



# ALPINE TEXTILE MAPPING

ECONOMY, INSTITUTIONS AND LABELS



## MAPPING ALPINE TEXTILES ECONOMY, INSTITUTIONS & LABELS

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It synthesizes the results of Activity 1.2 (Mapping the current state of Alpine textile value chains) and is part of work package 1 (Mapping textile heritage & circularity in textile Alpine value chains to prepare pilots & solutions).

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#### INTRODUCTION

### THE TEXTILE SECTOR IN THE EUROPEAN ALPS

The Alpine textile sector is characterized by a highly fragmented setting of institutions, certifications, and labels. As the example of wool shows, value chains are embedded regionally, but also linked to global production networks (Petek and Marinšek Logar 2021). The Alpine region comprises seven nation states and therefore different political systems. As a result, textile companies have to comply with a variety of legal systems and regulations at national and European level. According to the European Apparel and Textile Confederation, the leading countries in terms of employment, turnover and exports are Italy, Germany and France (Euratex 2024). These three countries are partly located in the Alps, which indicates the importance of textile and clothing production based on a long tradition in the Alpine region.

Consumer perspectives have gained significant importance for economic success (for more information on the consumer perspective and Alpine Textile Heritage, see online: <a href="https://www.alpine-space.eu/project/alptextyles/">https://www.alpine-space.eu/project/alptextyles/</a>). This has led to an increasing relevance of environmental sustainability and animal welfare in public debates and production processes. These debates are further fueled by the fact that Life Cycle Assessments (LCA) often consider man-made fibers to have a better environmental balance. This may be the case for 100% recycled production processes, but the environmental and sanitary footprint of the petroleum-based substances used in the production process might be underestimated. This is important to highlight as the demand for finished products at comparatively low prices has led to a current apparel sector with high levels of finished oil-based textiles.

The commented mappings at hand highlight the current situation in the Alpine area from different points of view. It presents a set of cartographic maps (Figure 6, Figure 7, Figure 8, Figure 9), institutional mappings (Figure 10, Figure 11, Figure 12), and condensed commentaries. The focus is on the Alpine textile sector, highlighting the economic perspective, institutions, certifications and labels, and market related issues.



Based on an institutional mapping approach, the mappings provide a multiscalar overview of important actors across textile value chains. They present the institutional setting and refer also to certifications and labels. In a second step, statistical data were processed to provide a cartographic overview of the current status and ongoing developments in the Alpine textile sector. Considering the availability of comparable data, the Industrial Classification of Economic Activities in the Euro-pean Communities (NACE) differentiates the textile sector into two very prominent parts of the value chain. On the one hand, the textile manufacturing industry includes the processing of yarn and fibers and the production of non-clothing textiles. On the other hand, the production of apparel refers to the clothing sector, including outerwear, underwear, etc. This classification allows to visualize different indicators (e.g. number of enterprises or persons employed). The approach ensures comprehensive and reliable results in a differentiated way, serving as an analytical basis for the pilot and implementation phases of the project.

The Alps, here defined as the Interreg Alpine space program, cover 42 NUTS-2 regions in Austria, eastern France, Liechtenstein, northern Italy, Slovenia, southern Germany and Switzerland.



## TEXTILE PRODUCTION IN THE GLOBAL AND EUROPEAN CONTEXT

According to the Textile Exchange platform, about 113 million tons of fibers were produced worldwide in 2021 (see Figure 1). The majority of the fibers produced are synthetic fibers with 64%, in particular polyester with a share of more than 50% of the total fibers produced. The second most produced fiber are plant fibers with 28% and man-made cellulosic fibers with 6.4%. Animal fibers have a share of only 1.6%. Wool tends to be a niche fiber with a share of less than 1%.

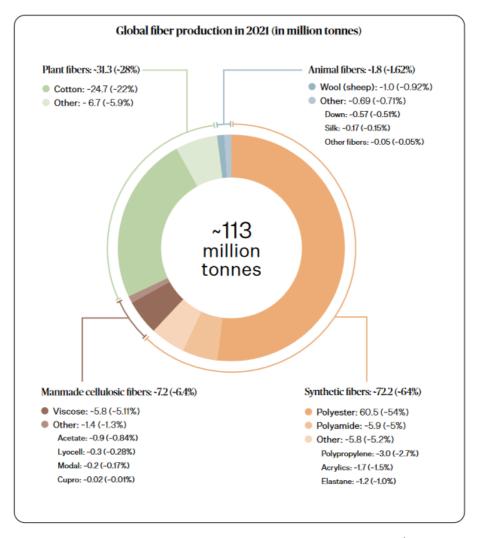


Figure 1: Shares of fiber types at total fiber production in 2021 (source: Textile exchange 2022).





