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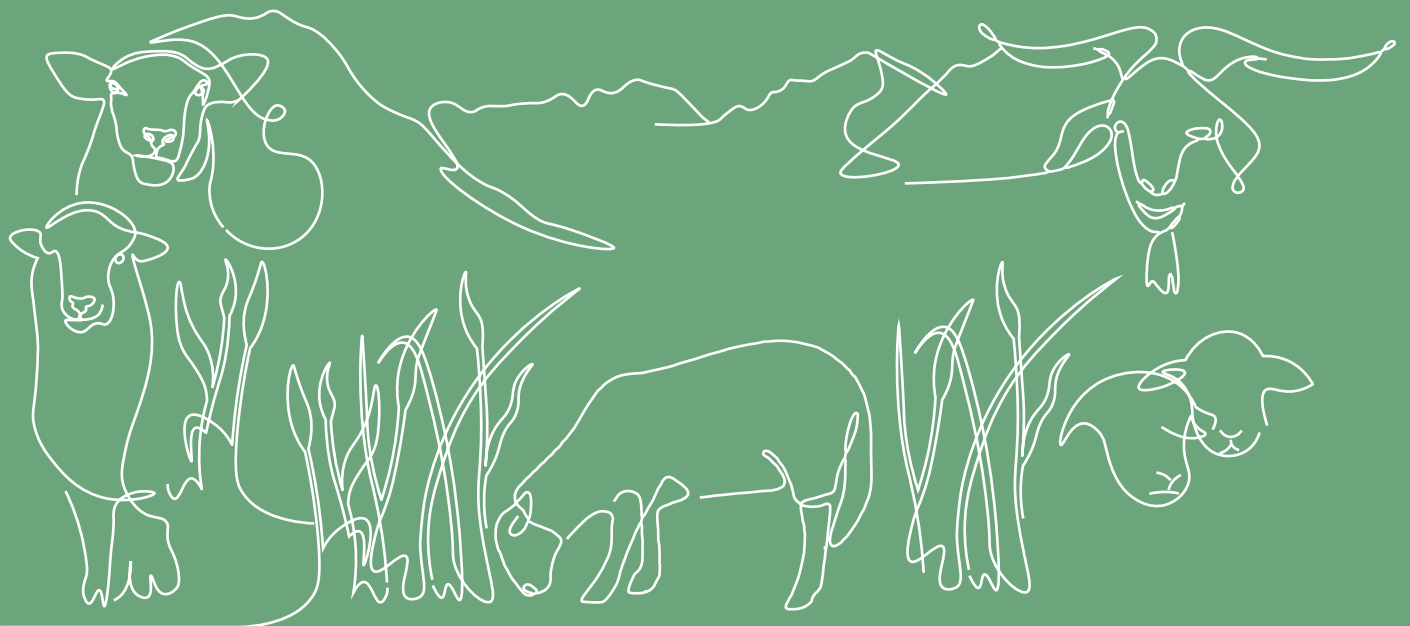
Co-funded by
the European Union

Alpine Space

AlpTextyles

MAPPING ALPINE WOOL

PRODUCTION NETWORK,
VALUE CREATION,
AND FOOTPRINT



MAPPING ALPINE WOOL

PRODUCTION NETWORK, VALUE CREATION & FOOTPRINT

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Acknowledgements: We thank all interview partners for discussing the mappings and interpretation with us.

This commented mapping is a result of the Interreg Alpine Space project Alptextyles (<https://www.alpine-space.eu/project/alptextyles/>).

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).

Erlangen 2024



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INTRODUCTION

WOOL IN THE EUROPEAN ALPS

The European Alps are home to a rich cultural heritage of sheep farming. Besides wool, sheep are used for a variety of purposes, including landscape conservation, meat production, milk and cheese. A rich history of craftsmanship in the specific processing of the wool fiber are the basis for an ancient wool processing region (for more information see Alpine Textile Heritage, online: <https://www.alpine-space.eu/project/alptextyles/>). As a result, this has led to a variety of breeds (cp. Tab. 2 in the annex) and vital and robust regional value chains have developed in several Alpine countries in history.

With the upcoming industrialization in the 19th and 20th century and the peak of globalization in the late 20th century, the shift to fast fashion and a high degree of fragmentation in global textile production disrupted regional value chains. Industrial production favored large amounts of wool with homogenous quality from farms in, e.g. Australia, Argentina, New Zealand, South Africa, and China, where the purpose of sheep farming is only wool. This pushed European textile manufacturers to change their focus and sourcing practices. Consequently, demand for regional Alpine wool declined significantly and so did the prices for raw wool. Additionally, globalization fueled price competition at all stages of production, leading to the relocation of most of Europe's processing and manufacturing industry to low-wage countries.

In response, most of the Alpine wool was now wasted (burned or buried), and only a minor share was used for regional or local production. Northern Italian producers shifted to a higher value market segment by sourcing global qualities of wool. Other regions were challenged by this increased competition, leaving a void in the Alpine wool industry. The resulting need for revitalization has attracted the attention of European economic development programs.



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 4, Figure 5), schematic mappings (Figure 6, Figure 7, Figure 8, Figure 9, and Figure 10) and condensed commentaries. The focus is on the Alpine wool sector zooming in the production network, value creation and environmental footprint issues.

The underlying methodology is a two-step approach. First, secondary information was collected from statistical databases and from sector reports. These information are compiled in form of draft mappings. Second, these drafts were validated and further developed via expert interviews. The involved experts are selected for their sector expertise and not as representatives of individual companies (see Table 1 in the annex). 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 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.



WOOL IN THE GLOBAL CONTEXT

According to the International Wool Textile Organization (IWTO) and the European Statistical Office (Eurostat), the number of sheep worldwide remains fairly stable at over 1 billion animals, with a moderate increase. In contrast, the quantity of clean wool produced worldwide is decreasing (see Figure 1). This is closely related to the continuing development of synthetic fibers and the associated synthetic textile production (For more information about the composition of the fiber quantities produced, see the commented mapping on the Alpine textile sector. Available online: <https://www.alpine-space.eu/project/alptextyles/>).

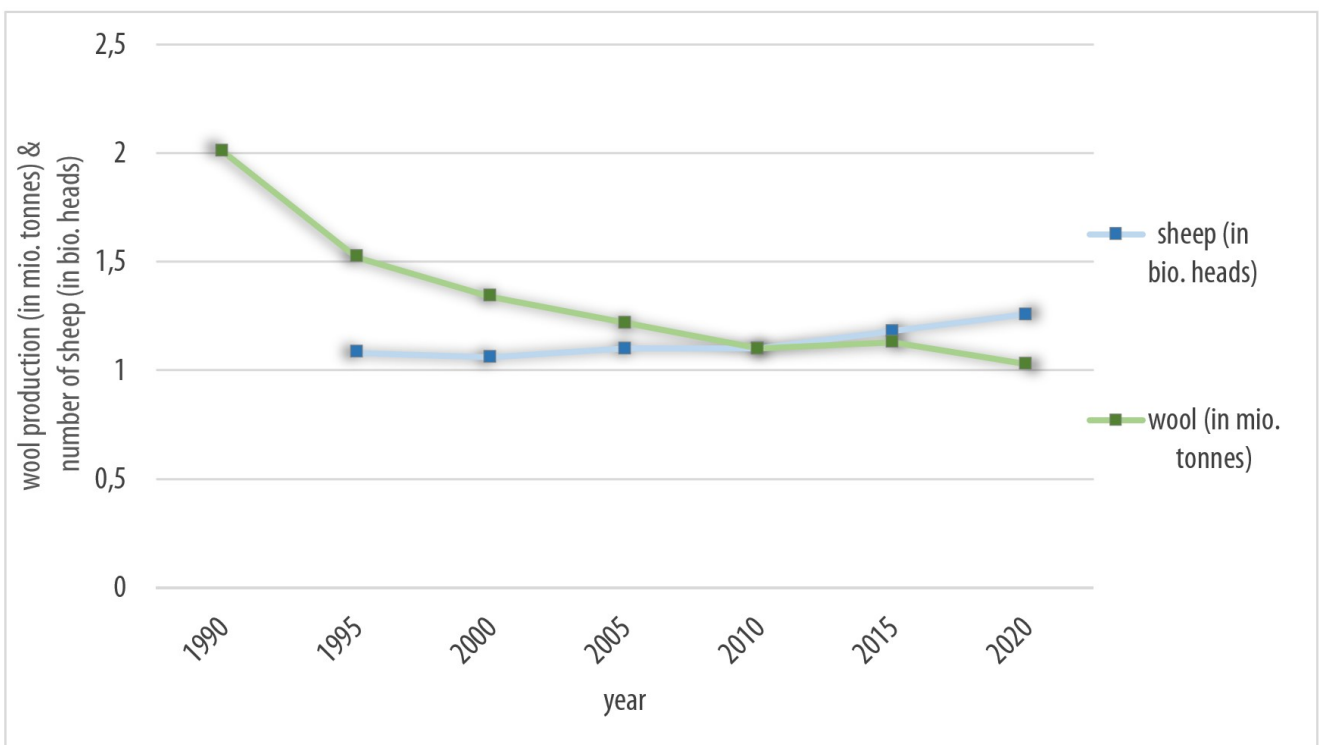


Figure 1: Development of the number of sheep and wool production of clean wool (source: IWTO 2021, Eurostat 2024).



