.66%) from Germany and Poland. These materials are crucial for the assembly and production of automotive parts such as car seats and tire cord fabric (1.08%). These imports illustrate Romania's reliance on high-quality raw materials to maintain its role as a manufacturer of automotive components.

FIGURE 13

Textile Products Exported by Business verticals in 2021 - Details

FIGURE 13

Textile Products Exported by Business verticals in 2021



The *furniture industry* represents 11% of Romania's textile exports. Romania exports textile-related furniture parts, such as upholstery fabrics and synthetic materials, to countries like Germany and Italy. Notable exports include synthetic filament yarn (1.10%) and furniture parts (8.92%), which are integral to the production of finished furniture goods abroad. On the import side, the furniture industry depends on imported fabrics, synthetic fibers, and other materials from countries like China, Hungary, and Spain. These imports, such as parts of footwear (3.81%) and other textile materials, are vital for producing furniture parts and finished products domestically, further reinforcing Romania's role in the global furniture supply chain.

The *textile raw materials* vertical includes the supply of basic inputs such as yarn, fibers, and fabrics. Romania both imports and exports these materials to support various manufacturing industries, including apparel, footwear, automotive, and furniture. Textile raw materials are essential to Romania's manufacturing sector, as they feed into the production lines of high-value finished goods and intermediate products.

Specialty textiles and fabrics serve advanced or high-performance applications in industries like technical textiles and medical textiles. These fabrics often have unique properties such as fire resistance, durability, or high strength. Romania exports and imports these materials to support industries that require specialized fabrics.

Industrial and Technical Textiles involves textiles used in industrial applications, such as filtration, reinforcement, or protection. These materials are critical for various manufacturing, construction, and heavy industries. Romania imports and exports industrial textiles, further diversifying its trade portfolio in this area.

The *home and interior* vertical includes textiles used for home furnishings and decor, such as curtains, bedding, and upholstery. Romania exports finished goods in this sector and imports essential materials for domestic production. This vertical accounts for 5% of both imports and exports, playing a supporting role in the textile industry.

Although smaller in scale, the *lighting and fixtures* vertical (4% of exports and 2% of imports) includes textile components used in lighting products, such as fabric lampshades and insulation materials. Romania's role in this vertical includes both import and export activities, contributing to its broader textile trade. This sector encompasses items like zippers, buttons, threads, and other sewing accessories, which are used in both apparel and furniture manufacturing. Romania imports and exports these products, playing a vital role in supporting its garment and furniture industries. Although *art and collectibles* are a negligible share of both exports and imports, this vertical includes textile-based artworks, traditional

crafts, and handmade goods. It is included in the figures to show the diversity of products related to textiles, even though its contribution is negligible in volume.

The segmentation into business verticals offers a clearer view of how Romania's textile industry integrates into various sectors, though this integration can sometimes be obscured when companies are categorized solely by their main activities. Often, companies are classified based on their primary business verticals, meaning their textile-related exports and imports may not be directly recorded as part of the textile industry. These activities only become visible when examining specific products, rather than the companies themselves.

FIGURE 14

Textile Products Imported by Business verticals in 2021

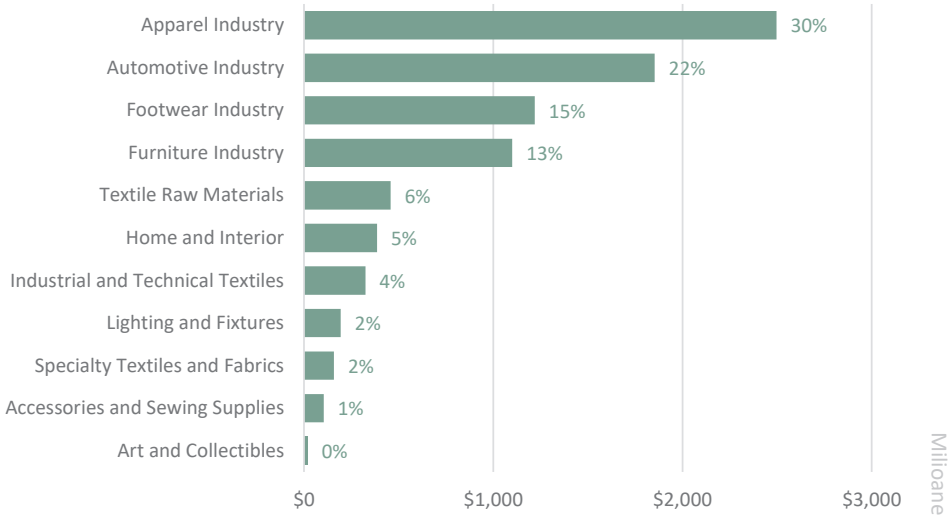


FIGURE 14

Textile Products Imported by Business verticals in 2021 – Details

ROMANIA AS A MEDIATING TRADE PARTNER

The network visualisation in Figure 15 analyses Romania's international trade connections for textile products between 1995 and 2022. Two matrices were used to build the analysis: one representing Romania's imports by country and year, and the other its exports. These matrices were normalized by year to obtain percentage values, ensuring that the analysis is free from annual trade value fluctuations. A connection matrix was then derived by multiplying the import matrix by the transpose of the export matrix, revealing the strength of trade relations between countries as mediated by Romania.

Each connection in this network signifies a trade relationship between Romania and another country. The strength of the connection is based on the value of the larger trade flow – either exports or imports. To maintain clarity, only connections with weights in the top 10% (above the 90th percentile) are displayed, highlighting Romania's most significant trading partners. Once these strong connections were retained, the Minimum Spanning Tree was applied, ensuring that every country is connected to the network through the strongest relationship while avoiding redundant connections. In the MST, each country (node) is connected by the strongest trade relationship without forming any cycles (loops), simplifying the network while retaining essential trade routes. This structure avoids over-complicating the visualisation by eliminating redundant connections.

The size of the nodes corresponds to the overall trade volume, meaning larger nodes represent higher trade values. Green nodes represent countries where Romanian exports dominate, while red nodes indicate countries where imports exceed exports. This simplified structure maintains essential trade routes without over-complicating the visualisation.

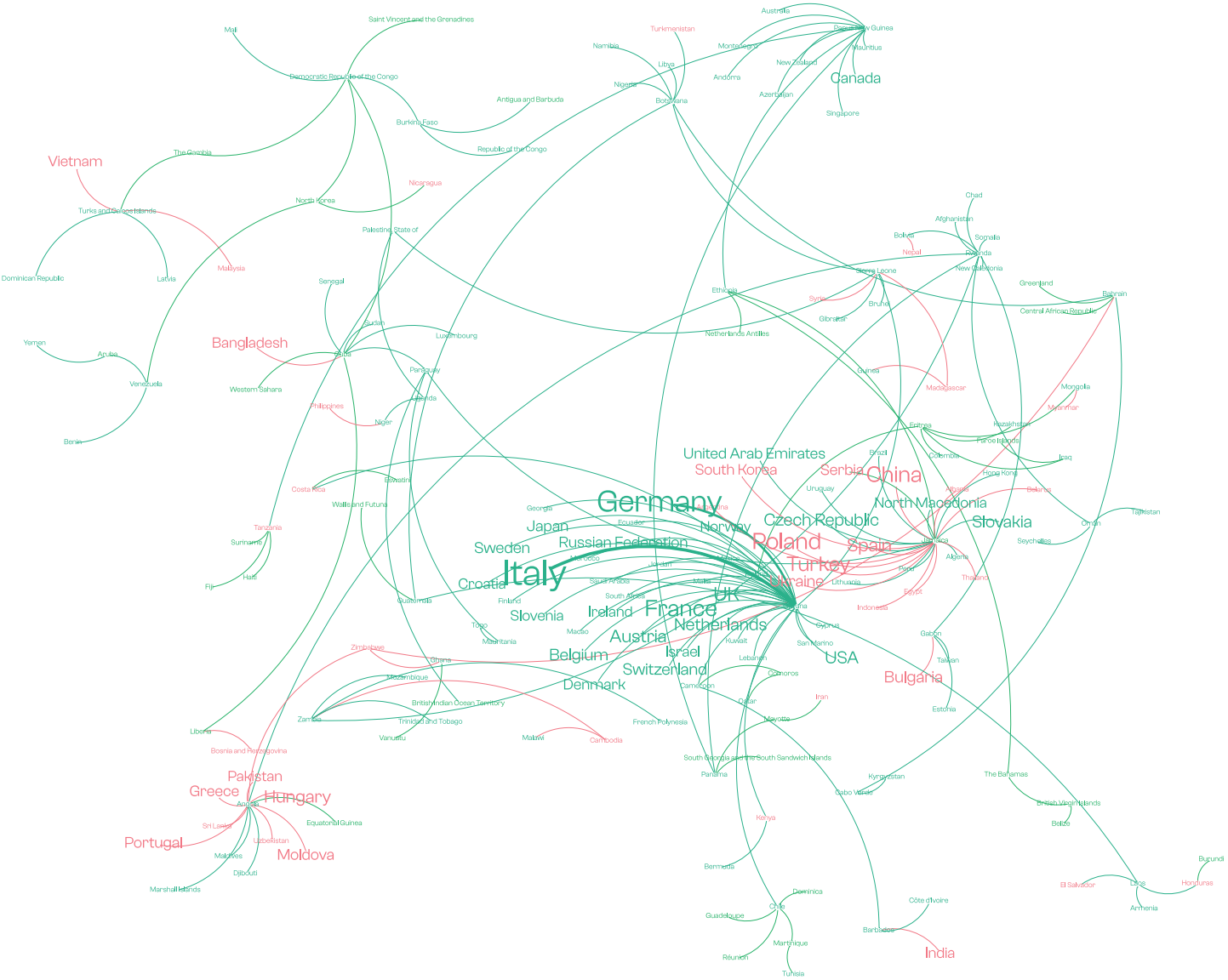
The visualisation captures two important temporal dynamics: first, the trade volumes from 2017 to 2022 is represented by the size of the country name, reflecting Romania's strong export-led growth during this period, and second, the longer-term trade relationships dating back to the mid-1990s the thicker the weight of the edge, when the textile sector became crucial to the Romanian economy.