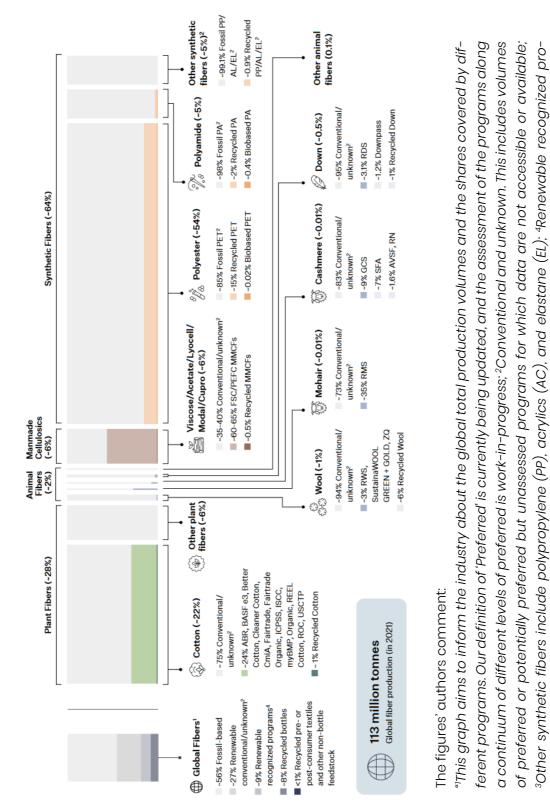


Figure 2: Composition of fiber types and share of sustainable certified fibers in 2021 (source: Textile exchange 2022).

grams include here all the recognized programs listed in this chart apart from the recycled fibers")

Also Figure 2 shows the composition of fiber types, including their share of preferred fibers for the year 2021 (classified by Textile Exchange). Most of the fibers produced worldwide are more or less fossil-based or conventionally produced. Taking animal fibers as an example, the share of certified fibers ranges from 35% for mohair to only 5% for down. Recycling rates also vary widely. While polyester fibers have a 15% recycled content, often in the form of recycled bottles, most other fiber production ranges between 0% and 6%.

Following the European apparel and textile confederation (Euratex), the enterprise structure in Europe is characterized by a high proportion of micro enterprises, meaning they have between 0 and 9 persons employed. Their share accounts for the vast majority of all companies. Small and medium sized companies are the second largest group with together about 11% of all companies. Only under 1% of the enterprises in the textile and clothing industry have more than 250 persons employed (see Figure 3).

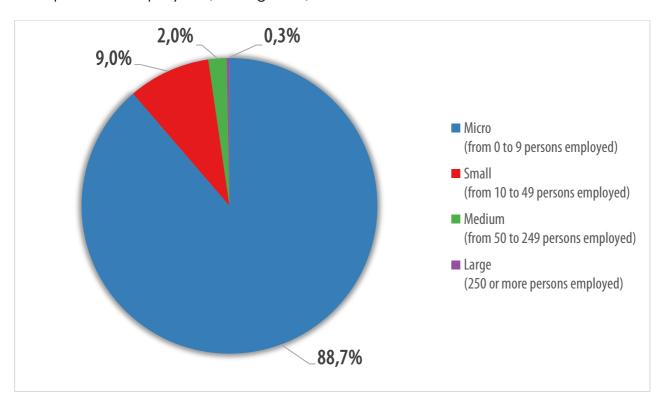


Figure 3: Size of companies in the European textile and clothing industry (source: Euratex 2024).



Figure 4 shows the development of the turnover compared to the previous year over time. It focusses on the turnover of manufacturing in general (NACE class C), the turnover of manufacturing of textiles (NACE class C13) and manufacturing of clothing (NACE class C14) between 2001 and 2023. The graphs are quite similar. However, the two shocks of the financial crisis in 2009 and the Covid-19-pandemie in 2020/21 are obvious. Nevertheless, the turnover clearly increased after the two shocks, proofing a certain resilience. According to Euratex 2024, the slowing down of the crisis recovery in 2023 can be explained with rising costs and lower demand.

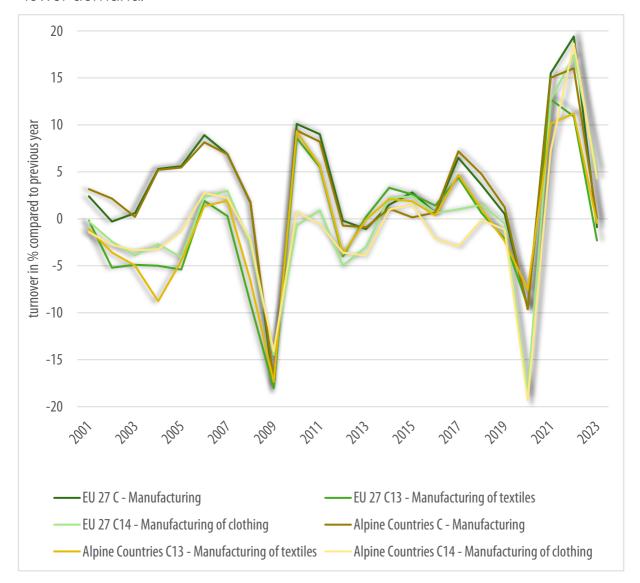
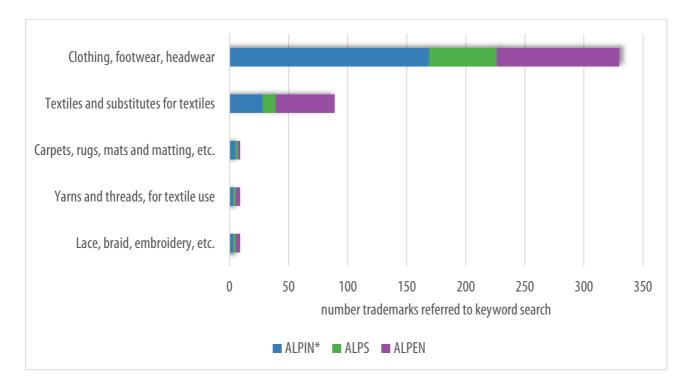


Figure 4: Development of turnover in textile and clothing between 2011 and 2023 (source: Eurostat 2024).