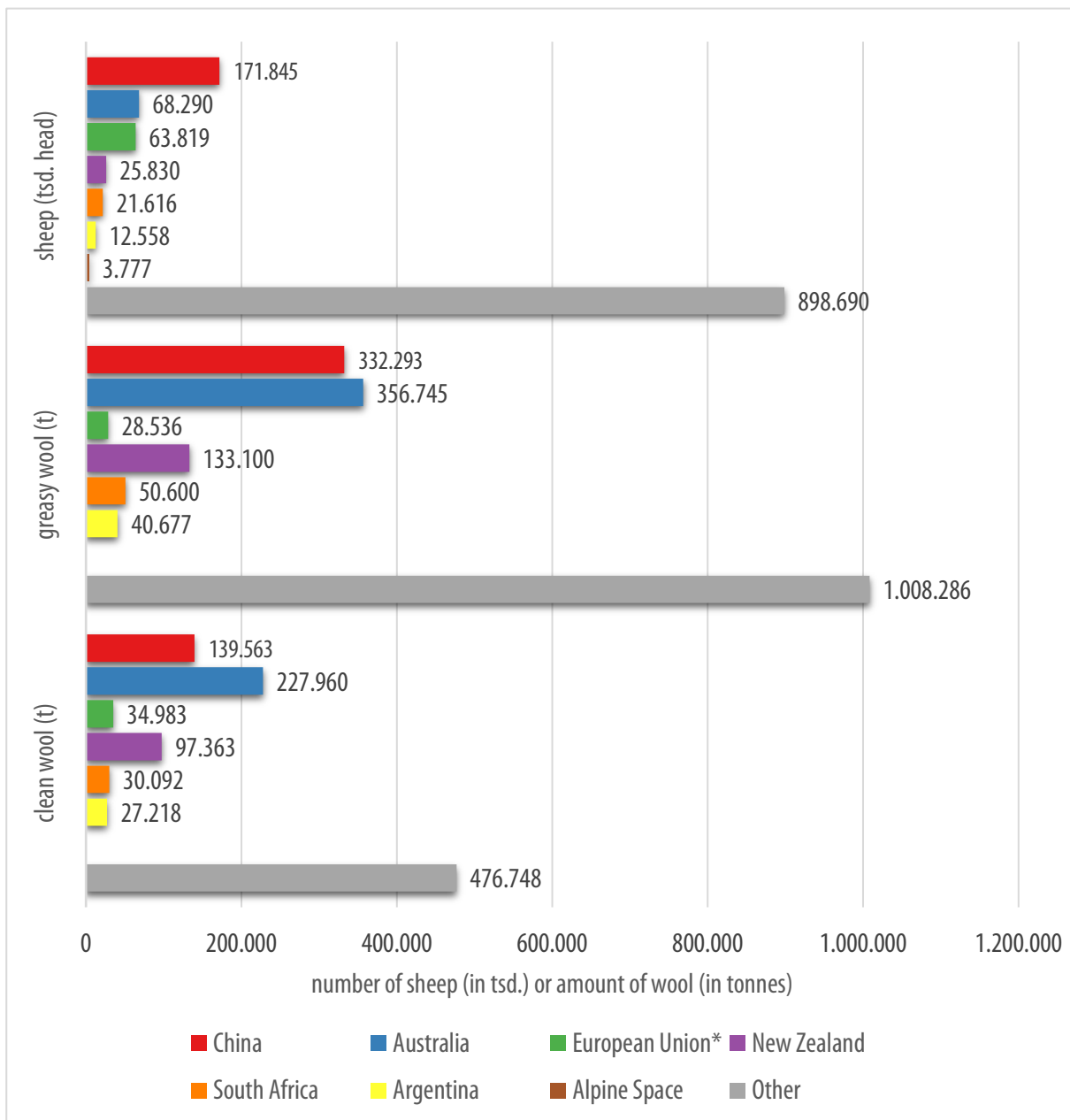


Figure 2: Global overview of sheep and wool quantities in 2021 (source: IWTO, Eurostat, Prodcom; *based on Eurostat estimations).



Figure 2 shows the distribution of the total number of sheep and the amount of greasy (wool after shearing) and clean wool (wool after first processing steps) worldwide. China has the highest numbers of sheep, followed by Australia and the European Union. Wool from sheep is a natural product with different qualities depending on the purpose of breeding. In particular, the diameter and length of the fibers, as well as the coloration, determine the future processing options of the wool. There are well over a hundred different breeds worldwide (IWTO 2021). Even in the Alpine region, more than 80 different breeds have been identified (see Table 2 in the Annex).

While in Australia, New Zealand, Argentina and South Africa, the Merino breed is dominant for fine wool, in other countries wool is a by-product of meat, milk and cheese production. These quality differences result in a highly competitive market with strong price differences.

China produces a relatively high amount of greasy wool but only about 40% is converted into clean wool. In contrast, Australia, New Zealand, South Africa, and Argentina are more focused on clean wool production with 60% to 75%. This clean wool is needed for the industrial production of clothing, but also for home textiles or alternative uses of wool (e.g. insulation).

The European Union, with a comparatively high number of sheep, has relatively low figures for wool production. This is surprising because most sheep breeds, with the exception of a few, need to be sheared once or twice a year. Globalization and the associated outsourcing of production to low-wage countries have led to farmers burning or wasting their wool instead of using it for economic purposes.

This development is reflected in the data, but has also consequences that are not obvious at first glance. The loss of knowledge and the fall in prices for European farmers' wool are just two of them. In particular, price competition and minimum quantities necessary for industrial market entry led to a situation in Europe where wool production becomes economically unreasonable as a main income source.



In addition to the quality and price competition in the global wool market, further developments increase the pressure on farmers. Beside wool quality, the availability of similar wool thresholds and certification requirements become increasingly dynamic. Figure 3 shows the share of preferred sheep wool in the total clean wool market. So far, only 3% of the wool is labeled with standards such as the Responsible Wool Standard (RWS). However, as the figures from 2018 to 2020 indicate, there is a strong increase in the number of farms and processing sites certified with the RWS.



Figure 3: Preferred sheep wool and RWS certification (source: textile exchange based on IWTO market information 2021 #Source).

This is a positive development in terms of sustainability and animal health. In particular, it is important to prevent that animals are subject to the practice of mulesing¹. However, it is often impossible for farmers and processing plants, especially SMEs with part-time production, to cover the costs of certification. In the EU and the Alpine region, these certifications are often a barrier to global market access. This is an issue for European businesses as they already have to fulfil European animal welfare law (and often organic livestock farming regulations) that are quite strict. Covering the costs for several certification types can be difficult.



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 are validated and further developed via expert interviews. The involved experts are selected for their sector expertise and not as representatives of individual companies. 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 draft mapping of Figure 7 and also the maps in Figure 4 and Figure 5 are from Eurostat. The information to draft the mappings in Figure 6, Figure 8, Figure 10, and Figure 11 are from sector reports. All mappings in this report were validated and adapted via expert interviews.