For example, countries like *Poland*, which consistently show high import volumes over the years, are represented by thicker edges, and the red, larger-sized label indicates the substantial import values in USD between 2017 and 2022. Similarly, the strong trade relationship with Italy is depicted by the green, larger label, signifying high export volumes from Romania during the same period. The thicker green edge highlights Romania's long-established exports to Italy. In contrast, smaller trading partners or countries with more balanced trade volumes appear less prominently in the visualisation due to their relatively weaker trade relationships.

The OpenOrd layout was employed in the visualisation. This force-directed algorithm positions nodes based on the strength of their connections, helping to identify clusters or groups of countries that share similar trade patterns with Romania. The algorithm emphasizes the global structure of the network by pulling strongly connected countries closer together and pushing weaker or less connected countries further apart.

This layout is particularly useful for identifying community structures within the trade network, as countries that trade frequently with each other tend to form distinct clusters. By applying this layout, the visualisation allows us to observe which countries are closely tied to Romania in terms of textile trade and which countries form peripheral groups with weaker or less significant connections.

To further constrain the interpretation we used the Leiden clustering to identify several distinct groupings within Romania's textile trade network as represented by the OnerOrd layout, each characterized by the type of products traded and the nature of Romania's



integration into the global value chain. These clusters demonstrate the balance Romania maintains between importing crucial raw materials and intermediate goods and exporting both intermediate and high-value finished products. The network also reveals the influence of foreign direct investment (FDI) in driving Romania's role as a supplier within the European production network, particularly in the automotive and apparel sectors.

Some notes on the interpretation of the weights and the edge selections. The resulting matrix after multiplying Romania's export matrix (with countries as rows and years as columns) by the transpose of the import matrix (with countries as rows and years as columns) measures the interaction between the export patterns of one country (say *Germany*) and the import patterns of another country (say *China*) via Romania. Each cell in the resulting matrix reflects how strongly the trade relationship between Romania and Germany (in terms of exports) correlates with the trade relationship between Romania and China (in terms of imports). In practical terms, the weight in this matrix might represent how indirectly connected two countries are through Romania. If Germany is a major export destination for Romania and China is a significant import source for Romania, a high value in the resulting matrix suggests that these two countries are strongly linked through Romania's trade network.

The Minimum Spanning Tree algorithm emphasizes strong connections while eliminating redundant ones. It aims to keep the network connected with the fewest possible edges. *Jamaica's* relatively high-weight connections with a few critical countries resulted in it

FIGURE 15

Romania's Textile Trade Network: Global Connections through Import-Export Relationships (1995-2022)

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector

Technical details: This network visualisation represents Romania's global trade relationships in textile products between 1995 and 2022. The edges between nodes (countries) reflect the strength of trade connections, determined by multiplying the export matrix with the transpose of the import matrix. Only the top 10% of the strongest connections are shown. The node size indicates the overall trade volume (2017-2021), while the edge thickness corresponds to the strength of the trade relationship. Green labels represent countries where exports dominate, while red labels indicate countries with dominant imports. The layout was created using the OpenOrd algorithm, with a Minimum Spanning Tree applied to simplify the network structure.

becoming a crucial node for linking several parts of the network. Essentially, even if Jamaica does not have the highest overall trade volumes with Romania, it serves as an efficient connector to other countries that trade significantly with Romania.

Jamaica's centrality is an artifact of the methodology, where trade relationships between countries are mediated by Romania. For example, if Jamaica has solid trade relationships with other countries that are also mediated by Romania, the MST could place Jamaica in a central position as a node through which multiple countries are connected. The transpose of the import matrix further enhances this effect by highlighting how imports into Romania relate to exports from other countries. Having these notes made, the clusters do tell an insightful story.

Cluster 1 includes Romania's core European trading partners: Germany, Italy, France, Austria, Belgium, the UK, the Netherlands, Sweden, Switzerland, and Ireland. This group is central to Romania's textile trade, acting as the primary destinations for Romania's exports of intermediate goods, particularly for the automotive and footwear sectors. Key products exported include car seats, footwear parts, and furniture components. Countries in this cluster also import synthetic filament yarn, textile fabrics, and other secondary intermediate products from Romania, underscoring Romania's integration into Europe's production network. For instance, Germany, with $1.46 billion in trade, and Italy, with $2.01 billion, are Romania's largest export markets for these products, highlighting Romania's critical role as an intermediate producer. France, with $821 million in exports, also relies on Romania for components used in its automotive and manufacturing industries. The strong, reciprocal trade relationships with these countries are further driven by FDI, with many multinational firms operating in Romania's manufacturing sectors.

Cluster 2, consisting of Poland, Hungary, Slovakia, the Czech Republic, Bulgaria, Ukraine, Moldova, and Serbia, represents Romania's Eastern European neighbors and plays a dual role as both import sources and export destinations. These countries primarily supply Romania with intermediate goods, such as synthetic fibers, furniture parts, and parts of footwear. For example, Poland imports a variety of finished and intermediate goods, including bedding, knitwear, and leather footwear, while Spain imports suits, knitwear, and overcoats. However, Romania also exports significant volumes of intermediate products like car seats and synthetic fibers to these countries, demonstrating its role as both a mediator of trade and a consumer of intermediate goods needed for its manufacturing sectors. Hungary, with $283 million in imports, provides raw materials necessary for Romania's textile industry, while Slovakia and the Czech Republic act as key export markets for Romanian-produced textiles, reflecting Romania's increasing integration within the Eastern European production chain.

Cluster 3, which includes China, Turkey, South Korea, Bangladesh, Vietnam, and India, represents a critical source of raw materials and low-cost finished products for Romania's manufacturing sector. China, with $740 million in imports, is Romania's largest supplier of textile fabrics and raw materials. Bangladesh and Vietnam are key suppliers of low-complexity finished garments, while India supplies essential raw materials such as synthetic filament yarn and cotton yarn, which are vital for Romania's textile manufacturing. This cluster reflects Romania's dependence on these emerging markets for sustaining its production processes, particularly for lower-complexity garments that are re-exported or used domestically.

In Cluster 4, countries such as Ukraine, Moldova, Bulgaria, and Greece play a more specialized role in supplying Romania with intermediate goods, such as footwear parts and textile components. These countries also import Romanian-made intermediate and finished goods, such as women's suits, overcoats, and leather footwear. Sweden, where Romania exports goods for companies like Ikea, fits into this category as well, reflecting Romania's role in supplying high-value finished products to global brands. Additionally, Japan and the Russian Federation import high-value finished goods, demonstrating Romania's reach into

transnational supply chains for fashion and home goods.

Cluster 5 includes countries like India, Croatia, and Slovenia, which import Romanian intermediate goods like car seats and synthetic fibers. Romania also exports high-value finished goods, such as women's overcoats and footwear, to Canada, which highlights Romania's versatility in producing both apparel and household goods for markets beyond Europe. Denmark, another important trading partner, imports a mix of final products, including suits, household linens, and furniture, showing Romania's ability to cater to a broad range of consumer demands.

Finally, Cluster 6, which includes countries in the outermost circle, such as Vietnam, Pakistan, and Bangladesh, primarily supplies Romania with raw materials, including fibers and synthetic textiles. These countries are essential for Romania's input needs, particularly for low-cost garments and textiles that are either re-exported or processed into higher-value products. Meanwhile, Romania exports higher-value products, such as car seats, to countries like the UAE, Israel, and North Macedonia. These trade patterns highlight Romania's hybrid growth model, where the country combines an export-driven strategy with reliance on imported raw materials to fuel its manufacturing sectors.

In conclusion, the Leiden clustering and OpenOrd layout reveal a well-structured trade network where Romania maintains strong trade relationships with central European countries, while also relying heavily on Asian markets for essential raw materials and low-complexity products. The clustering analysis emphasizes Romania's role as an intermediate producer within the European value chain, particularly for the automotive and footwear industries, while also highlighting the increasing importance of Asian suppliers in sustaining Romania's manufacturing sectors. This hybrid trade model, driven by FDI and regional integration, underscores Romania's strategic position within global textile value chains, balancing export-driven growth with significant import reliance.

