



Report on the work of wool Supply Chains

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Introduction

The purpose of this report is to assist the 'Made With Wool' project in trying to educate individuals and small businesses from the supply chain in dealing with wool as a material.

Our objective in terms of fulfilling the brief and creating a resource of value for the sector in Wales was to create the following resources:

- a) A **Flow chart** summarising the stages in processing raw wool from the farm to the final product.
- b) A **Directory** summarising:
 - a. Wool processing businesses in the United Kingdom e.g. scouring, combing and spinning.
 - b. Wool manufacturing businesses in the United Kingdom, according to different sectors.
- c) A **Report** providing guidance to businesses on how to use the above resources and presenting the processing and manufacturing outsourcing business model.

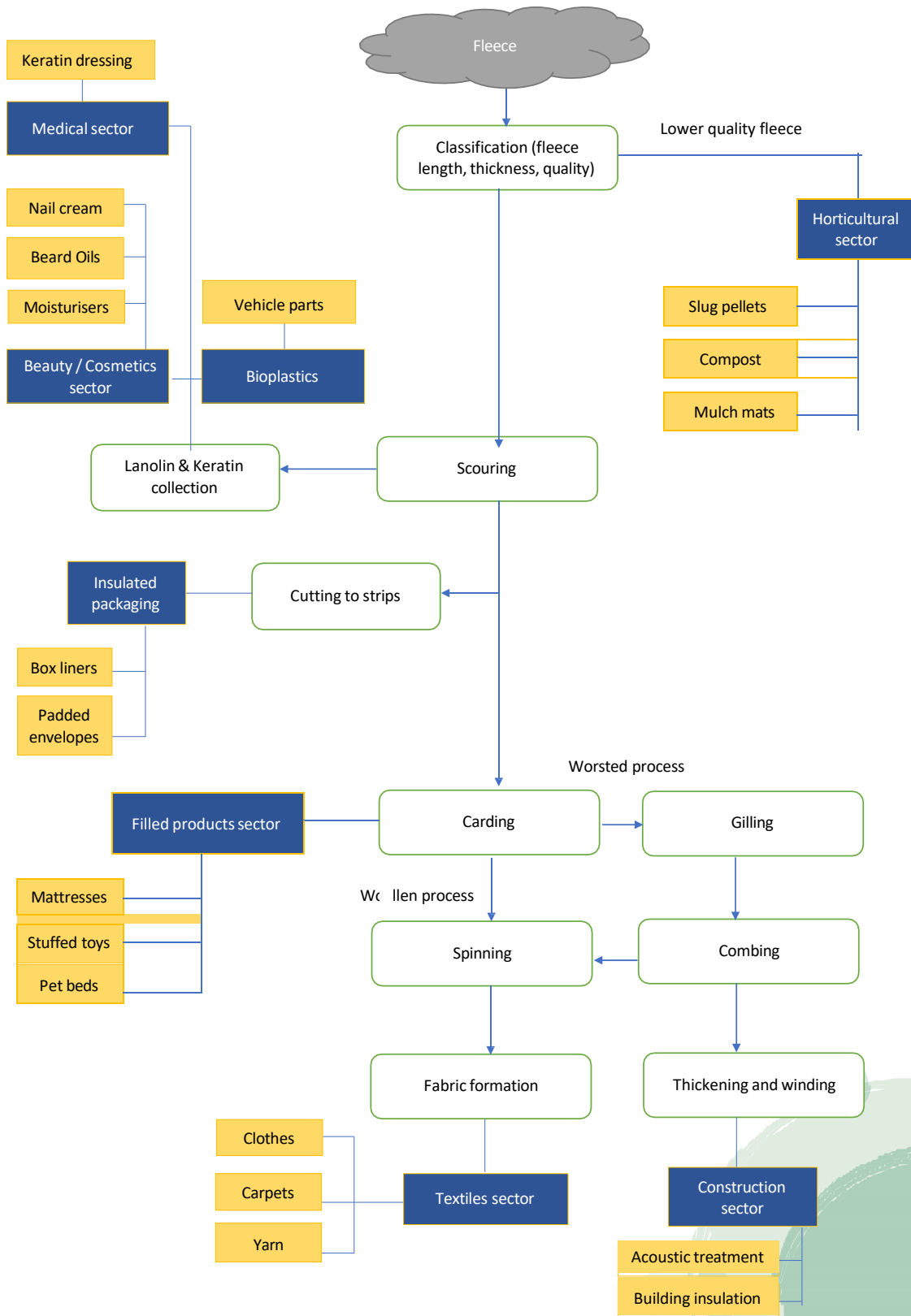
Wool Supply Chain Flow Chart

The wool processing chain is complex with the many steps involved in handling it and turning it into a final product. There is little understanding beyond the farm gate of what happens to wool fleece, and the resources from this work will facilitate a better understanding in order to highlight potential opportunities for farmers and others within the supply chain to add value to wool from Wales.