The Alps serve as a symbol and a unique selling narrative, as shown by the number of trademarks registered worldwide using the term 'Alps'. Figure 5 shows the results from a search for the terms of "ALPIN\*", "ALPS", and "ALPEN". The figure shows an increased density of brand names with a connection to the Alps, particularly in the clothing and textiles sector whereas Carpets, Yarns, etc. are less related.



**Figure 5:** Number of trademarks referred to the keywords (source: EUIPN - European Union Intellectual Property Network: TMViewer, processed by emlyon 2023).





#### METHODOLOGY & DATA

The underlying methodology is a two-step research approach as describes earlier. First, secondary information is collected from statistical databases and from sector reports. This information is compiled in form of draft mappings. Second, these drafts were validated and further developed during partner meetings and the research day on the Living textile heritage in Lyon in march 2024. This approach ensures comprehensive and reliable results in a differentiated way, serving as analytical base for the pilot and implementation phases of the project.

The data used for the maps in Figure 6, Figure 7, Figure 8 and Figure 9 are from Eurostat. The data used for the institutional mappings in Figure 10 and Figure 11 are from sector reports and databases provided by textile associations.

To get further information about the methodology, please refer to the following publications: Bertram, Chilla and Wilhelm 2021; Wilhelm and Chilla 2023.





#### MAPPING THE ECONOMIC PER-SPECTIVE OF THE TEXTILE INDU-STRY IN THE ALPS

Figure 6 shows the number of enterprises per 100,000 inhabitants in the textile industry. The data is retrieved from the Dun & Bradstreet database, which contains detailed information for different economic classifications. The underlying classification is NACE and the map refers to the manufacture of textiles (subgroup C13).

The map indicates a concentration of textile companies in all the Italian parts of the perimeter. Also, the eastern parts of Switzerland, Vorarlberg and the northern part of Bavaria show a higher density. This situation can be explained by a long tradition and path dependencies in textile production in these areas.

Figure 7 shows the change in the number of enterprises in the textile production over the years. In the NACE classification, this map refers to the section of manufacturing of textiles, including yarn, fabrics and other textile products excluding clothing. The map shows, in a green and red gradient color logic, the development of the number of enterprises between 2016 and 2020. It reveals a decrease in some parts of Germany, Switzerland, Italy, and Slovenia. In contrast, parts of Bavaria, Austria, and France show a positive development.

Figure 8 displays the number of enterprises per 100.000 inhabitants for the clothing industry. The underlying numbers refer to the subgroup C14 of the NACE classification. The situation in the clothing industry in the Alpine region can be described as clearly centralized. A high concentration of companies in the clothing industry can be seen in the north of Italy.

This finding can be explained with a concentration of many global players in the apparel segment in Northern Italy. In particular, many fashion companies have their headquarters located in these areas.



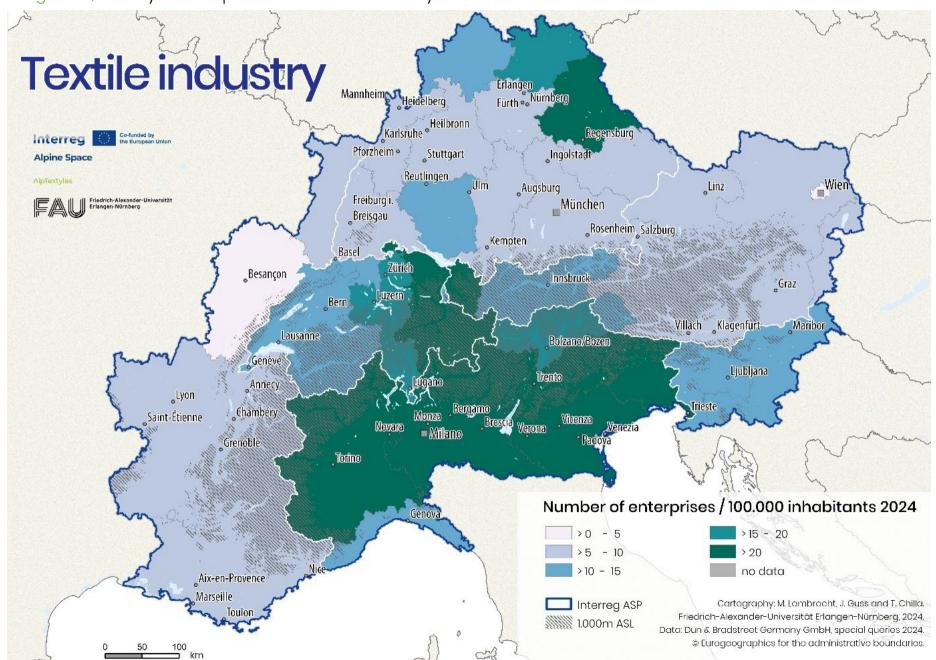
Figure 9 shows the change in the number of enterprises in clothing production over time.). This map refers to the section of manufacturing of wearing apparel following the Industrial Classification of Economic Activities in the European Communities (NACE). The map shows, in a green and red gradient color logic, the development of the number of enterprises between 2016 and 2020. The overall development in the number of enterprises is quite positive for French, Italian and Austrian parts, whereas German and Slovenian regions reveal a strong decline. Switzerland comprises both, decline in the lowland regions and increased numbers in the eastern and southern regions.