PRODUCT SPACE

The concept of the *product space*, introduced by Hidalgo et al. (2007), is based on analyzing the export data of products for each country by year. The product space is a network that maps the similarities and connections between different products. In this network, each node represents a product, and the links between nodes indicate how similar or related these products are in terms of the knowledge, skills, and inputs required for their production. The network of similarities is based on co-production patterns observed across countries, using approximately 900 distinct product classes as defined by the Standard International Trade Classification (Rev. 2) at the four-digit level. In subsequent work, these classifications have also been adapted to other global nomenclatures, including the Harmonized System (HS92 classification), which is particularly relevant for EU countries. The indexes used in this text are computed based on the Standard International Trade Classification (Rev. 2), yet the visualisation and products are expressed in the Harmonized System 1992, used in the European Union classifications. Figure 16 represents the global product space represents in HS92 at the four-digit level codes, based on a Minimum Spanning Tree algorithm, simplifies the network, with colours indicating the major sections of the HS92 nomenclature.

The underlying concept of the product space is that of *tacit knowledge* (Boschma, 2010; Hidalgo et al., 2007; Pinheiro et al., 2022), which refers to implicit know-how and skills that are difficult to formalize or transfer through written or verbal communication. Unlike explicit knowledge, which can be codified and easily shared, tacit knowledge is often gained through experience and practice. In the context of production and trade, tacit knowledge encompasses the complex processes, technical skills, and organizational capabilities required to manufacture sophisticated goods. It involves deeply embedded expertise within a country's industries that cannot be easily replicated by others.

In the product space framework, space refers to the countries and products they export, and in later work (Boschma, 2010), it extends to regions. This spatial framework helps quantify and visualize tacit knowledge by examining the co-presence of pairs of exported products in a country's export basket. The assumption is that products requiring similar knowledge and capabilities tend to be exported together by countries with the necessary tacit knowledge. For example, if a country exports both car engines and complex machinery, it suggests that the country has accumulated sophisticated, interrelated capabilities. The proximity of products in the product space serves as a proxy for the shared tacit knowledge needed to produce them. Products close to each other in the product space often require similar production skills, technologies, and inputs.

Countries that can export a diverse range of complex products likely possess deeper reservoirs of tacit knowledge, as they are able to deploy the skills necessary to move between related industries. This is where the concept of co-presence comes into play: the co-export of certain products by a country indicates mastery of the tacit knowledge required to produce both goods. This, in turn, allows us to measure the implied knowledge embedded within the country's production structure. Three key indexes further explain how the product space functions: the Product Complexity Index (PCI), Revealed Comparative Advantage (RCA), and the Economic Complexity Index (ECI).

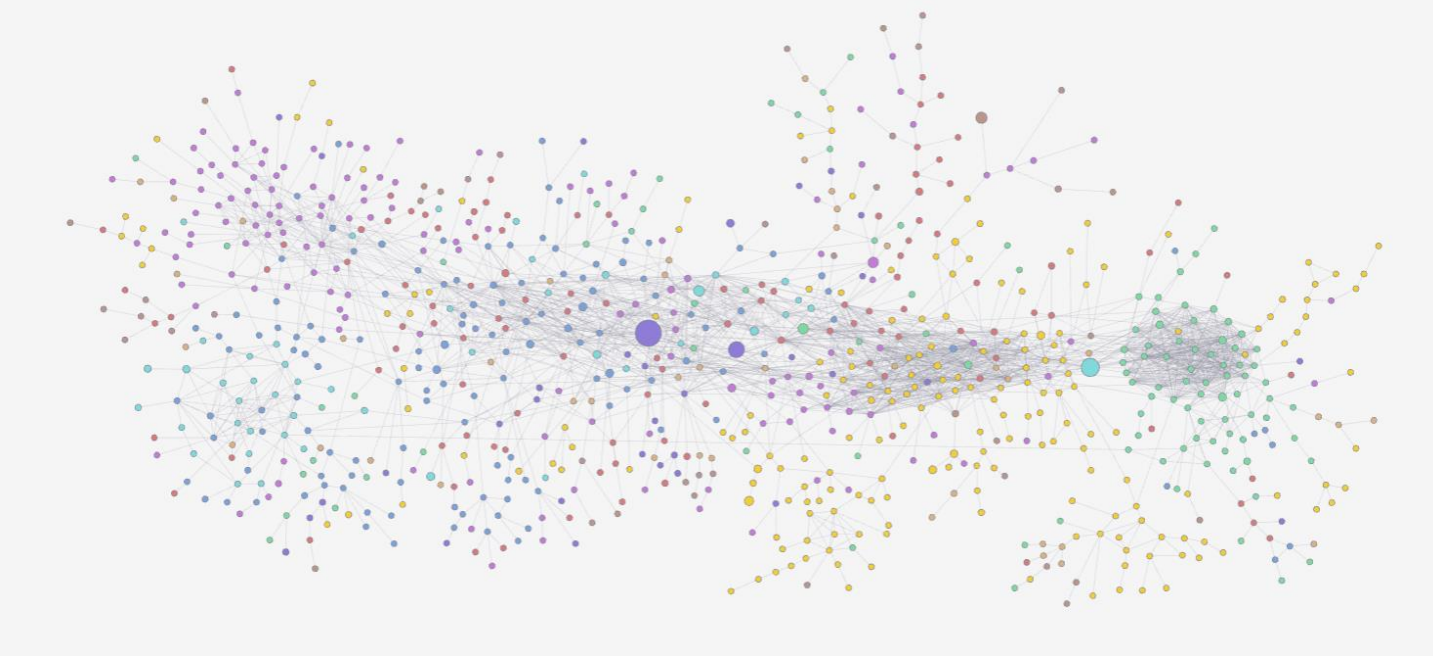
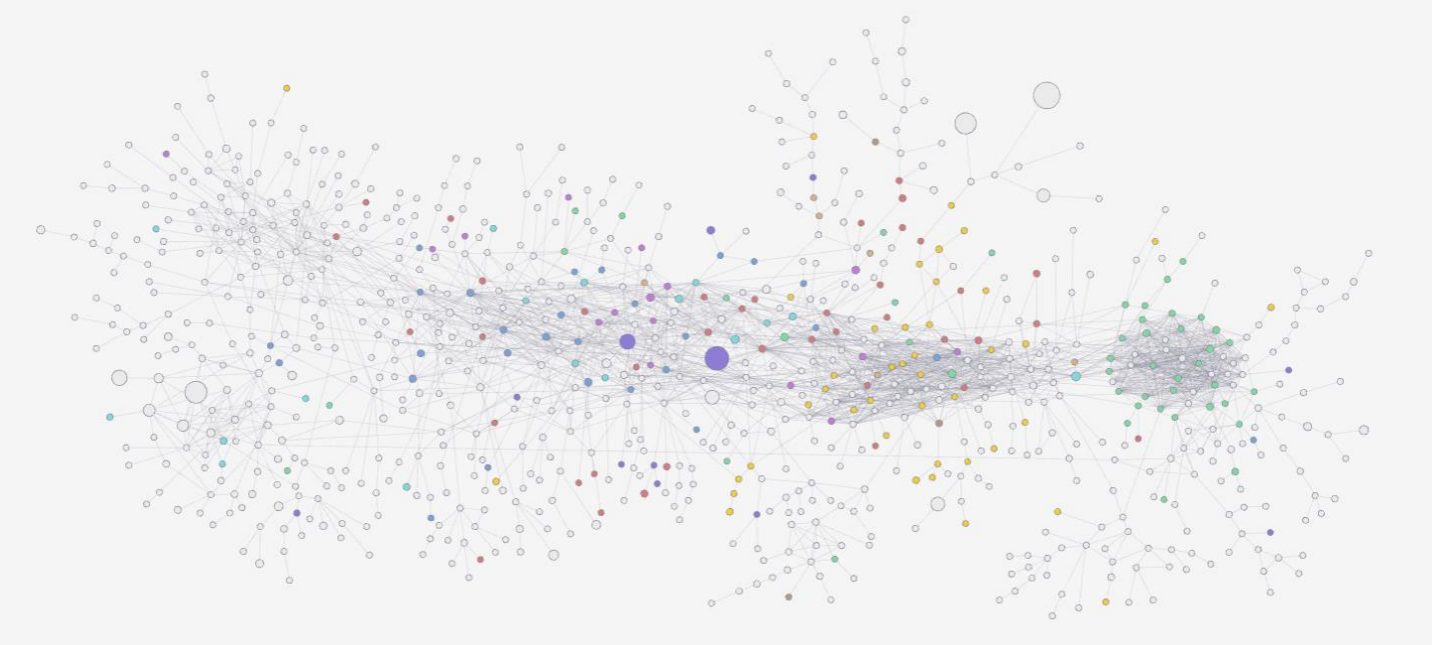


FIGURE 16

Global Product Space based on HS92, with colours representing product sectors and node sizes proportional to global trade volumes.

The Product Complexity Index measures the knowledge intensity and sophistication of products, reflecting the complexity of the processes and capabilities required for their production (Hausmann & Hidalgo, 2011; Hidalgo, 2021). The PCI is computed using principal component analysis, a statistical technique that reduces the dimensionality of global export data by transforming it into uncorrelated variables called principal components, which capture the maximum variance in the dataset. The PCI combines measures of the diversity (the range of products a country exports) and ubiquity (the number of countries that export a product), providing insight into the embedded complexity and knowledge intensity of the products exported by a country.

The Revealed Comparative Advantage measures a country's relative advantage in exporting specific products compared to other countries (Hausmann & Hidalgo, 2011; Hidalgo, 2021). It reflects the degree to which a country is specialized in producing and exporting certain



goods, based on observed trade data. RCA builds on the classical concept of comparative advantage in international trade but provides a more empirical approach, revealing the products in which a country is specialized. RCA is calculated by comparing the share of a product in a country's total exports to the share of that same product in global exports. A value greater than 1 indicates that the country is more specialized in exporting that product than the world average, while a value below 1 implies that the country is less specialized, indicating a comparative disadvantage. Figure 17 shows Romanian's product space with RCA greater than 1.