A flow chart was created covering the different stages in wool processing. We also took the further step of adding at what stage in the process different products are created.

To ensure that the reader better understands the sectors shown in the Flow Chart, we have added 3 products each as examples. It is hoped that this additional information will help to make sense of the process, but without over complicating the Flow Chart.

It became clear when working on this Flow Chart that it was possible to take things yet another step further to create a series of Flow Charts simply showing the process by sector.



Directory of wool processors and manufacturers

Engagement with the wool processing mills around the United Kingdom was a key part of the work, in order to collect up to date information to be shared publicly.

During the research period, we held detailed discussions with 18 wool processing mills across the whole of the United Kingdom, throughout Wales and beyond.

In engaging and identifying various suppliers, a directory was created in the form of an Excel spreadsheet made up of two parts.

The first table on the spreadsheet contains information on wool processing mills. These businesses were contracted to carry out wool processing work.

The second table has been created by finding different businesses that create products out of wool and identifying which outsourcing services they could offer.

The spreadsheet contains details that may be useful to any individual or business who wants to consider the potential of creating a product by partially or fully outsourcing the supply chain. All the manufacturing companies create their own products and are interesting case studies in terms of highlighting the potential of wool from a commercial perspective.

Please note that the information contained in the directory was current as of November 2022, it's continued accuracy will need to be checked going forward.

The Directory is presented as a live document, which will need to be regularly updated by 'Made With Wool'.

The fundamental aspects of building robust, sustainable and profitable supply chains

Context

The aim of this work is to facilitate the task of building supply chains for wool from Wales. The report contains a flow chart summarising the different stages in processing raw wool directly from the farm, and also a list of companies in Britain that offer or who are willing to discuss the provision of various services for adding value to wool.

Expanding the use and choice of products made with Welsh wool is an important objective of the 'Made With Wool' project, and the project received several comments over the last 18 months from various businesses and individuals highlighting the challenges that exist in trying to develop a product with Welsh wool.

Building a supply chain to create a quality product that is commercially viable is challenging. Based on a person conducting appropriate marketing research, and having designed a product that is in demand, the task of actually producing it can involve many significant challenges as highlighted in the list at the bottom of the page.

Supply chains

Every product, be it a car, a table or a bottle of milk is the result of a series of production stages which form the supply chain for it.

It is easy to underestimate how complex and challenging it is to manage supply chains for a product, and we often hear of enthusiastic individuals with an idea for a new product giving up when they realise the complexities involved in making it a reality.

A common mistake among inexperienced individuals is to assume that they must be responsible for a most of the supply chain. The supply chain for wool products, as the flow chart highlights, includes several technical stages that require specialist equipment and very specific skills. It is no wonder then that we hear of individuals abandoning the desire to launch an innovative product because they are overwhelmed by the requirements involved.

Other solutions can possibly be adopted to overcome these obstacles. Before going into detail about this model of working, let us begin by gaining a better understanding of the usual challenges.

Common challenges in seeking to build supply chains

1. Gaining the necessary skills and experience.
2. The timely procurement of supplies of raw materials of suitable quality from reliable sources.
3. Appropriate infrastructure for the purpose of storage and housing machinery.
4. Capital to purchase/lease machinery and equipment and also working capital for aspects such as the procurement of materials and creating stock to sell.
5. Effective systems to monitor performance and plan ahead.
6. Ensure appropriate health and safety standards, and in some cases, the necessary accreditations for the product.

7. The anxiety and mental stress involved in trying to accomplish an ambitious task.

The challenges such as those stated in the list above are often enough to prevent some individuals from taking things forward, either because they think the challenges cannot be overcome or that the risk, such as a financial commitment, is too high.

However, there is one fairly common model for running supply chains which is sometimes missed or overlooked by individuals or businesses who are inexperienced in the field, and that is the option to outsource one or several links in the chain for other companies to fulfill.

This model is quite common in areas such as food and drink, with some of the most famous brands in the world operating in this way without having to own a factory or warehouse.

As with everything, the model has its advantages and disadvantages. The table below highlights the most prominent ones.