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



MAPPING REGIONAL DATA PERSPECTIVES ON ALPINE WOOL

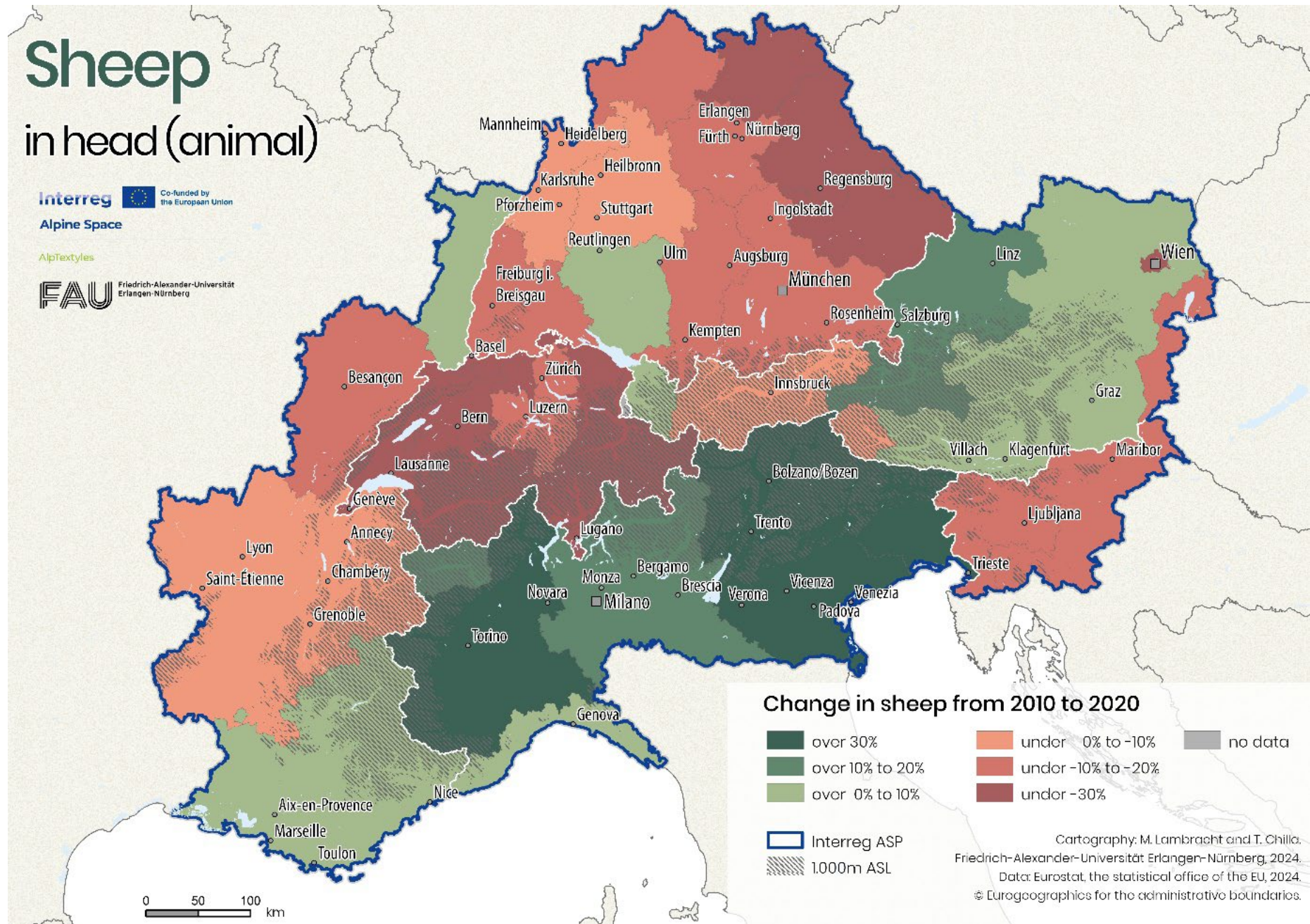
Figure 4 shows the development of the number of sheep over time. The data is from Eurostat, the statistical office of the European Union. The green and red gradient color logic indicates the development between 2010 and 2020. Whereas the southern parts (Italy and some parts of France) and also the eastern parts of Austria show a very positive trend, the situation is more negative in other parts. Especially in Bavaria, Switzerland and Slovenia, a clear decline in the number of sheep is obvious. This marks a partly contrary picture compared to the development of farms (see below). This might be a consequence of centralization processes, especially in the Italian fashion sector.

Figure 5 shows the development of the number of farms over time. The color gradient indicates the development between 2010 and 2020. It shows a decline in all of the regions even if there are significant differences. Whereas some parts of the inner-Alpine regions (e.g., South Tyrol, Aosta-Valley, Friuli) show only minor decrease, other parts (e.g., large parts of western France, east Slovenia, east Germany) suffer from immense decline up to 80% loss of farms.

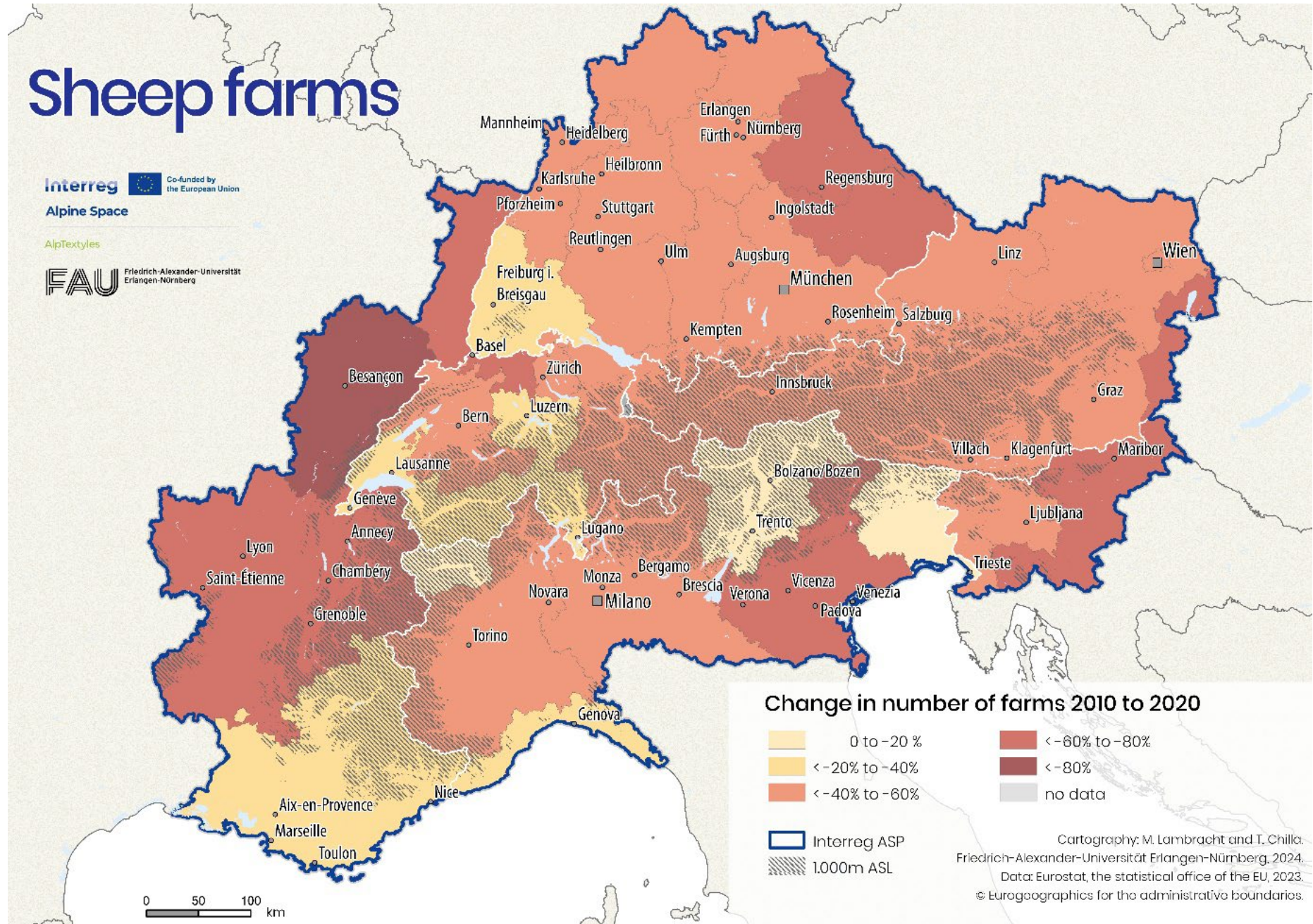
This development can be explained with the lacking perspective for European farmers (low prices for wool, missing subsidies, etc.). The sheep farming associations and also the farmers complain about the current situation and the future perspectives of their profession. The specific Alpine qualities of wool are challenging. Whereas shorter, greasier wool from regional breeds can be used for different types of textiles and insulation, longer, finer wool from overseas breeds is indispensable for the production of clothing and high-fashion.