#### **Mapping Alpine Textiles**



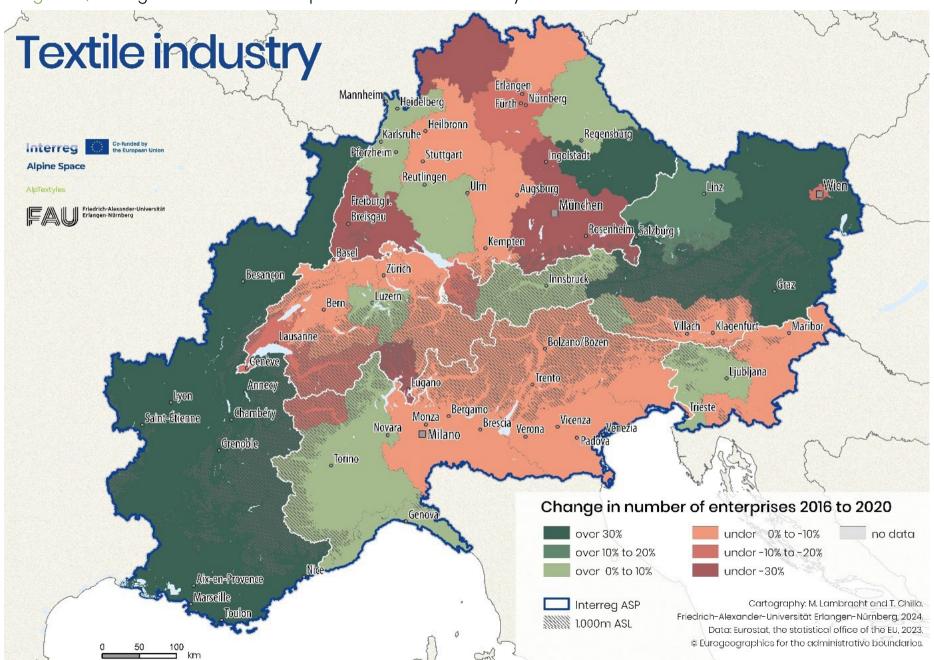
> Figure 6 | Density of enterprises in the textile industry in 2024.



#### **Mapping Alpine Textiles**

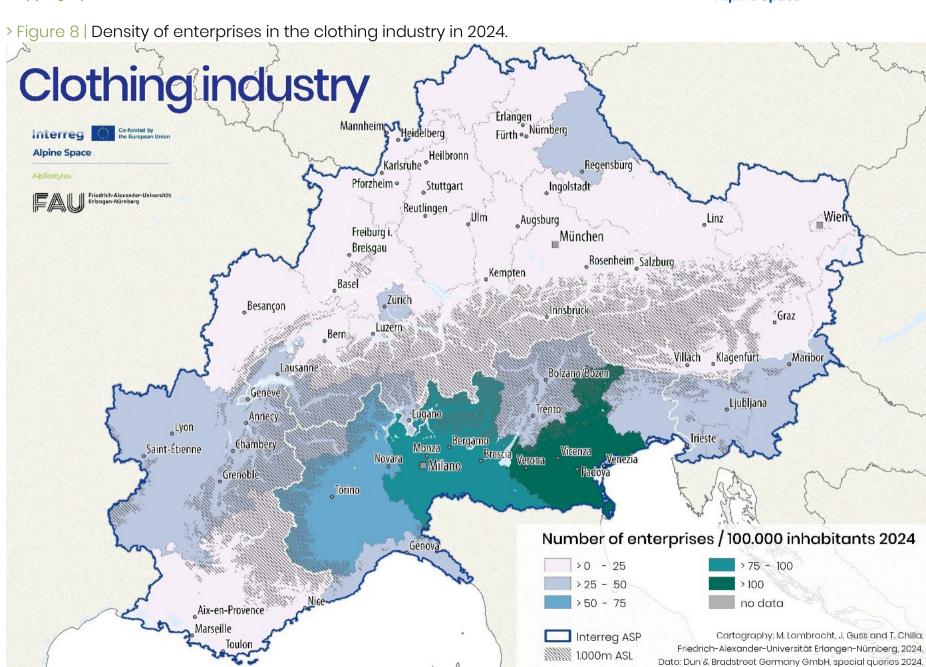


> Figure 7 | Change in number of enterprises in the textile industry from 2016 to 2020.



© Eurogeographics for the administrative boundaries.