The advantages and disadvantages of outsourcing parts of the supply chain

ADVANTAGES OF OUTSOURCING	DISADVANTAGES OF OUTSOURCING
Reduce risks.	Dependence on another company/companies that you have no control over.
Reduce cash-flow pressures.	Need to accept that you will be one of many other customers who require the attention of the contractor, and therefore not always a priority for the company.
An opportunity to continue learning about the supply chain in the shadow of experienced businesses in the field.	Potential options may need to be limited as requirements are adjusted in line with what the contractor can offer.
Possible to establish the company and reach the market sooner.	A minimum order will be required, which could be substantial for a new/small company.
A flexible and responsive model - easier to grow the business for busy periods or respond to unexpected large orders. Similarly, it is easier to downsize during quiet periods.	Difficulties in finding a company that espouses similar principles such as avoiding the use of plastic, using renewable energy, horizontal management structure...
Enable a new business to focus on its natural strengths, e.g. a person can outsource the manufacturing, packaging, storage and distribution processes in order to focus on marketing, building a brand and customer service.	Challenges of finding local companies or even in Wales to maintain a local or Welsh chain.
If successful, it offers a quicker way to expand the range of products while keeping new product development costs low.	Need to understand other companies' culture and way of working in order to ensure a successful relationship for all.
It is possible to keep a close eye on costs per unit of product as contracted suppliers are providing a set price.	Need to allocate time to manage relationships with companies such as visiting them every 6 to 12 months to review arrangements.
The model offers a low-risk way to trial the demand for a product before committing to equipment and machinery.	It could undermine the product's sense of authenticity, which therefore puts more emphasis on developing a strong brand.
A good model for taking advantage of other skills and expertise.	It could make it easier for another company to imitate the same model unless there is a confidentiality or exclusivity agreement in place.

<p>An outsourcing model may be easier to pass on in succession from one owner to another or from one generation to another.</p>	<p>More often than not, the product's sales 'margin' will be lower when outsourcing compared to the potential 'margin' through doing all the work in-house. However, outsourcing is seen as a lower risk approach and therefore a business sacrifices some 'margin' in order to reduce risk.</p>
<p>An outsourcing model prove to be less demanding in life compared to owning every part of the chain.</p>	

Understanding your chain

It is essential to have a thorough understanding of the chain you are trying to build, whether your intention is to control and own the entire process, or to outsource. This can take some time, and it will be necessary to do the research such as discussing and visiting various facilities, attending commercial events, reading, taking advantage of business development support...

The 'Made With Wool' project observed a considerable amount of confusion and a lack of knowledge about wool processing. This could be an obstacle for those who want to add value to the wool themselves, or a challenge for any person who wants to develop a wool product.

Wool processing is a technical field involving a series of stages starting with dirty fleece from the farm to create a material that can be used to create a higher value or high value product.

The flow chart created as part of this work is a summary of the stages involved in processing raw wool for various products.

The wool processing outsourcing directory created highlights some of the options available for businesses in Wales to build supply chains through contracts with other British companies. The list was drawn up following contact with over 100 relevant companies across Britain in order to try to highlight potential opportunities based on the outsourcing model.

The project will continually update the directory as it learns about other companies offering wool processing and/or manufacturing services. Contact the project directly if you know of other companies that should be added to the list.

It should be noted that the directory focuses on companies that offer wool related services such as woolen mills, wool scouring facilities and specialist businesses that create products from wool.

More general aspects of the supply chain can be outsourced but are not highlighted on the list, and include the following:

- **Digital marketing companies** – responsible for social media platforms, e-newsletters and websites. This is usually based on a monthly fee, with the sum depending on the details of the expected work.
- **Storage** – responsible for maintaining and running warehouse space to store products. A monthly fee is often charged depending on the space that is used, e.g. a monthly charge for each pallet stored.
- **Picking and packing service** – a business that hires out warehouse storage space can often provide a service to prepare orders for delivery. The price may include additional packaging such as an outer cardboard box and packaging to protect the product.
- **Delivery service** – a large number of new and small businesses choose to pay companies to deliver their products rather than running a van or lorry themselves. It is extremely difficult for a small business to be able to offer the same level of service at the same cost.
- **Supply chain management service** - responsible for managing the chain from start to finish if desired, or parts of it. The payment terms can be based on sales levels in the form of a percentage, or such businesses often prefer to establish a closer joint venture type relationship.

Local companies providing the above work are available in all parts of Wales.

The outsourcing model is very common in some aspects of running a business, although it may not be considered as outsourcing. For example, most businesses will outsource the preparation of annual accounts to a professional accountant, in order to benefit from accreditations and expertise.