The Economic Complexity Index measures the complexity of a country's economy by analyzing the diversity and sophistication of its exported products. It is derived from the second principal component in an analysis that positions the country within the product space, relative to the complexity of the goods it exports. Countries with more diverse export baskets and less ubiquitous products—those exported by fewer countries—tend to have higher ECI scores. Conversely, countries that export only a few products or highly ubiquitous products receive lower ECI scores. The ECI is calculated by considering both the diversity of a country's export portfolio and the ubiquity of its products. It captures a country's productive knowledge and the level of diversification within its economy. The concept of economic complexity is rooted in the idea that countries grow by accumulating productive knowledge and gradually transitioning into more complex industries. As economies develop, they shift from exporting simple, widely available products like raw materials or basic goods to more sophisticated products like machinery, electronics, and high-tech goods. The ECI quantifies this evolution by measuring the extent of a country's productive knowledge and diversification.

Since PCI, RCA, and ECI are normalized across countries and years, they can be compared over time. This normalization allows researchers to track how countries accumulate or lose tacit knowledge, based on changes in their export baskets. A country that begins exporting more sophisticated goods may be interpreted as having gained the tacit knowledge necessary to move into new industries. Conversely, a country that stops exporting complex products may be experiencing a loss or stagnation in its ability to harness tacit knowledge. Standardized across countries and historical periods, these indexes enable researchers to assess a country's trajectory in terms of its productive capabilities and tacit knowledge accumulation. As a principal component scores, both PCI and ECI are variable measured in standard deviations, that is why we can interpret the results in terms of percentiles.

FIGURE 17

Romania's Product Space based on HS92, with node sizes proportional to the country's trade volume and colored nodes indicating a Revealed Comparative Advantage greater than 1.

THE COMPLEXITY OF THE ROMANIAN ECONOMOMY

Figure 18 illustrates the global Economic Complexity Index (ECI), represented by the brown line, which has remained relatively flat over time as it is a normalized principal component score, centered around 0. This indicates that, by statistical design, the global average economic complexity remains stable, reflecting the balance of global product diversity and ubiquity. When expressed as a percentage, the global average ECI would be approximately in the 50th percentile of the global distribution/.

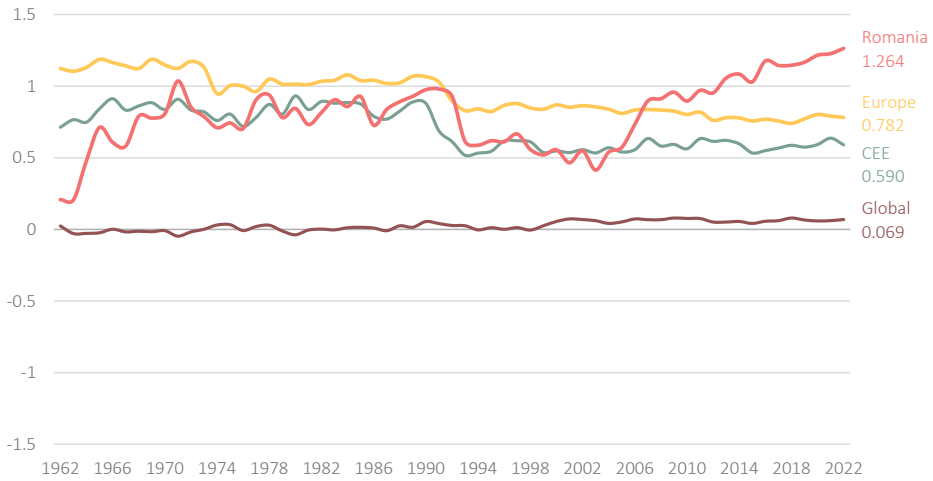
Europe, represented by the yellow line, has maintained a relatively high ECI with slight fluctuations but mostly stable performance. In 2022, Europe's ECI was 0.782, translating to about the 78th percentile of the global distribution. The Central and Eastern Europe (CEE) region, represented by the green line, shows a moderate ECI value of 0.590 in 2022, placing it around the 67th percentile globally. Over time, the CEE countries' ECI fluctuated between 0.4 and 0.6, corresponding to a range between the 60th and 70th percentiles globally. The growth in ECI after the early 1990s reflects the region's industrial development and diversification, yet this moderate level of economic complexity indicates that while CEE countries have grown, they still lag behind Western European nations in terms of sophistication and diversification.

In the 1960s, Romania's ECI score of 0.574 placed it approximately in the 66th percentile of global economic complexity, indicating that Romania's economy was slightly above the global average. During the 1970s, Romania's ECI increased to 0.835, moving it to around the 80th percentile globally, reflecting a period of industrial development and diversification in its export basket. By the 1980s, Romania's ECI remained high at 0.827, keeping it in the upper range of the global distribution, around the 80th percentile, demonstrating sustained complexity and export diversity during this period, though the slight drop reflects a decline in industrial complexity. The global economic turbulence of the 1980s, combined with the collapse of the socialist trading patterns, contributed to Romania's ECI drop from the 1990s to the mid-2000s, reaching 0.606, which corresponds to approximately the 67th percentile globally, returning to levels similar to the 1960s. ECI currently ranks Romania as the 26th most complex economy globally, capturing the knowledge intensity embedded in the country's exports.

FIGURE 18

Product Complexity Index: Romanian compared with the global, European and Central and aster European values 1998-2022

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector



A positive trend emerged starting in the mid-2000s, with Romania's ECI averaging 1.022 between 2005 and 2022, placing it in the 85th to 90th percentile globally. This upward trend signifies Romania's rapid economic recovery and its transition to more complex and knowledge-intensive industries, fueled by policies encouraging foreign direct investment (FDI). Romania's ability to surpass both its previous levels and its regional peers reflects a successful shift toward industries that demand higher skills, knowledge, and capabilities.

Compared to the CEE region, Romania's trajectory is steeper, showing that it has outpaced its neighbors in terms of increasing economic complexity since the mid-2000s. Romania's average score of 1.022 is significantly higher than the CEE average of 0.590 and the European average of 0.782, positioning Romania as a regional leader in industrial sophistication and export diversity. With an ECI of 1.264 in 2022, Romania ranks in the 90th percentile globally. This sharp rise highlights Romania's significant progress in diversifying its economy and moving into more complex industries, surpassing both the European and CEE averages, and establishing it as one of the leading countries in terms of economic complexity.

FIGURE 19

The percentual distribution of exported value by Romania, based on the categories of product complexity and of relative competitive advantage.

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sectorconverted to HS92.

Product Complexity Index (PCI)	Relative Competitive Advantage (RCA)				
	1. Very Low RCA: <0.5	2. Low RCA: [0.5-1)	3. Moderate Advantage RCA: [1-3)	4. Key Advantage RCA > 3	Total
1. Very Low (<5%) PCI < -1.645	0.7%	2.3%	1.2%	0.4%	**4.6%**
2. Lower (5-25%) PCI: [-1.645; -0.675)	0.9%	1.0%	1.9%	7.1%	**10.8%**
3. Lower Medium (25-50%) PCI: [-0.675; 0)	1.8%	2.5%	8.2%	14.7%	**27.2%**
4. Upper Medium (50-75%) PCI: [0; 0.675)	3.8%	5.7%	22.0%	19.9%	**51.4%**
5. Upper (75-95%) **PCI:** [0.675; -1.645)	1.0%	0.9%	0.8%	2.8%	**5.4%**
6. Very High (≥95%) PCI: ≥ 1.645;	0.2%	0.0%	0.0%	0.3%	**0.5%**
Total	**8.4%**	**12.4%**	**34.1%**	**45.2%**	**100%**

ROMANIA'S COMPETITIVE ADVANTAGE BASED ON PCI

In Figure 19, the PCI classifies exports based on percentile ranges from a standard normal distribution, organizing products according to their complexity levels. The lowest category, below the 5th percentile (PCI < -1.645), identifies the least complex products, while the next segment, ranging from the 5th to the 25th percentile (PCI: -1.645 to -0.675), indicates products with slightly higher complexity. Products in the 25th to 50th percentile range (PCI: -0.675 to 0) are of moderate complexity, while those in the 50th to 75th percentile (PCI: 0 to 0.675) demonstrate increased technological sophistication. The 75th to 95th percentile group (PCI: 0.675 to 1.645) includes high-complexity products, and those above the 95th percentile (PCI ≥ 1.645) represent the most knowledge-intensive and advanced exports. This segmentation effectively captures the range of sophistication and diversity in a country's export portfolio, reflecting its economic and industrial capacity. The columns display Romania's RCA, which measures the relative export specialization of products. Products with an RCA below 0.5 are those where Romania shows limited specialization, while those between 0.5 and 1 represent below-average specialization. The segment with RCA values between 1 and 3 includes products with moderate comparative advantage, indicating their significance in Romania's export portfolio. Products with RCA values above 3 indicate strong specialization, suggesting they are central and strategic within Romania's export strategy.