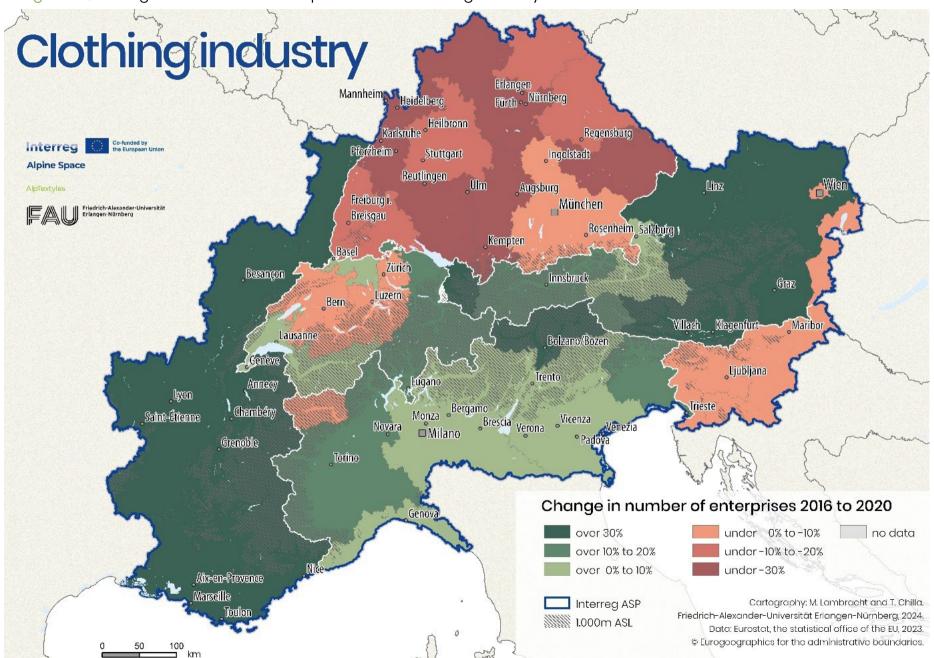
**Alpine Space** 



#### **Mapping Alpine Textiles**



> Figure 9 | Change in number of enterprises in the clothing industry from 2016 to 2020.





## MAPPING INSTITUTIONS IN THE ALPINE SECTOR

#### **DESCRIPTION & FINDINGS**

This mapping includes relevant actors from different stages along the value chain: *production* refers to the farming stage, *processing* to the production of yarns and fabrics, and *manufacturing* to the production of the final textile product. It differentiates spatial levels from the local to the global scale.

The pattern reveals an "Alpine gap" of relevant actors in this setting. From an institutional point of view, textile production and manufacturing depend on standards and certifications as a result of this institutional framework. Associations and networks play an important role for marketing and campaigning strategies. Especially regional and national networking hubs play an important role for valorizing regionally produced fibers and final products. These networks can be linked to global players (e.g. for the Alpine wool: swisswool, tirolwool) or to be bottom up initiatives (e.g. for Alpine wool: locwool).

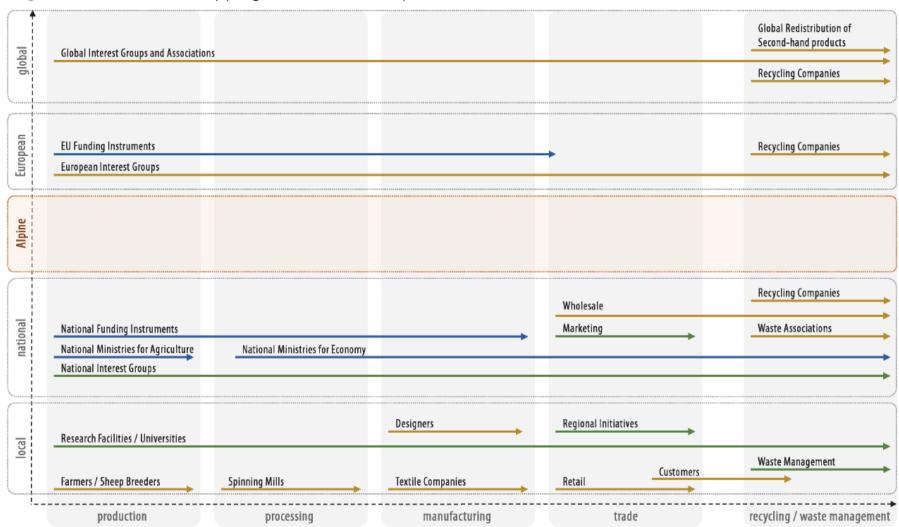


#### **Mapping Alpine Textiles**

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> Figure 10 | Institutional mapping of actors in the Alpine textile sector.



#### Mapping of textile institutions in the European Alps



Data: based on sector reports and own research Project: AlpTextyles, 2023 & 2024 Concept & Visualisation: M. Lambracht, R. Sachs and T. Chilla, Friedrich-Alexander-Universität Erlangen-Nürnberg, **2024.** 



## MAPPING LABELS IN THE ALPINE TEXTILE SECTOR

#### **DESCRIPTION & FINDINGS**

The mapping shows labels and certifications in the Alpine textile sector at different levels and stages of the value chain. The columns mark the stages of production of raw material, processing of yarns and fabrics, manufacturing of the final textile product, and trade. Additionally, the stage of recycling and waste management is included.

First, it shows an 'Alpine gap' of relevant actors in this setting, which indicates similar results as in the mapping of textile institutions shown above. On the other hand, the high number of brandings that refer to the Alps in their trademark gives the impression of "alpine washing", i.e. that the reference to the Alps is more a marketing instrument than a question of the location of production steps (see Figure 5).

Second, many global labels are internationally recognized and, at the same time, many regional and national labels have a small-scale focus serve niche markets rather undependably from global markets. This can be seen as a global-local dichotomy.