> Figure 4 | Change in number of sheep in the Alpine region from 2010 to 2020.



> Figure 5 | Change in number of sheep farms in the Alpine region from 2010 to 2020.



MAPPING THE PRODUCTION NETWORK

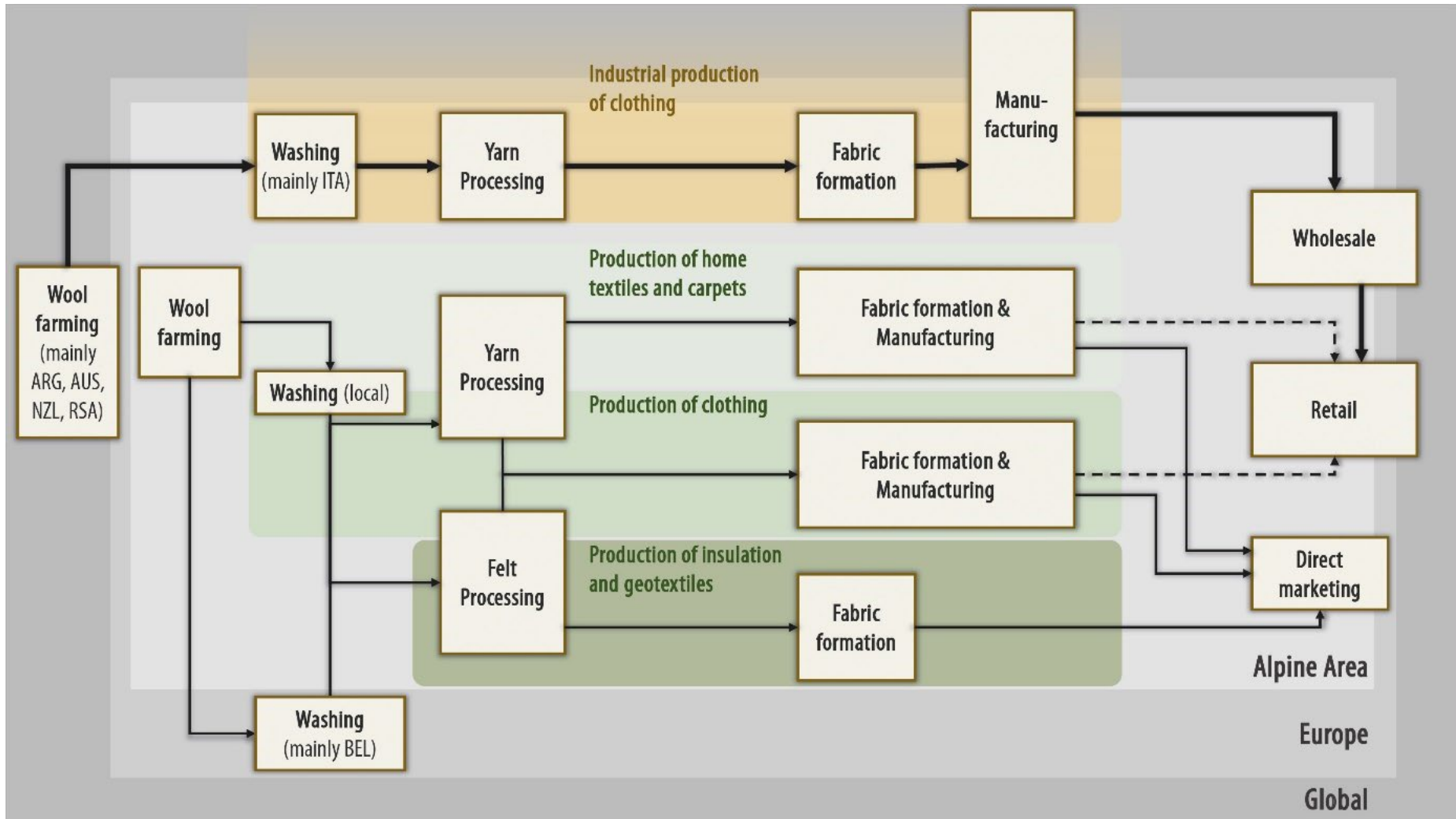
DESCRIPTION & FINDINGS

The mapping in Figure 6 shows the general economic flows along the value chains. It highlights the different segments of the production network across scales. Different colors highlight the main market segments: yellow for the global production of clothes, and green for the regionally produced products like insulation, local clothing production or carpets (In difference to the value creation mapping, the height of the boxes for each value creation step does not represent the quantity of economic output).

The main finding in this mapping can be described as a 'scale split' and a 'product split'. Due to the availability of different wool qualities, two separated value chains have developed. First, the global value chain with a focus on the apparel segment has established strong linkages to the farms in Australia, New Zealand, etc. and low wage production sites in Asia. Second, regional value chains focus on the production of home textiles and carpets, outerwear, insulation and geotextiles. They are strongly embedded in their local and regional contexts and use the raw wool produced in the Alps, if necessary, complemented with wool from the global market.



> Figure 6 | Production network and splits in the European Alps



Alpine Wool | Production network and splits in the European Alps

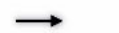


Actors:

 Stage within the production network

Splits:

 Global **apparel** segment
 Regional **textile** segment

Flows:

 Flow between different stages
 Partial flow between different stages
 Flow with higher value creation