Romania's 2022 export profile is predominantly composed of products of medium to high complexity, which make up 51.35% of its total export value. This indicates a shift towards more sophisticated production capabilities, reflecting Romania's movement into more advanced industries. Within this segment, a substantial share of exports (22.01%) holds a moderate competitive advantage, while 19.93% exhibit a strong competitive advantage, emphasizing Romania's focus on products that combine complexity with competitiveness. Additionally, moderately complex products account for 27.24% of exports, with a considerable portion showing either moderate or strong competitive advantages, further demonstrating Romania's emphasis on products that are not at the highest level of complexity but still

provide significant economic value due to their competitive positioning in international markets. Conversely, products at the highest complexity level represent only a small fraction of the total, comprising 0.52%, which illustrates Romania's limited capacity to produce the most advanced goods. However, within this category, a small proportion (0.30%) still manages to achieve a significant competitive advantage, highlighting the presence of specialized niches where Romania remains competitive. At the other end, low-complexity and low-competitive products contribute minimally to Romania's exports, with only 0.73% of the total, indicating that such products are not central to Romania's export strategy.

The most substantial values are found among products of medium to high complexity with moderate or strong competitive advantages. The concentration of 22% and 20% in these categories underscores Romania's strength in products that are sufficiently complex to provide an edge in the global market. Interestingly, even within the most complex product categories, there are instances where competitive positioning remains low, suggesting that while Romania has the capability to produce sophisticated products, they may not yet be optimized for global competitiveness. Overall, the export profile suggests that Romania's implicit economic strategy focused on expanding in moderately complex sectors where it can secure a competitive edge, rather than heavily investing in either the very lowest or highest complexity products. This approach aligns with Romania's development trajectory, of related development based on importing capital goods from Western Europe and FDI-led development from the same region.

TEXTILE COMPLEXITY

The analysis of the Product Complexity Index (PCI) for the textile sector globally, in conjunction with Romania's textile imports and exports from 1962 to 2022, reveals significant comparative insights about the evolution of complexity in this industry. Globally, the complexity of textile products remains relatively stable, fluctuating between 0 and -0.500. These values, which correspond to the lower half of the percentile distribution (below the 50th percentile), indicate that textile products worldwide are consistently of below-average complexity, reinforcing the notion that this sector is characterized by less technologically advanced or knowledge-intensive products.

In Romania, distinct PCI trends emerge for textile exports and imports. Romania's textile exports display a generally increasing trend in complexity, especially after the 2000s. The PCI value for textile exports begins at -0.464 in 1962, placing it slightly above the global average for textiles, and it shows notable fluctuations during the 1970s. However, starting in the 1980s and continuing through the 1990s, the trend declines, aligning closely with the global trendline and falling below it at points. This pattern indicates a loss of sophistication in Romania's exported textile products during the transition period following the fall of socialism. After 2000, the trend reverses, with a gradual improvement in complexity, bringing the PCI value to -0.03 by 2022, positioning Romanian textile exports in the 48th percentile. This improvement suggests a shift towards higher sophistication and more knowledge-intensive textile products in Romania's export profile over the last two decades.

Romania's textile imports, on the other hand, initially show higher complexity than exports. Starting in the early 1960s, the PCI for imports decreases sharply, reaching a low of -0.725 in 1968. This value corresponds to roughly the 23rd percentile, reflecting imports of lower complexity relative to the global textile sector. Imports remained below the global average until the mid-2000s, indicating Romania's reliance on less complex textile imports during its period of industrial restructuring. However, after the mid-2000s, the PCI for imports gradually improves, narrowing the gap between import and export complexity. By 2022, the PCI for imports reaches -0.184, aligning more closely with the exports' complexity and reflecting the integration of more sophisticated textile products, both as raw materials and as finished goods for Romania's domestic market. The imports are thus characterized by a dual

structure: lower complexity raw materials and intermediate products for the textile industry, as well as high-end products for consumer markets.

When comparing the textile sector's complexity to other Romanian export sectors, such as electronics, machinery, and vehicles, textiles generally rank lower. The PCI values for textiles fluctuate between -0.2 and 0.5 from the 1960s through the early 2000s, placing them well below the 50th percentile, suggesting that the sector remained relatively low in complexity compared to the more technologically advanced sectors like electronics or machinery. The period between the mid-1960s to mid-1980s saw the textile sector achieve a complexity level comparable to that reached again only after 2005. This pattern suggests that, while the sector experienced periods of growth, it still did not attain the levels of complexity seen in other high-technology exports. Despite improvements post-2005, textiles have yet to reach the complexity levels of Romania's higher-end sectors, indicating that while there is progress, the transition towards more advanced production in the textile industry remains gradual.

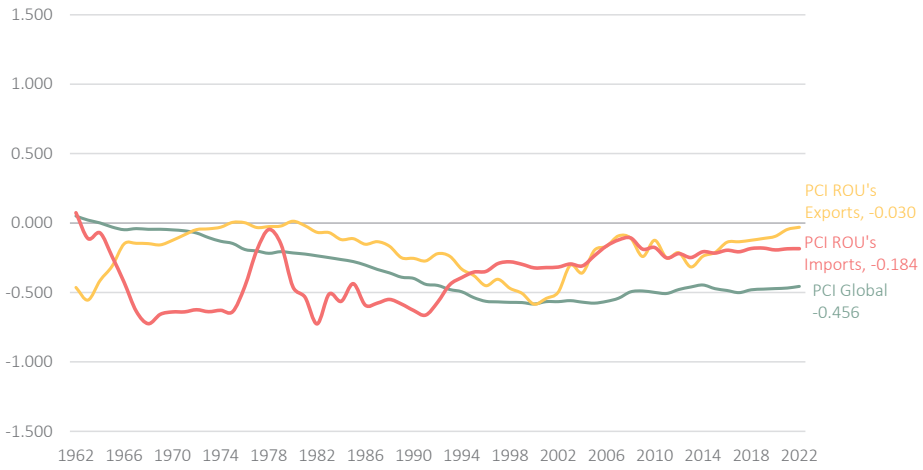


FIGURE 20

Textile's Product Complexity Index globally, compared with Romanian's textile imports and exports, 1998-2022

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector

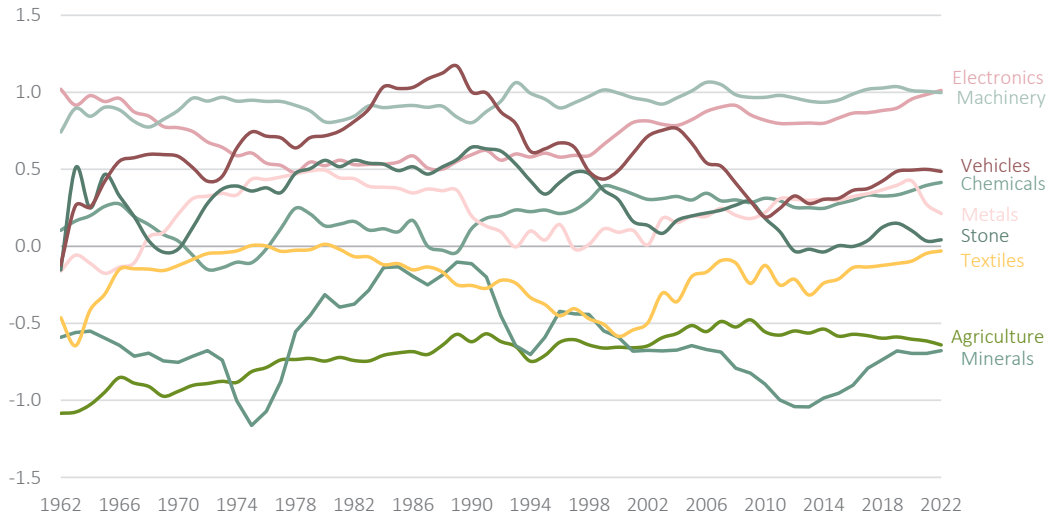


FIGURE 21

Romanian's Product Complexity Index of exports by sector, 1998-2022

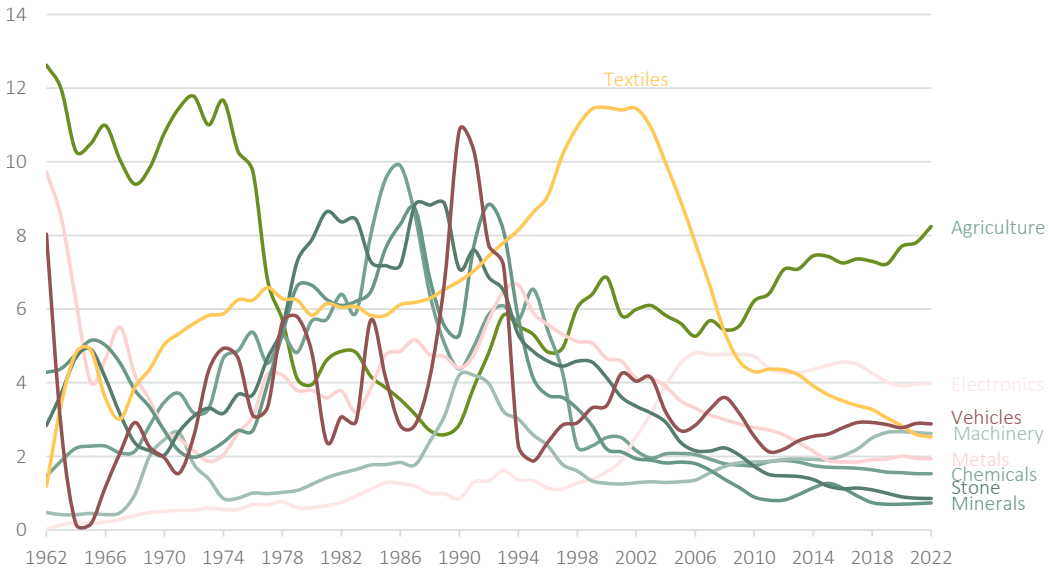
Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector

Despite smaller complexity the textile sector had a significant peak in relative competitive advantage during the mid-1990s and mid-2000s. The RCA for textiles surged to a high value of around 11.5 in 2000, indicating a very strong comparative advantage in this sector. This period reflects Romania's role as a major textile exporter, due to its labor-intensive production capacity and integration into global supply chains, particularly within the European market. However, after this peak, the RCA for textiles shows a downward trend, indicating

FIGURE 22

Romanian's RCA Index globally of gross exports by sector, 1962-2022

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector



a decline in Romania's specialization and competitiveness in this sector as other industries grew or as the country moved towards diversifying into more sophisticated industries.