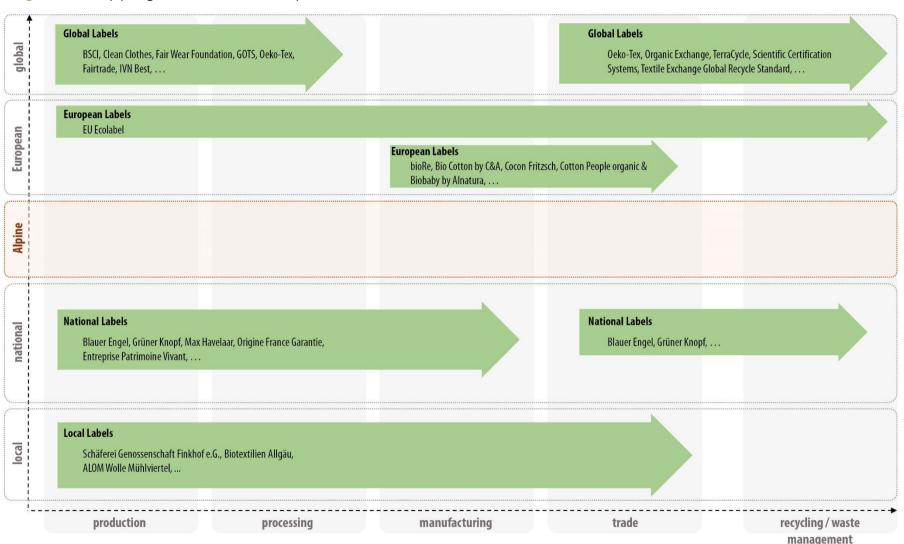
Labels and certifications at the global level are often relevant for specific products or fibers (e.g. wool, cotton). The aim is to ensure transparency and quality, especially when it comes to production chains and networks that are often highly branched. In contrast, regional certifications and labels focus on geographic origin and the cultural heritage associated with it (e.g. Swisswool, Chiemgau). The link to local embeddedness ensures quality and regional added value.



#### **Mapping Alpine Textiles**



> Figure 11 | Mapping of Labels in the Alpine textile sector.



Mapping of textile brandings and labels in the European Alps

Data: based on sector reports and own research Project: AlpTextyles, 2023 & 2024 Concept & Visualisation: M. Lambracht, R. Sachs and T. Chilla, Friedrich-Alexander-Universität Erlangen-Nürnberg, **2024.** 



#### MAPPING MARKET RELATED RE-GULATIONS

#### **DESCRIPTION & FINDINGS**

Figure 12 shows with the example of Alpine wool market related regulations. First, the political document of the Treaty of Rome regulates agricultural funding and subsidies at European level. Since Alpine wool is not classified as an agricultural product, funding is not available.

Secondly, industrial production requires large quantities of a certain wool quality. This request is accompanied by specific standards and certifications that limit the market access for alpine wool, as the quality varies.

Thirdly, current environmental classifications, especially Higg Index, favor non-animal fibers in terms of sustainability and greenhouse gas emissions. This depends strongly on the underlying methodology and is often criticized by wool associations and farmers. They point out that, on the one hand, the climate benefits of sheep farming are not taken into account in the calculations and, on the other hand, the fact that synthetic fibers are originally made from oil is ignored. This results in an unequal, non-comparative approach.

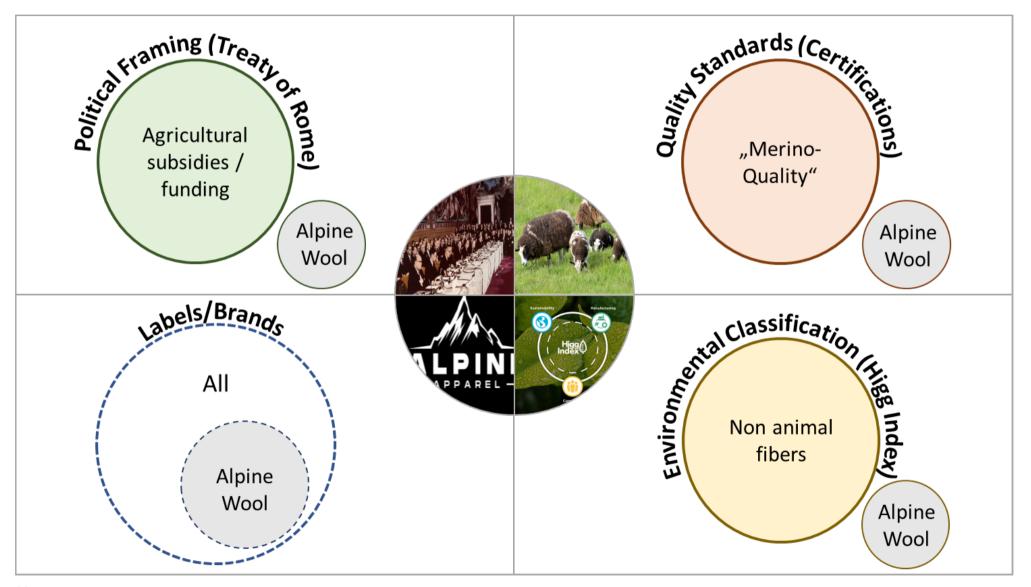
Finally, a large number of labels and brands support the origin of Alpine wool, which could be an advantage in terms of market access. However, as shown in the introduction and also in the section on labels in the Alpine textile sector, this is not exclusively the case for Alpine wool. In particular, labels and brands from North America and Asia use marketing arguments associated with the Alps. All these issues lead to a situation in which the local production of wool and wool products in the Alps is a niche market with many barriers to economic success.

To sum up, one could say that in the collective unconscious the Alps do not primarily refer to a specific place, but to an imaginary embedding of activities, practices and concepts related to high mountains.