MAPPING VALUE CREATION

DESCRIPTION & FINDINGS

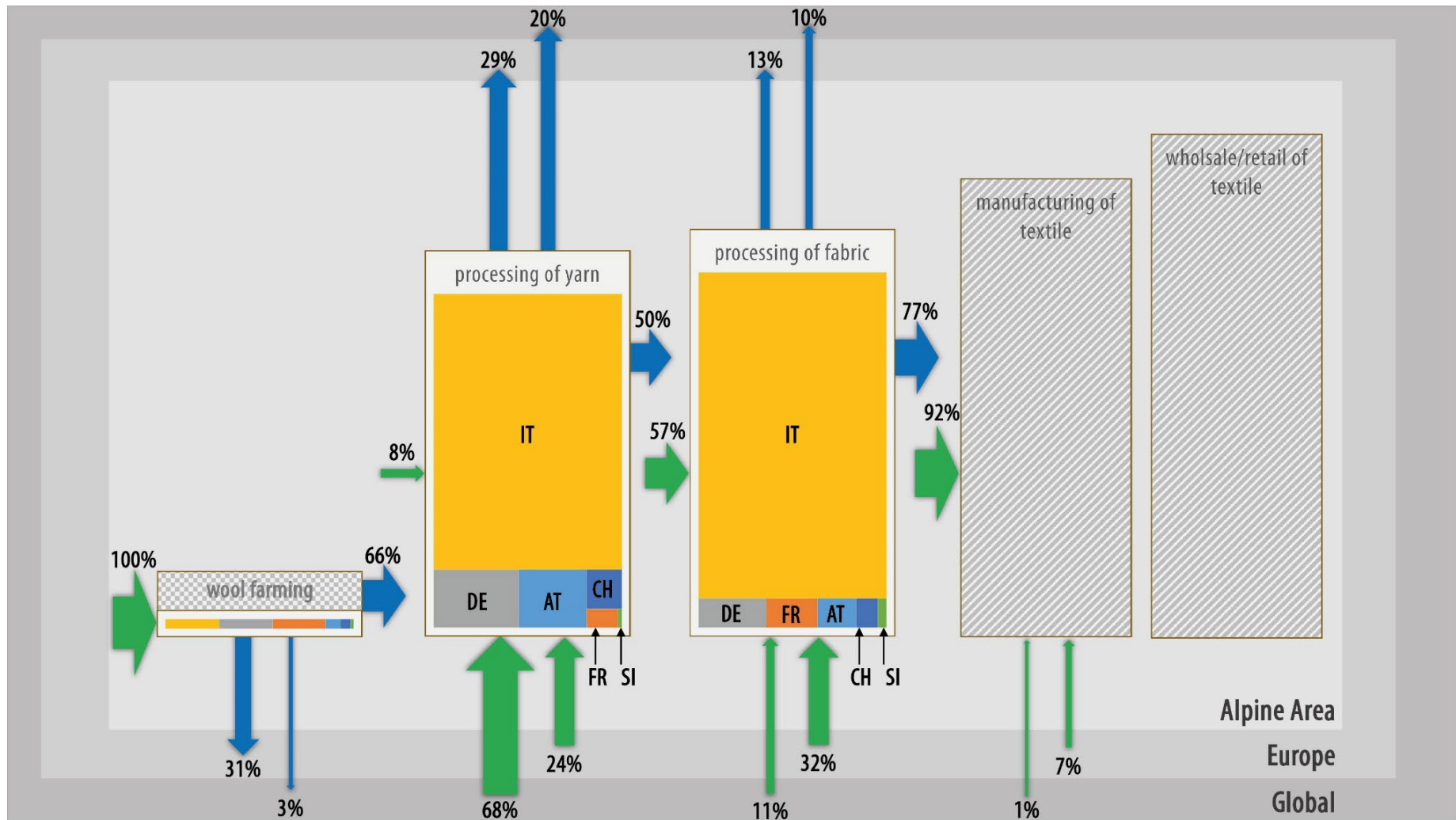
In Figure 7, the height of the boxes represents the economic output, and the tree maps show the spatial distribution across the study area. The focus is on the value added and the relevance of commodity flows. The differentiation of the flows is based on their spatial patterns (regional vs. supra-regional). Green arrows quantify the inputs in terms of pre products, raw materials or services (e.g. food for animals, wool for processing, machinery). Blue arrows indicate the respective outputs.

The mapping shows an increased relevance in the wool value chain from left to right. At the wool farming stage, value creation is distributed fairly even across the region. On the other hand, Italy has a rather dominant position in the processing stages of yarn and fabric. This comes along with the fact that large imports into the Alps from the world market, and also from other European countries.

This is due to the fact that the Italian industry request for wool qualities that are not available in the Alpine region. The different wool qualities are the access key to different. The Italian textile industry is focused on the fashion and clothing segment, with an emphasis on global production networks, where the value added tends to be higher.






> Figure 7 | Production network and splits in the European Alps



Alpine Wool | Value creation and flows in the European Alps

Signatures:

-  Value creation stage
-  Non-clothing use
-  No data

Spatial distribution (share of value creation):

-  Italy
-  Germany
-  Austria
-  Switzerland
-  France
-  Slovenia

Flows:

-  Inputs
-  Outputs

Data: Eurostat and National Statistical Offices 2023, validation via expert interviews from the Interreg Alpine Space Project: AlpTextyles, 2023 & 2024

Concept & Visualisation: M. Lambracht, C. Wilhelm and T. Chilla, Friedrich-Alexander-Universität Erlangen-Nürnberg, 2024.

MAPPING GOVERNANCE AND POWER RELATIONS

DESCRIPTION & FINDINGS

Figure 8 shows the governance setting and power relations in the wool sector in the European Alps. The stages within the production network are visualized by colored boxes. Each light-yellow box represents a stage according to the production network (see Figure 7). The blue boxes highlight institutional actors and the green boxes highlight collective actors (e.g. associations or NGOs). Some actors cover different roles, playing an important role in the production network.

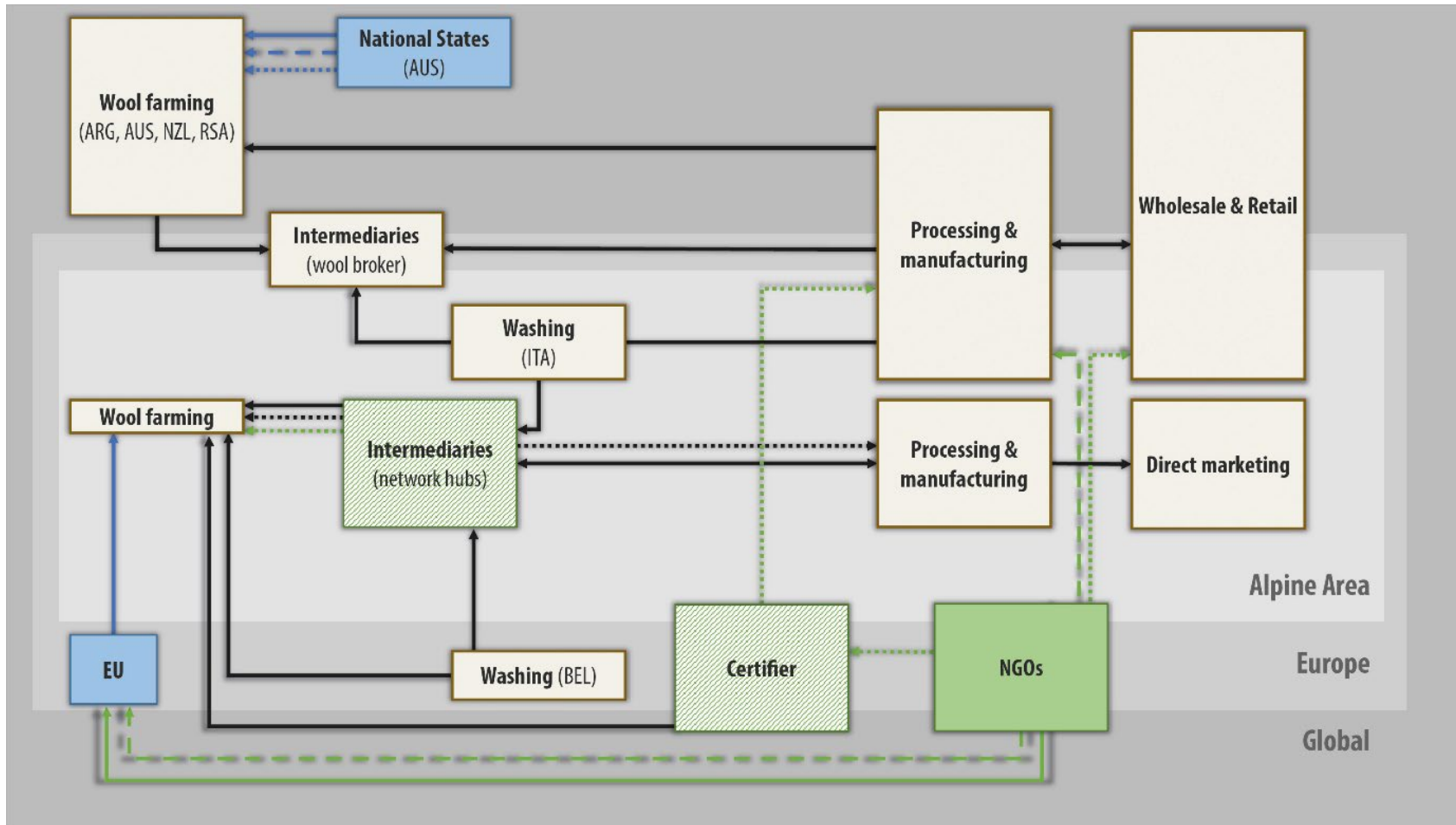
The links between the boxes represent power relations between the actors and stages. They show corporate power (through transactions, innovation or marketing), institutional power (through legal and financial frameworks, R&D support or promotion) and collective power (through economic interests, societal interests or campaigns). The arrows indicate the direction of influence and power.