After1995, Romania's export economy experienced significant shifts in complexity, reflecting its deeper integration into technologically advanced global market segments. The gradual improvement in complexity scores highlights Romania's progress, particularly in machinery and vehicles, which have consistently demonstrated higher complexity levels and contributed to overall export growth. However, sectors such as textiles and minerals, despite some improvements, continue to reflect lower complexity.

In the late 1990s, Romania's overall complexity score was relatively low, starting at -3.12 in 1998. This places Romania's exports in the lower 10th percentile globally, indicating a limited presence in higher-value, knowledge-intensive products. Sectors like textiles, agriculture, and minerals were significant contributors to this low complexity, with scores of -1.30, -0.24, and -1.16, respectively, all below the 20th percentile. Despite these low values, the textiles sector exhibited a high revealed comparative advantage f 8.6 in 1998, showing strong specialization but within a low-complexity sector. Conversely, machinery and vehicles demonstrated higher complexity, with scores of 0.44 (55th percentile) and 0.29 (50th percentile) respectively, and RCAs of 1.5 and 0.9. These sectors were pivotal in Romania's semi-peripheral positioning within global production chains, leveraging technological inputs from Western countries like Germany and the USA while exporting outputs primarily to markets in the Middle East and Africa (Ban, 2016; Petrovici, 2018). Although machinery maintained a strategic role, its overall complexity score of 0.44 was still below the global sector average of 0.60 (60th percentile), reflecting Romania's reliance on intermediate technological capabilities.

In the early 2000s, the overall complexity score declined further, reaching -4.22 in 2000, placing Romania's exports around the 5th percentile globally. The textiles sector remained low in complexity with a score of -1.23 (15th percentile), while its RCA stayed high at approximately 9, showing Romania's continued focus on this sector despite its low complexity. Machinery and vehicles maintained higher complexity levels, with some fluctuations. Electronics, a developing sector, began to show modest improvements, with its complexity score moving from -0.30 (45th percentile) in 1998 to -0.12 (50th percentile) in 2000, and its RCA increasing slightly, indicating a growing but still limited specialization.

Starting in 2004, coinciding with Romania's integration into NATO and the initial stages of EU expansion, Romania's export complexity began to improve. By 2007, the complexity score had risen to -2.79, placing Romania's exports around the 25th percentile. The

improvement was driven by machinery (complexity: 0.65, 70th percentile, RCA: 2.1) and vehicles (complexity: 0.27, 50th percentile, RCA: 1.2). The textiles sector also showed slight improvement, with its score rising to -1.07 (20th percentile) while maintaining an RCA above 8, demonstrating specialization despite its lower complexity compared to other sectors. This upward trend in complexity extended into the 2010s, as machinery reached a score of 0.83 (75th percentile) by 2015, with an RCA of 2.4, and vehicles grew to a score of 0.51 (60th percentile) with an RCA of 2.3, indicating Romania's increasing specialization and expertise in these higher-complexity industries.

Following the 2008 financial crisis, Romania's share in the global vehicle market expanded significantly. The country's share rose from 0.34% in 2008 to 0.55% in 2009, reaching 0.83% by 2020, overtaking textiles as the leading export sector. This growth was supported by substantial foreign direct investment (FDI) in the automotive industry, allowing Romania to specialize further despite a general decrease in global vehicle complexity as supply chains expanded. Electronics and machinery also grew, aligning with Romania's specialization in the global automotive and electronics market.

Between 2016 and 2022, Romania's export complexity continued to rise. By 2022, the overall score reached -0.44, placing Romania around the 40th percentile globally. The machinery sector maintained high complexity with a score of 0.87 (75th percentile) and an RCA of 2.7, while vehicles reached 0.75 (70th percentile) with an RCA of 2.6. In contrast, the textiles sector, despite incremental improvements, lagged with a score of -0.63 (35th percentile) and an RCA still above 8, indicating persistent specialization but within a lower-complexity category. Other sectors, such as chemicals and electronics, showed increased complexity scores, signaling broader advancements in Romania's export capabilities and diversification into more knowledge-intensive and technologically advanced products. This evolution underscores Romania's strategic shift towards higher-complexity sectors while maintaining its traditional strengths where it holds significant comparative advantages.

THE GEOGRAPHY OF TEXTILE EMPLOYEES

Our objective was to map the textile products onto the system of business classification to identify which companies are responsible for their creation and assembly. We have been using HS92 (Harmonized System 1992), an international classification system for goods, to standardize the identification of textile products in global trade and facilitate the comparison of trade statistics across countries. However, to connect these products to specific companies, we need to align HS92 with NACE (Nomenclature of Economic Activities), the European statistical classification system that categorizes economic activities for compiling and analyzing industry-specific economic data. This mapping process is complex due to structural differences between HS92 and NACE. Therefore, we linked the HS92 classification to the main business activities of companies as classified by their internal systems, effectively aligning product categories with business verticals to understand which companies produce and assemble these textile goods.

The HS92 (Harmonized System) is designed primarily for tracking global trade flows, emphasizing product-specific categories at a granular level, while NACE (Nomenclature of Economic Activities) is structured around economic activities rather than specific products. Therefore, directly aligning these systems requires careful consideration of how products (HS92) correspond to economic activities (NACE). To address this, we employed a multi-step approach that involved transforming the HS92 categories through a series of intermediary classifications such as the Central Product Classification (CPC) versions and International Standard Industrial Classifications (ISIC), which serve as bridges to the NACE system.

The process began by transforming HS92 categories into CPC version 1.0, which offers a product classification that is somewhat compatible with trade and production data. From

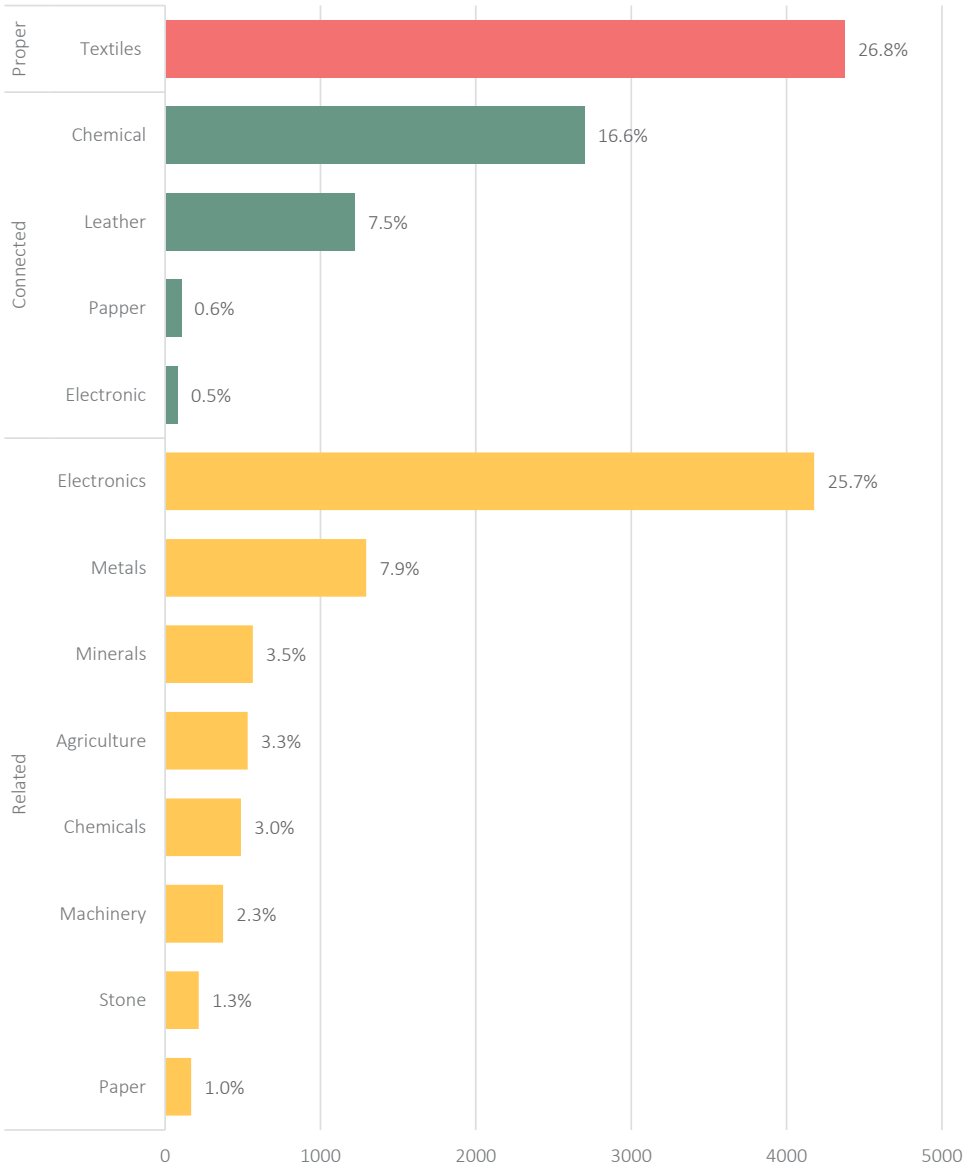
CPC 1.0, we used the parent-child structure to map to CPC 1.1 and subsequently to CPC 2. Each of these steps allowed us to create a more precise alignment with industrial activities. The next step involved linking the CPC system with ISIC classifications (versions 3, 3.1, and 4), as ISIC serves as a core industrial classification system bridging between CPC and economic activity codes like NACE. ISIC version 4, in particular, offers a closer alignment with modern economic activities reflected in NACE. By using these ISIC codes, we could finally map the categories to NACE version 2, ensuring a consistent translation from product-specific data in HS92 to the broader economic activities captured by NACE. This multi-layered transformation ensures that the equivalences are as precise as possible, considering the categorical differences and updating the mappings based on established international standards across classification versions.