**Alpine Space** 

> Figure 12 | Market related regulations for the example of Alpine wool.





#### **SUMMARY**

The Alpine textile sector can be described as comparably strong. In particular, the strong clothing sector in Northern Italy, embedded in the global market, ensures a certain resilience of the textile and clothing industry in the Alps. Also, the textile sector shows strong values for certain regions in Switzerland, Austria and parts of Northern Bavaria. In addition to clothing, technical textiles are very important, especially in the Auvergne–Rhône–Alpes region. This sector of the economy is highly innovative and creates significant added value through applications in markets such as transport, sports, infrastructure and security. The economic success for both these sectors within the textile environment in the Alpine region can be explained on the one hand by strong global companies, and is also characterized by a large proportion of vital and innovative SMEs and microenterprises. The embeddedness in a strong cultural heritage and path dependencies support this strength.

However, these textile companies in the Alpine region have to address many different sectors (from clothing to technical textiles) with a complex actor setting (public and private) at all levels of the multi-level system (from local to global). This complexity comes along with a multitude of regulations and entrepreneurial support. A central finding is, that 'the Alps' are not really visible in terms of institutions or certifications/labels concerning the textile and clothing ecosystem, although the trademark analysis revealed an over proportional use of the term for marketing reason.

Nevertheless, the situation comes along with potentials that support the current situation. Firstly, establishing a specific marketing referred to "Made in the Alps' that displays considerable shares of production within the Alpine region is a key to support regional actors in the Alpine textile ecosystem. On the one hand, this is an effective tool to raise awareness amongst consumers and at the same time give farmers, SMEs, and Lead firms the opportunity to benefit from the region. On the other hand, a stronger regulation approach with the labelling could identify 'Alpine washed products' and empower regional trademarks and products.





Secondly, reaching a critical mass through regional networks leads to negotiation power within an international commercial system. This is true for certifications costs but also in terms of innovation or the achievement of standards.

Thirdly, the adaptation and simplification of the legal handling creates an environment which equal competition. In particular, the equality of conditions between different fiber types is important to safeguard equal market access, including the classification of agricultural products to enable public financing. compete with regard to a growing international market.

And finally, beside the revision of existing treaties and classifications, support with environmental classifications or the modification of LCA approaches allows to consider an even market access. This could lead to a situation where regional strength compared with the safeguarding of cultural heritage increases awareness on the consumer side and creates regional solutions for farmers and enterprises at all levels to better compete with regard to a growing international market.





## OUTLOOK ON PILOTS AND SOLUTIONS

The insights and information gathered in Activity 1.2 and summarized in this report formed the basis for the pilot actions in Work Package 2. In Work Package 3, these findings were incorporated into various solutions presented by the AlpT-extyles project (<a href="https://www.alpine-space.eu/project/alptextyles/">https://www.alpine-space.eu/project/alptextyles/</a>).

In the projects outcomes this report was primarily used for:

1) "The living textile heritage of the Alps and its sustainable circular future" Massive Online Open Course (MOOC):

The AlpTextyles MOOC is a free, open-access course on sustainable, circular, and place-based textile practices in the Alpine region. It explores historical techniques, digitized archives, and innovative approaches to support cultural heritage, local economies, and capacity building.

#### 2) Policy Brief:

It reports on the traditional Alpine textile heritage & current state and potential of the Alpine textile sector, providing multi-sectoral strategic recommendations for cultural and textile policies at the regional and macroregional (i.e., EUSALP) level, also considering the EU strategy for sustainable textiles & the coming EU regulation on geographical indications for heritage textile craft & industrial products.

#### 3) Orientation Guides:

Output will make accessible project insights to Target Groups. Orientation Guides will help textile SMEs & business support organizations to establish circular & heritage-sensitive value chains meeting consumer need for post carbon lifestyles.

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**Table 1:** Query D&B database for enterprises in the textile and clothing sector (NACE classification; Date of access: November 2023)

		13 Herstellung von Textilien									14 Herstellung v	on Bekleidung	3		
		13.1 Spinnstoffauf- bereitung	13.2 We- berei	13.3 Ver- edlung von Texti- lien und	3 Ver- 13.9 Herstellung von sonstigen Textilwaren 14.1 lung Texti-				14.1 Herstellung von Bekleidung (ohne Pelzbekleidung)  14.3 Herstellung von Bekleidung aus gewirktem und gestricktem Stoff						
NUTS	Name	und Spinnerei		Beklei- dung	13.91 Herstel- lung von gewirk- tem und gestrick- tem Stoff	13.92 Herstel- lung von konfekti- onierten Textilwa- ren (ohne Beklei- dung) 1392	13.93 Herstel- lung von Tep- pichen	13.95 Herstel- lung von Vliesstoff und Erzeugnissen daraus (ohne Bekleidung)	13.99 Herstel- lung von sonsti- gen Tex- tilwaren a. n. g.	Summe	14.13 Herstellung von sonstiger Oberbekleidung	14.19 Her- stellung von sons- tiger Be- kleidung und Be- kleidungs- zubehör a. n. g.	14.31 Her- stellung von Strump- fwaren	14.39 Herstel- lung von sonstiger Beklei- dung aus gewirk- tem und gestrick- tem Stoff	Summe
AT11	Burgenland	0	5	4	9	5	0	0	4	18	27	3	0	7	37
AT12	Niederösterreich	4	34	64	16	65	5	0	38	124	125	39	2	55	221
AT13	Wien	4	35	55	25	36	7	1	27	96	103	44	0	60	207
AT21	Kärnten	2	8	34	2	21	0	0	7	30	44	19	0	29	92
AT22	Steiermark	2	19	47	6	39	6	1	13	65	94	21	0	39	154
AT31	Oberösterreich	2	34	63	17	71	10	2	23	123	97	29	2	60	188
AT32	Salzburg	1	7	15	13	24	1	0	13	51	87	25	0	17	129
AT33	Tirol	6	18	45	15	30	3	3	30	81	90	16	0	42	148
AT34	Vorarlberg	10	28	65	13	36	2	1	86	138	38	10	5	22	75
CH01	Région lémanique	1	12	38	4	64	6	0	110	184	299	121	0	9	429
CH02	Espace Mittelland	10	14	73	5	79	8	0	147	239	235	127	3	13	378
CH03	Nordwestschweiz	6	8	61	5	30	8	4	115	162	157	84	3	4	248