The results show that there are three main settings that frame the Alpine wool sector. First, the different qualities of wool determine the price of wool and the access to the market. Second, certification, especially in the global production network, is a barrier for small local wool producers and therefore crucial for market access. Third, the quantity of wool qualities produced per farm is decisive for market access and hinders the integration of regional wool production in the global textile market.

Besides economic interests, networking hubs play an important role as intermediaries between the stages. They are increasingly successful in linking regional actors and bringing together local stages. This is a positive development for the regional level. Recently, some links have even been established with medium-sized international companies willing to valorize Alpine wool (Salewa, Orthovox, etc.).



> Figure 8 | Governance setting and power relations in the wool sector in the European Alps



Alpine Wool | Governance setting and power relations in the European Alps

Actors:

- Stage within the production network
- Institutional Actor
- Collective Actor
- Stage within the production network but also Collective Actor

Corporate power relations:

- Transactions
- Innovation
- Marketing

Institutional power relations:

- Legal & financial framework
- R&D support
- Promotion

Collective power relations:

- Economic interests
- Societal interests
- Campaigning

MAPPING THE ENVIRONMENTAL FOOTPRINT

DESCRIPTION & FINDINGS

Figure 9 and Figure 10 show the environmental impacts and potentials of wool in the Alps. In lifecycle assessment (LCA) publications, wool value chains are often marked as highly harmful to the environment (Smith et al. 2022). This refers to sheep emitting greenhouse gas, including methane, nitrous oxides and carbon dioxide. Also, water consumption in the processing of wool (especially washing and yarn and fabric processing) is often criticized in terms of environmental impacts. These impacts, however, should not be overstated.

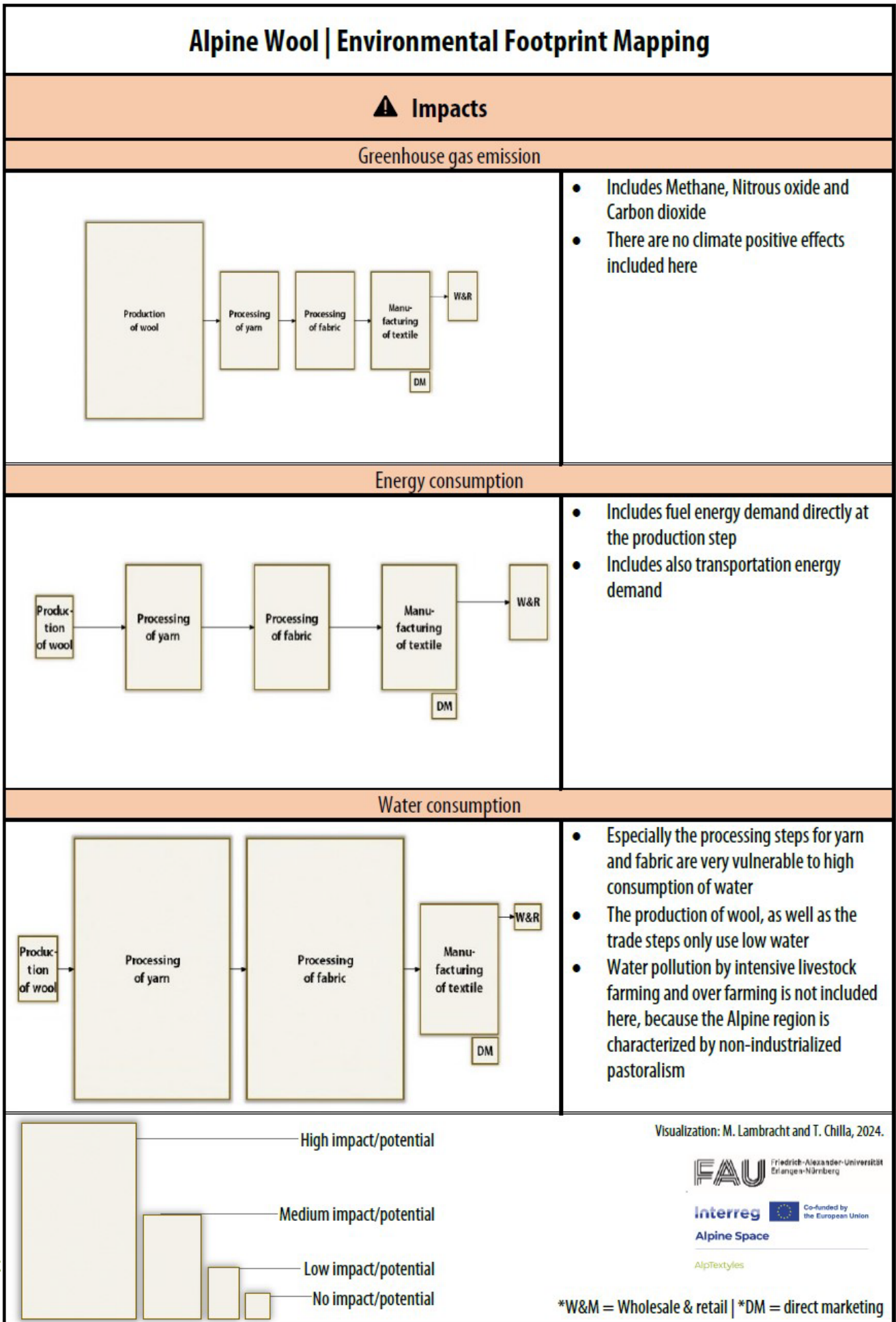
First, wool is characterized by a high recyclability meaning a higher recycling rate compared to other textile fibers. In particular, textiles of 100% wool are easy to reuse and can easily be returned to the environment.

Second, the multiple use of wool is a huge potential. Fine qualities (e.g. Merino-wool) can be used for clothing, even for the fashion industry. If the wool is of rougher quality, the potential products include fertilizer, insulation and home textiles or outerwear, e.g. Loden.

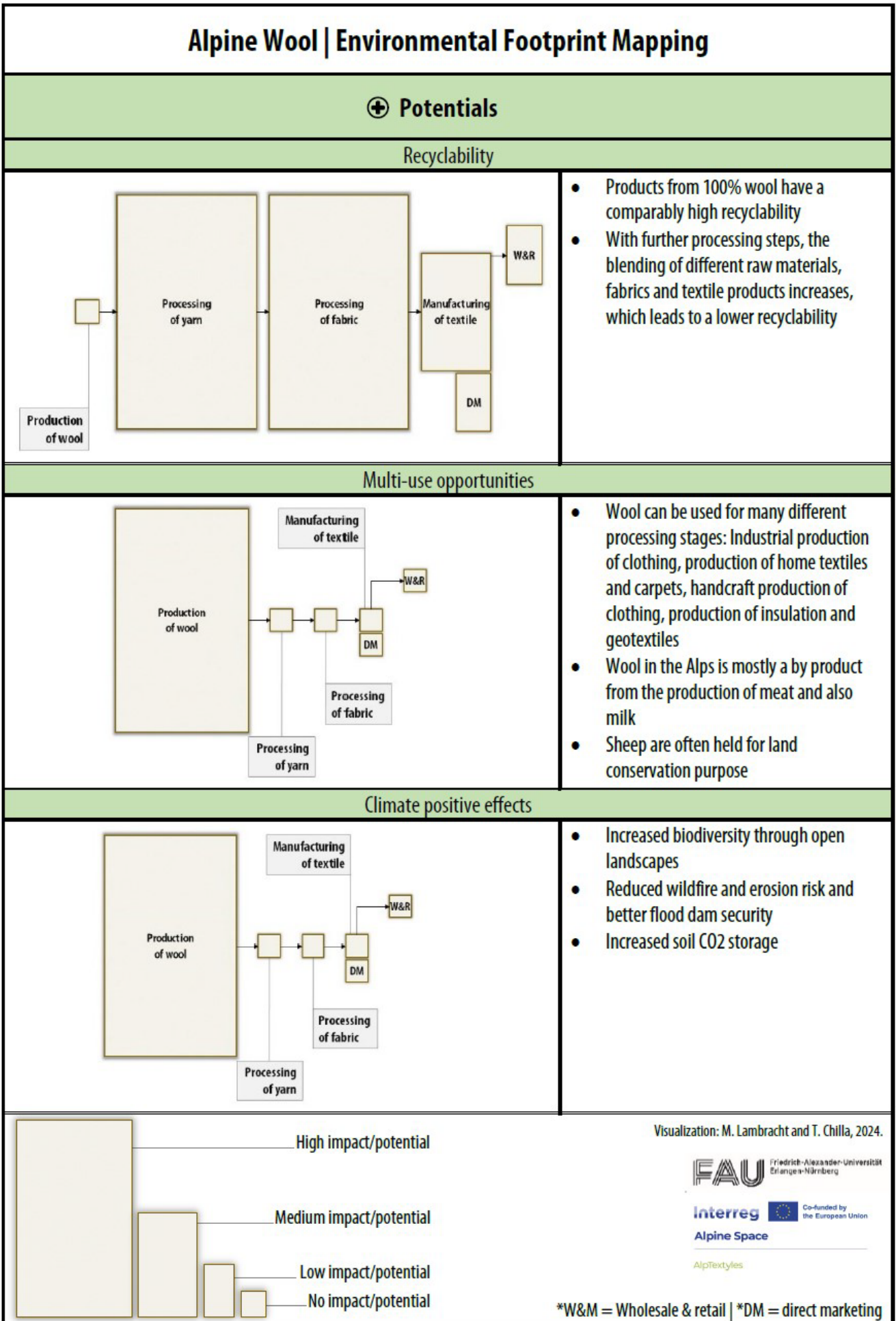
And third, the wool is often a by-product whereas the main purpose of the sheep is landscape maintenance or the production of meat and cheese. This also leads to climate positive effects that are often not considered when with an LCA. The increased biodiversity through open landscapes and reduced wildfire and erosion risk, as well as a better flood dam security must be taken into account (Henry et al. 2015). Finally, in a traditional way of sheep farming (intensive livestock farming must be excluded), it is even possible to increase CO₂ storage in soils (Brock et al. 2013).