To map the textile HS92 classifications onto NACE Rev. 2, we first plotted the HS92 textile codes directly onto the NACE framework. If there was an exact match between an HS92 code and a NACE code, we categorized it as "textile proper." For instances where a NACE 4-digit code had more than 50% of its export value in 2022 attributed to textile products, we considered this as a "connected domain." We then classified these related domains based on their NACE 2-digit level, determining the specific type of textile-related activity. If a NACE 4-digit code had less than 50% but more than 5% of its export value in textiles, we classified this as a "related domain." Similarly, these connected domains were categorized based on their NACE 2-digit level to specify the type of connection to the textile industry.

FIGURE 23

Product space of textile products in Romania by business vertical, 2021

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector.



Romania's 2022 textile exports show that fundamental textile products, including apparel, home and interior items, and raw materials, make up 23% of the total sector's export value. While this is a smaller share compared to other categories, it still represents a solid foundation for Romania's traditional textile manufacturing. The export distribution highlights an evolving textile sector where these core products remain essential, but the most significant growth and value are derived from the sector's connections with more diverse and technologically advanced industries. Nearly half (49%) of the total export value comes from industries that are related to textiles but not core textile activities. These include sectors like electronics, machinery, and metals, which, while not exclusively textile-focused, integrate textile components into their production processes. This substantial share underscores the broad reach and diversification of Romania's economy, showing how textiles are embedded into various high-value industries. In addition, industries directly connected to textile activities but extending beyond traditional applications, such as the automotive, chemical, and leather sectors, make up 28% of the total export value. This significant portion illustrates Romania's capacity to integrate textiles into specialized and technical areas, reflecting related diversification towards producing more complex and high-value goods within the textile ecosystem.

The analysis reveals a significant challenge in accurately mapping the textile sector: textile products often do not align directly with the business activities reported by companies. Many products categorized as textiles are integrated within diverse industries, such as automotive, chemicals, and electronics, making it difficult to trace their origins solely within traditional textile firms. As a result, when textile products are linked to company activities, the sector's presence appears diminished. This fragmented representation shows how textile production intertwines with various industries, spreading its influence across multiple domains. It is a complex, interwoven landscape, like hidden patterns in fabric, a set of economic and social woven secrets. This complex, interwoven landscape reflects how textile activities are often embedded within other sectors, making the full scope of their economic contribution less visible. The subtotals show that a significant portion of the textile-related economic activity is hidden within connected and related domains like automotive, chemicals, and machinery. This layering and integration across various industries reveal the woven secrets of the textile sector, where its influence is deeply embedded, yet not immediately apparent when viewed through the traditional lens of company activities.

The visualisation in Figure 24 represents the product space of Romania's textile sector, specifically focusing on products with a Revealed Comparative Advantage (RCA) greater than 1. This criterion ensures that only products in which Romania has a demonstrated specialization in global markets are included. The business verticals within the textile proper category were deduced based on their connection and classification within the NACE codes, linking the types of textile products directly to the economic activities of companies involved in their production or assembly. By aligning these products with NACE classifications, we mapped their presence and connections within Romania's economy more accurately. This network highlights the embeddedness and variety of textile-related products, revealing how they interlink with other sectors and showing Romania's position within global value chains for these specialized products. The connections emphasize the diversity within the textile sector and its reach into different areas of the economy.

THE GEOGRAPHY OF THE TEXTILE SECTORS

Using company-level data from balance sheets available on the governmental data portal (data.gov.ro) under the Ministry of Finance, we mapped the geographical distribution of Romania's textile sector. This data provided detailed insights into economic activity and workforce distribution within the sector. Employing the NACE Rev. 2 classification system, we grouped companies into two categories: those belonging to the textile proper and connected sectors, and those in textile-related sectors where textile activities are present but classified

FIGURE 24

Product space of textile products in Romania by business vertical, 2021

Data sources: Atlas of Economic Complexity, 1962–2022, Exports based on HS92 Textile Sector.

under different NACE codes. This approach allowed us to capture the textile industry's comprehensive economic footprint, revealing both its direct and indirect impacts across the country.

For each group, we developed two sets of maps: one illustrating the number of employees and the other depicting turnover values, both drawn from the companies' balance sheets. The employee maps show the spatial distribution of the workforce, highlighting areas with significant employment concentrations and trends in textile and connected industries. The turnover maps, meanwhile, provide a financial perspective, displaying the economic output and profitability of these activities at the county level, thus offering a fuller understanding of the economic landscape.

For instance, the employee distribution map from 2022 reveals a high concentration of textile-related employment in counties such as Brașov, Bihor, and Maramureș. Brașov leads with 4,137 employees in the textile and connected sectors, accounting for 78% of the workforce in these industries, indicating strong regional specialization and reliance on the sector. Maramureș also shows a significant number of employees (2,056), comprising 65% of the sector's workforce. Counties like Bihor and Neamț have substantial absolute numbers

of employees (1,412 and 1,895, respectively) but slightly lower percentages (37% and 69%), suggesting a more diversified industrial base compared to Brașov. In contrast, counties in the southern and eastern regions, such as Giurgiu, Mehedinți, and Tulcea, have minimal employment numbers in these sectors, with percentages at or near 0%, indicating a lack of textile and connected industries and a focus on other economic activities. This highlights the regional disparities and specialization within Romania's textile industry, with a strong base in some regions and negligible presence in others.

Figure 26 illustrates the turnover in the textile and connected sectors across Romania for the year 2021. It shows the distribution of revenue generated by these industries at the county level, providing insight into the economic impact and concentration of textile-related activities throughout the country. Counties such as Bihor, Sibiu, and Maramureș stand out with high turnover values. For instance, Bihor reaches over 460 million RON, reflecting a strong economic presence in textile and connected industries. This indicates that these counties have well-established industrial bases capable of generating significant revenue. The turnover percentage indicates the proportion of these industries' revenue relative to the total county economy. In Bihor, for example, 71% of the revenue within the textile and connected sectors contributes to the county's economic activity, showcasing its dependence on these sectors. On the other hand, some counties such as Mehedinți and Tulcea show minimal turnover values, indicating a limited presence or economic reliance on the textile sector. Mehedinți, with a turnover of just 78,086 RON, shows no percentage contribution, suggesting that this sector is almost nonexistent in the county's economic landscape.

The previous maps highlight the significant regional disparities within Romania's textile sector, showing a stark contrast between counties with a robust, revenue-generating presence and others that are either marginally engaged or entirely disengaged from textile-related economic activities. This uneven distribution reflects varying levels of industrial development and specialization across the country, with the central and northern regions emerging as focal points for textile and related industries. A similar pattern is observed in the maps representing the textile-related sectors, which reveal an extension of this trend.