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#### **Mapping Alpine Textiles**

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CH04	Zürich	9	10	70	2	76	13	1	186	278	312	177	1	8	498
CH05	Ostschweiz	27	26	94	6	86	5	3	204	304	155	87	4	15	261
CH06	Zentralschweiz	11	6	42	3	49	5	0	92	149	127	77	1	4	209
CH07	Ticino	1	6	8	2	18	1	0	43	64	84	61	0	0	145
DE11	Stuttgart	19	34	392	12	166	12	15	114	319	142	241	6	2	391
DE12	Karlsruhe	12	16	267	4	97	13	11	93	218	86	195	3	0	284
DE13	Freiburg	20	12	227	7	94	6	15	38	160	46	112	3	0	161
DE14	Tübingen	13	31	257	40	122	4	5	102	273	141	193	6	6	346
DE21	Oberbayern	8	31	540	12	181	22	4	202	421	322	595	3	3	923
DE22	Niederbayern	0	7	118	3	47	4	1	34	89	51	83	1	3	138
DE23	Oberpfalz	13	11	365	14	98	11	10	109	242	191	183	4	3	381
DE24	Oberfranken	28	71	187	13	85	8	14	75	195	64	95	2	3	164
DE25	Mittelfranken	9	10	186	2	72	3	5	50	132	78	135	0	0	213
DE26	Unterfranken	6	7	232	11	59	8	7	75	160	134	122	1	2	259
DE27	Schwaben	15	25	208	7	89	7	12	47	162	71	146	8	1	226
FRC2	Franche-Comté	3	4	9	1	32	0	1	14	48	55	19	1	3	78
FRF1	Alsace	3	12	23	6	82	2	8	23	121	103	59	4	11	177
FRK2	Rhône-Alpes	26	123	95	22	421	14	12	128	597	1325	446	18	44	1833
FRLO	Provence-Alpes- Côte d'Azur	17	30	77	11	352	8	2	88	461	577	288	6	22	893
	Lyon	1	10	1	1	20	0	0	6	27	68	30	2	0	100
	Grenoble	0		1	0	2	0	0	0	2	10	7	0	0	17
	Marseille	2	0	4	0	33	2	0	10	45	75	33	0	1	109
	Nizza (Nice)	1	0	2	1	10	0	0	6	17	26	15	0	2	43
	Annecy	0	0	1	0	6	0	0	0	6	14	5	0	0	19
	Chambery	0	0	1	0	2	0	0	4	6	7	2	0	1	10
	Toulon	0		0	0	3	0	0	0	3	13	4	0	0	17
	Besancon	0		1	0	2	0	0	1	3	9	0	1	0	10
	Saint-Étienne	0	0	0	0	0	0	0	0	0		0	0	0	0
	Straßburg	0	0	2	0	13	1	0	2	16	21	14	1	1	37
ITC1	Piemonte	433	359	281	34	604	56	57	176	927	1573	533	15	159	2280
		133			34	007	50	3,			1575	- 555	13		



#### **Mapping Alpine Textiles**

#### **Alpine Space**

ITC2	Valle d'Aosta/Val- lée d'Aoste	0	2	2	1	19	0	1	4	25	30	12	2	3	47
ITC3	Liguria	9	14	33	6	156	13	4	45	224	406	133	1	51	591
ITC4	Lombardia	548	1144	909	128	1742	131	142	527	2670	4278	2393	552	447	7670
ITH1	Provincia Au- tonoma di Bol- zano/Bozen	9	17	7	5	39	9	0	28	81	170	29	1	9	209
ITH2	Provincia Au- tonoma di Trento	10	11	10	0	97	7	4	21	129	118	50	5	10	183
ITH3	Veneto	90	218	552	81	891	49	135	257	1413	2683	1903	40	400	5026
ITH4	Friuli-Venezia Giu- lia	13	32	21	6	187	13	11	48	265	304	82	2	21	409
LIOO	Liechtenstein	0	0	2	0	2	0	0	2	4	4	2	1	0	7
SI03	Vzhodna Slovenija									0					0
SI04	Zahodna Slovenija									0					0
	Slowenien (Gesamt)	10	5	51	14	184	3	14	66	281	406	126	23	37	592

#### Explanation of colors:

- Yellow highlights regions with no data
- Blue marks regions with own elaboration and aggregation within the D&B databse



**AlpTextyles** 



