> Figure 9 | Environmental footprint mapping: impacts



> Figure 10 | Environmental footprint mapping: potentials



SUMMARY

The Alpine wool sector can be described as still suffering both from global concentration processes and associated structural change in the agricultural sector. Additionally, the further increasing relevance of synthetic fibers is a large challenge to the economic position of wool as a raw material (see the reporting on Alpine textiles, online here: <https://www.alpine-space.eu/project/alptextyles/>). As a result, the quantity of processed fine wool is decreasing both in the Alps and globally.

Nevertheless, the situation comes along with economic potentials. Firstly, the framing of alpine origin as valuable quality is a key to increase the demand for wool from the European Alps. Therefore, it is important to raise awareness amongst consumers by safeguarding transparency throughout the farming and production processes. The outdoor clothing sector is already using tools to improve their selling points to the consumer. They apply unconventional marketing strategies, e.g. emotional storytelling, or the creative integration of social media to gain attention.

Secondly, increased networking creates links between existing initiatives and allows the integration at the regional level. This is crucial to gain scale effects. Consequently, these networks facilitate covering certification costs or reaching minimum thresholds.

Thirdly, technical innovation in terms of product development, sustainable production processes and upgrading machinery enables competing with the international market. The Alpine wool sector has the potential to go beyond the “fashion-and-the-rest-divide” in the wool sector. Tirolwool and Swisswool are only two examples, where global players embedded in a regional context already recognized this gap in an economic sense.

Finally, creating inspiration through pilot actions will help to shed light on the potentials of Alpine wool. If these economic potentials can be exploited, the Alpine region can host important value creation steps. Linking successful actors to existing networks and organizing an effective dissemination strategy helps all actors from farmers to the industry to increase profits from Alpine wool.



OUTLOOK ON PILOTS AND SOLUTIONS

follows



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ANNEX

Table 1: List of interviewed persons

Stage of value chain	National State	Institution
Wool farming (production)	GER	Part-time shepherd
	SLO	Part-time shepherd
	GER	Organisation representing the interests of shepherds
Processing and manufacturing	AUT	Regional wool processor
	SUI	Regional wool processor
	ITA	Regional wool processor
	FRA	Regional network for wool
	SUI	National Textile Industry Association
	ITA	National Textile Industry Association
	FRA	National Textile Industry Cluster
	GER	Managing director of large wool processor
	ITA	Global enterprise for outdoor textiles
Trade	N.A.	Organisation of the international trade in wool textiles
Other	AUT	Expert on European wool (former Austrian carpet producer)
	SLO	State Chamber

Table 2: Sheep breeds in the Alpine area (own research)

We emphasize that no guarantee of completeness can be given here. Also, it is possible that sheep breeds are tagged twice due to different spellings of the names in different Alpine countries. For more information also look here: Marsoner et al. 2018.

Name of breed (in original language)	Region	Characteristics	Source
Juraschaf/Schwarzbraunes Bergschaf	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich); Switzerland (Kantone Bern, Freiburg, Solothurn, Aargau, Luzern, Zürich); Italy (South Tyrol)	Mountain sheep (land maintenance, meat, wool)	https://www.oebisz.at/rassen/schafrasen/juraschafsb
Tiroler Bergschaf	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Oberösterreich, Steiermark); Italy (South Tyrol)	Mountain sheep (land maintenance, meat)	https://www.oebisz.at/rassen/schafrasen/tiroler-bergschaf
Braunes Bergschaf	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich); South Germany	Land sheep (land maintenance, meat, wool)	https://www.oebisz.at/rassen/schafrasen/braunes-bergschaf

Tiroler Steinschaf	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Steiermark); Italy (South Tyrol)	Mountain sheep (land maintenance, meat)	https://www.oebasz.at/rassen/schafрасen/tiroler-steinschaf
Walliser Schwarznasenschaf	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich); Switzerland (Wallis, Region lemanique)	Mountain sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/walliser-schwarznasenschaf
Weißes Alpenschaf	Austria (Vorarlberg); Switzerland (Region lemanique)	Mountain sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/weisses-alpenschaf
Merinolandschaf	Austria (Vorarlberg, Kärnten, Oberösterreich, Steiermark, Niederösterreich); Southern Germany	Land sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/merinolandschaf
Kärntner Brillenschaf	Austria (Vorarlberg, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich, Burgenland)	Land sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/kaerntner-brillenschaf
Krainer Steinschaf	Austria (Vorarlberg, Kärnten, Oberösterreich, Steiermark, Niederösterreich, Burgenland); Slovenia; Southern Germany	Land sheep (land maintenance, meat, milk, wool)	https://www.oebasz.at/rassen/schafрасen/krainer-steinschaf
Waldschaf	Austria (Vorarlberg, Tirol, Kärnten, Oberösterreich, Steiermark, Niederösterreich); Germany (Bavarian forest)	Land sheep (wool)	https://www.oebasz.at/rassen/schafрасen/waldschaf
Shropshire	Austria (Vorarlberg, Kärnten, Oberösterreich, Steiermark, Niederösterreich)	Land sheep (wool)	https://www.oebasz.at/rassen/schafрасen/shropshire
Alpines Steinschaf	Austria (Vorarlberg, Salzburg, Kärnten, Steiermark); Deutschland (Oberbayern)	Land sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/alpines-steinschaf
Montafoner Steinschaf	Austria (Vorarlberg); Southern Germany (Bavaria)	Land sheep (land maintenance, meat, wool)	https://www.oebasz.at/rassen/schafрасen/montafoner-steinschaf
Zackelschaf	Austria (Tirol, Steiermark, Niederösterreich)	Land sheep (wool)	https://www.oebasz.at/rassen/schafрасen/zackelschaf
Coburger Fuchsschaf	Austria (Vorarlberg, Salzburg, Kärnten, Oberösterreich, Steiermark)	Land sheep (wool)	https://www.oebasz.at/rassen/schafрасen/coburger-fuchsschaf
Ostfriesisches Milchschaft	Austria (Oberösterreich, Steiermark, Kärnten, Niederösterreich)	Milk sheep	https://www.oebasz.at/rassen/schafрасen/ostfriesisches-milchschaft
Lacaune	Austria (Tirol, Oberösterreich, Steiermark, Vorarlberg, Niederösterreich)	Milk sheep	https://www.oebasz.at/rassen/schafрасen/lacaune