FIGURE 25

Employees in textile industries at municipality and region level 2022, in Romania

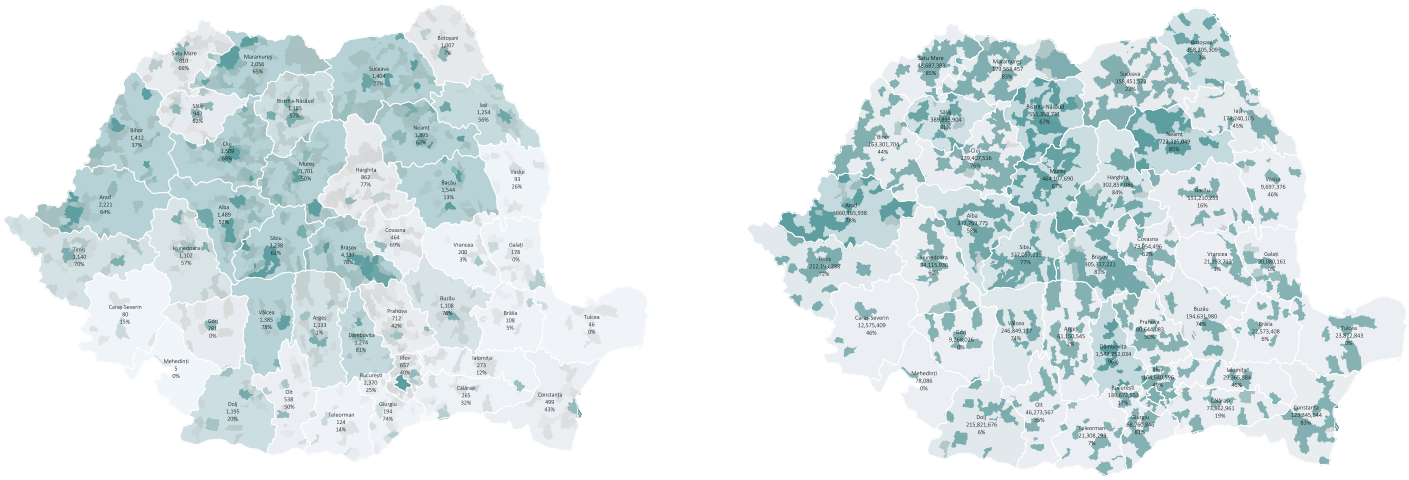


Figure 27 presents the distribution of employees within textile-related sectors across Romania in 2022, illustrating the regional variations in workforce concentration. Counties such as Brașov, Maramureș, and Bihor exhibit substantial employment numbers, signaling a significant industrial footprint. For instance, Brașov employs over 4,137 individuals in textile-related sectors, representing 78% of its workforce in this domain, while Maramureș hosts 2,056 employees, equating to 65% of the sector's workforce. These high percentages underscore the importance of textile-related industries to the local economies, supporting both manufacturing and export-oriented activities. In contrast, counties such as Mehedinți

FIGURE 26

Turnover in textile and connected sectors at municipality and region level 2022, in Romania

FIGURE 27

Employees in textile related industries at municipality and region level 2022, in Romania

and Tulcea show negligible or zero employment in these sectors, pointing to a lack of industrial development in textile manufacturing in these areas. This regional distribution demonstrates that textile employment is predominantly concentrated in the central, western, and northern regions, which act as hubs for the industry, while other areas show limited or no involvement, reflecting the varying levels of industrial capacity and specialization across Romania.

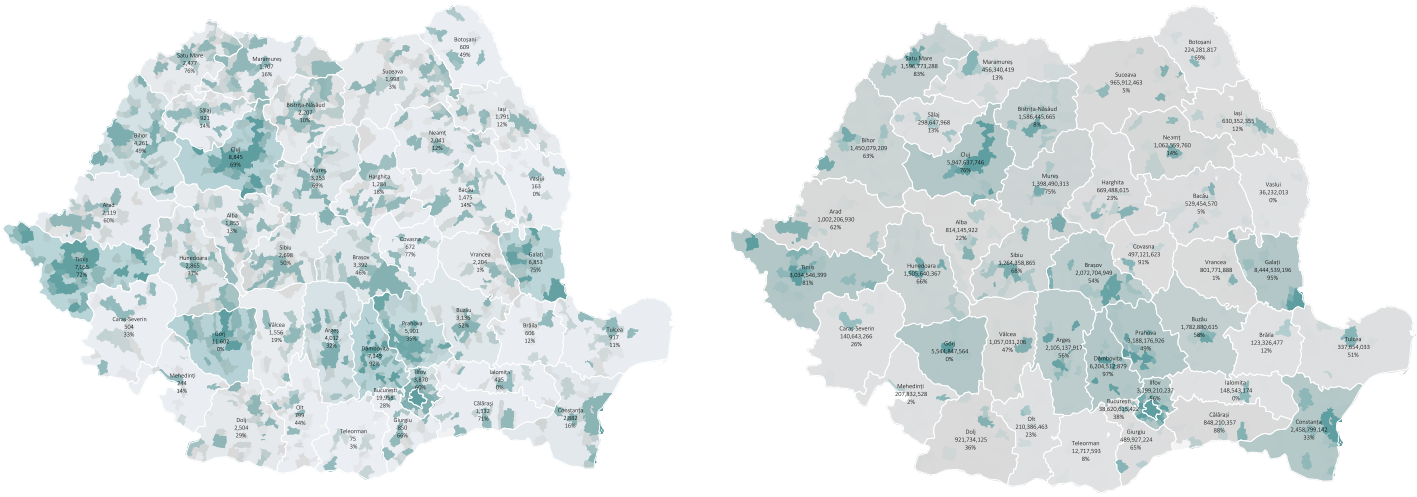


FIGURE 28

Employees in textile related industries at municipality and region level 2022, in Romania

Figure 28 illustrates the turnover distribution within textile-related sectors across Romania in 2021, highlighting the economic performance at a county level. Counties like Bucharest, Constanța, and Galați emerge with the highest turnover values, indicating strong industrial and commercial activity. For example, Bucharest records a turnover of over 3.19 billion RON, with a substantial 97% share in textile-related sectors. Similarly, Constanța reports 2.58 billion RON, accounting for 93% of its sectoral turnover, underscoring the advantages of infrastructure, investment, and proximity to major ports, which enhance trade and economic activity in these regions. In contrast, counties such as Vaslui and Mehedinți show minimal turnover values, illustrating a limited role for textile-related industries in their economies. For instance, Vaslui's turnover of 36 million RON, representing 0% of the county's total, highlights a lack of industrial capacity in textile activities. These disparities underscore the uneven distribution of economic activity, with central and southeastern counties showing higher concentrations of turnover, indicating that Romania's textile-related economic activities are predominantly centered in urbanized and industrialized regions, while other areas remain largely disconnected from this economic network.

The geography of Romania's textile sector reveals significant regional disparities and highlights the complex structure of the industry. These findings illustrate the uneven industrial development across Romania and highlight the concentration of textile-related activities in specific regions, showing how Romania's textile industry and its related sectors are deeply intertwined within the country's broader economic fabric.

CONCLUSIONS

This text set out to explore the evolution of the global textile industry from 1962 to 2022, with a particular focus on Romania's changing role within global value chains and its specific trajectory within the European context. Our primary objectives were to examine the trends in global textile exports and their share in global GDP, analyze the geographic shifts in textile production and exports—particularly the rise of Asia and the decline of Western Europe—evaluate Romania's integration into global textile trade considering its post-socialist economic

transformations, and map the geography of the sector by 2022. Through this analysis, we aimed to understand how traditional industries like textiles adapt and reposition themselves within an increasingly complex global economy.

The analysis contributes to the broader literature on global economic integration, industrial geography, and the shifting complexity of economic sectors. By employing the product space approach and focusing specifically on Romania's textile industry, the study aligns itself with previous work on economic complexity (Boschma, 2010; Hausmann & Hidalgo, 2011; Hidalgo et al., 2007), and sectoral specialization (Ban, 2016; Petrovici, 2018). The analysis of Romania's evolving position in global value chains, particularly through its integration in textile production, highlights the dynamics of regional competitiveness and related diversification. This contribution helps to contextualize the ongoing transformations within global supply chains and the embeddedness of textile industries in both high and low complexity economies.

The research revealed that while global trade as a proportion of global GDP has steadily increased, the textile industry's share has followed a divergent path, growing in absolute terms but declining in relative importance due to structural shifts toward higher-value-added and technologically intensive sectors. Our findings highlighted significant geographic shifts in textile production, with Asia emerging as the dominant exporter by leveraging lower labor costs and expanding manufacturing capacities. Western Europe's role diminished but remained significant in high-value-added segments. Romania's experience mirrored these global trends but was further shaped by its post-socialist transition, leading to increased integration into global supply chains primarily through FDI and related diversification into mid-level technological industries.

Contrary to some literature suggesting that upgrading in the textile sector occurs primarily through digitalization or sustainability initiatives (Alexander & Lund-Thomsen, 2020; Kwon & No, 2023), our study found that Romania's textile industry has adapted by becoming intricately linked—or "woven"—into more technologically advanced sectors. This integration has been facilitated by an FDI-led, export-reliant growth model (Ban & Adăscăliței, 2022), enabling the textile sector to transform into a supporting industry within sectors like automotive and aerospace manufacturing. This concealed influence underscores the sector's resilience and its ability to maintain relevance amid the rise of more complex industries.

Despite these advancements, the textile sector in Romania continues to face challenges in moving towards higher-value-added production and increasing its economic complexity. The industry's complexity remains lower compared to other sectors such as electronics and vehicles, highlighting persistent difficulties in adapting to global economic shifts. Limitations of this study include the constraints of available data, particularly in mapping textile products onto specific business activities due to the sector's integration across various industries. Additionally, the complexity indices used may not capture all nuances of the industry's transformation, and further qualitative research could provide deeper insights.

Future research should delve into the mechanisms of related diversification and the role of FDI in facilitating the transformation of traditional industries like textiles. Comparative studies involving other Central and Eastern European countries could shed light on whether similar patterns exist elsewhere. Moreover, exploring the potential impact of digitalization and sustainability practices on the textile sector's evolution would provide valuable insights into alternative pathways for upgrading and competitiveness in the global market. Understanding these dynamics is crucial for policymakers aiming to support traditional industries in transitioning towards more complex and value-added production within an increasingly technological and sustainable global economy.

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