Suffolk	Austria (Vorarlberg, Tirol, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich, Burgenland); Italy (South Tyrol)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/suffolk
Schwarzköpfiges Fleischschaf	Austria (Vorarlberg, Kärnten, Steiermark, Niederösterreich)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/schwarzkoeufiges-fleischschaf
Texel	Austria (Vorarlberg, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/texel
Dorper	Austria (Vorarlberg, Salzburg, Kärnten, Oberösterreich, Steiermark, Niederösterreich)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/dorper
Berrichon du Cher	Austria (Vorarlberg, Kärnten, Steiermark, Niederösterreich)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/berrichon-du-cher
Ile de France	Austria (Vorarlberg, Tirol, Steiermark, Oberösterreich)	Meat sheep	https://www.oebasz.at/rassen/schafras-sen/ile-de-france
Heidschnucke	Austria (Oberösterreich)	Wool sheep	https://www.alpinetgheep.com/heidschnucke.html
Karakul	Austria	Wool sheep	https://www.alpinetgheep.com/karakul.html
Schwarzbraunes Bergschaf	Italy (South Tyrol)	-	https://www.kleintierzucht.it/schafe.html
Schnalser Schaf	Italy (South Tyrol)	-	https://www.kleintierzucht.it/schafe.html
Vilnösser Brillenschaf	Italy (South Tyrol)	-	https://www.kleintierzucht.it/schafe.html
Schwarznasen Schaf	Italy (South Tyrol)	-	https://www.kleintierzucht.it/schafe.html
Ouessant Schaf	Italy (South Tyrol)	-	https://www.kleintierzucht.it/schafe.html
Schwarzes Bergschaf	Southern Germany (Bavaria)	Mountain sheep (land maintenance, meat, wool)	https://www.g-e-h.de/index.php/rassebeschreibungen/72-rassebeschreibungen-schafe/334-schwarzesbergschaf
Deutsches Karakul	Germany, Austria	Veld sheep (wool, meat)	https://www.g-e-h.de/index.php/rassebeschreibungen/72-rassebeschreibungen-schafe/97-deutsches-karakul
Brillenschaf	Southern Germany (Oberbayern, Schwaben)	Mountain sheep (land maintenance, meat)	https://www.g-e-h.de/index.php/rassebeschreibungen/72-rassebeschreibungen-schafe/98-brillenschaf

Merinofleischschaf	Southern Germany (Bayern, Baden-Württemberg)	Wool and meat sheep	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/103-merinofleischschaf
Rauhwolliges Pommersches Landschaf	Southern Germany (Baden-Württemberg)	Milk sheep	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/102-rauhwolliges-pommersches-landschaf
Rhönschaf	Southern Germany (bayrische Rhön)	-	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/104-rhoenschaf
Rouge du Roussillon	France; Switzerland; Germany	Transhumance sheep	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/105-rouge-du-roussillon
Skudde	Germany	Land maintenance, wool	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/106-skudde
Walachenschaf	Germany	Land sheep (land maintenance, wool)	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/109-walachenschaf
Weißköpfiges Fleischschaf	Southern Germany	Meat and wool sheep	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/112-weisskoepfiges-fleischschaf
Weißes Bergschaf	Southern Germany (Oberbayern, Schwaben)	Land sheep (land maintenance, meat)	https://www.g-e-h.de/index.php/ras-sebeschreibungen/72-ras-sebeschreibungen-schafe/113-weisses-bergschaf
Walliser Landschaf	Switzerland (Wallis, Region lemanique); Southern Germany (Bayern)	Land sheep (land maintenance, wool, meat)	http://www.alpinetgheep.com/bergschafe.html
Geschecktes Bergschaf	Austria	-	http://www.alpinetgheep.com/bergschafe.html
Bündner Oberländer Schaf	Switzerland (Ostschweiz)	Stone sheep (land maintenance, meat)	Alpine Space
Fuchsfarbenes Engadiner Schaf	Switzerland (Ostschweiz)	Mountain sheep (land maintenance, meat, wool)	Alpine Space

Spiegelschaf	Switzerland (Ostschweiz)	Land sheep (wool, meat)	Alpine Space
Alpagota	Italy (Veneto, Friuli Venezia Giuin)	Meat, milk and wool sheep	Alpine Space
Bergamasca	Italy (Lombardia)	Meat and milk sheep	Alpine Space
Biellese	Italy (Piemont, Vallé d`Aosta)	Meat and wool sheep	Alpine Space
Brentegana	Italy (Lombardia)	Wool, meat and milk sheep	Alpine Space
Brianzola	Italy (Lombardia)	Meat sheep	Alpine Space
Briagsaca	Italy (Seealpen, Grenzraum zu Frank- reich, Vallé d`Arroshia, Valle Argentina)	Meat, wool and cheese sheep	Alpine Space
Brogne	Italy (Lombardia, Piemont)	Meat, wool and milk sheep	Alpine Space
Ciavenasca	Italy (Lombardia)	Meat sheep	Alpine Space
Corteno	Italy (Lombardia)	Wool and meat sheep	Alpine Space
Delle Langhe	Italy (Piemont, Ligurien)	Milk and cheese sheep	Alpine Space
Finarda	Italy (Piemont, Lombardia)	Meat and wool sheep	Alpine Space
Frabosana	Italy (Piemont); France (Provence-Alpes Côte d`Azur)	Milk and cheese sheep	Alpine Space
Garessina	Italy (Piemont); France (Provence-Alpes Côte d`Azur)	Meat and milk sheep	Alpine Space
Istriana	Italy (Veneto, Friuli Venezia Giulia)	Meat and milk sheep	Alpine Space
Lamon	Italy (Prov. Auto. Trento, Friuli Venezia Giulia)	Meat, wool and milk sheep	Alpine Space
Marrana	Italy (Lombardia)		Alpine Space
Plezzana	Italy (Friuli Venezia Giulia); Slovenia	Milk and cheese sheep	Alpine Space
Pusterese	Italy (Prov. Auto. Bolzano, Prov. Auto. Trento)	Meat and wool sheep	Alpine Space
Rosset	Italy	Meat and wool sheep	Alpine Space
Saltasassi	Italy (Piemont)	Meat sheep	Alpine Space
Sambucana	Italy (Piemont)	Meat and wool sheep	Alpine Space
Savoiarda	Italy (Piemont)	Meat and wool sheep	Alpine Space
Tacola	Italy (Piemont)	Meat sheep	Alpine Space

Vilnösser	Italy (Prov. Auto. Bolzano, Prov. Auto. Trento)	Mountain sheep (Meat and wool)	Alpine Space
Varesina	Italy (Lombardia)	Meat and wool sheep	Alpine Space
Zerasca	Italy (Piemont, Ligurien)	Meat and wool sheep	Alpine Space
Bela Krajina pramenka	Slovenia (Adlešiči, Črnomelj, Semič, Vinica)	Land maintenance, meat	Alpine Space
Bovška ovca	Slovenia	Milk and cheese sheep	Alpine Space
Istrska pramenka	Slovenia	Milk sheep	Alpine Space
Jezerško-solčavska ovca	Slovenia	Meat and wool sheep	Alpine Space
Brigasque	France (Provence-Alpes Côte d'Azur)	Milk, cheese and wool sheep	Alpine Space
Grivette	France (Rhône-Alpes)	Meat sheep	Alpine Space
Merinos d'Arles	France (Provence-Alpes Côte d'Azur, Rhône-Alpes)	Meat and wool sheep	Alpine Space
Mourerous	France (Provence-Alpes Côte d'Azur, Rhône-Alpes)	Meat sheep	Alpine Space
Préalpes du Sud	France (Provence-Alpes Côte d'Azur, Rhône-Alpes)	Meat and wool sheep	Alpine Space
Thônes et Marthod	France (Rhône-Alpes)	Meat, milk and wool sheep	Alpine Space



ALPTEXTYLES

INTERTWINING CULTURES



AlpTextyles is an Interreg Alpine Space project that gathers the heritage of Alpine textile ecosystems to develop collaborative business and cultural solutions toward a circular and sustainable textile industry.

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www.alpine-space.eu/project/alptextyles