Key considerations in building a supply chain based on an outsourcing model

Here is a list of 10 key considerations when outsourcing one or more aspects of your supply chain:

1. Do your **homework** to understand the supply chain you are trying to create in order to make better choices and decisions.
2. Try to honestly recognise **what your strengths and weaknesses are**. Should you therefore try to outsource your weakest aspect, to enable you to focus on maximising your strengths?
3. **Compare the choice of outsourcing with the choice of doing it yourself**, in terms of financial considerations, demands on your time and lifestyle implications.
4. Try to **identify 2 or 3 possible options for outsourcing**, so that you can compare and weigh up which one is most able to meet your needs. This is where you will need a spreadsheet to record the details of all costs in order to get the full picture of the likely financial performance of your business model.
5. Make an effort to **meet with the business you are considering outsourcing to**, in order to understand and get the feel of the business before committing.
6. Base your decisions on **value for money** rather than just costs. Getting "value for money" means considering the whole package, rather than just raw costs. The lowest price is often not the cheapest.
7. Be ready and confident to **negotiate business terms**. Companies are often willing to negotiate e.g. the minimum order requirement may be too high for you and therefore consider whether the company would be willing to reduce it for the first 3 orders only, or it could be advantageous for you to pay a price higher for smaller numbers to begin with to test the market before committing to higher numbers at a better price.
8. Consider how you can put the **appropriate systems in place** to run an outsourcing model effectively. It is recommended to make good use of digital solutions such as those highlighted in the digital resource pack for businesses published by 'Business Wales' - see the link here <https://businesswales.gov.wales/superfastbusinesswales/cy/canllawiau-busnes-cyflym-iawn/cyfeirlyfr-meddalwedd-cyflymu>
9. The saying that **no one will do the job as well as yourself is often true**, especially in business. When outsourcing, you will need to be prepared to accept that, and to consider that your contracted suppliers may occasionally make some decisions that put their business first.

10. One thing that is almost impossible to outsource is the **personality of the business** you are trying to create. It will be even more important for you to own and nurture that, and the brand, if you are going to outsource, and be prepared to be the confident voice and face of your enterprise.

General comments from the team following engagement with the businesses

Some of the companies we contacted are open to contract processing, with a larger number open to collaboration depending on the product and the intention. Many companies were reluctant to offer contract processing as they did not have the capacity to meet external requirements.

It is clear when speaking to companies, that they consider cost effectiveness / financial viability as one of the main factors influencing their decision to collaborate or undertake contract processing. Companies prefer to work on projects that resemble their existing products.

For example, the Puffin Packaging company from Leeds would be open to working with other companies that are willing to integrate Puffin products within their own products. It is assumed that this type of business approach ensures that cost-effectiveness of all aspects is maintained.

A number of companies were open to contract processing and collaboration in the future but not at the moment, such as Vitax and the Welsh company Baavet.

There is a high level of sensitivity in the construction sector and many are unwilling to conduct discussions over the phone. This is thought to be due to intellectual property and high levels of competition in a developing market.

In terms of Welsh Mountain wool - Welsh Mountain sheep fibre is quite rough and thick, so it is not considered suitable for making clothes. It is used to make carpets, such as those by the Wilton Carpets company. Solidwool is investigating the possibility of using Welsh Mountain wool in biocomposites, which use low quality or rough wool.

In speaking to the processing mills that are currently active, it became clear that no single mill was able to carry out all the different methods of wool processing. Depending on the product, the wool would have to be transferred from one mill to another in order to achieve the final product.

Using the purchase of a blanket as an example product, there are plenty of mills in the UK that can clean, comb and spin the wool into yarn. However, the yarn would then need to be transferred to another mill so that it could be woven into a blanket.

Various other comments:

- a) Most mills procure their wool directly from 'British Wool', as it is a simple and efficient process dealing with just one seller. 'British Wool's' role is a key part of the supply chain, and relatively unique to Britain in the way it operates.
- b) The potential of creating traceable wool products has improved significantly over the last 5 years. Among the significant developments introduced by 'British Wool' is that the process of buying in its auctions has been adapted to enable small buyers to buy smaller lots through an agent. Also, 'British Wool' has developed a plan to make it easy to buy Welsh and organic wool.
- c) Working with 'British Wool' officers has made it possible to achieve further traceability, even to a specific farm, depending on the size of the farm. There are already examples of a group of farmers in an area of Wales collaborating with 'British Wool' to keep their wool separate through the whole grading and scouring process. We would strongly recommend any person who wants to develop a product with wool of a specific type or origin to discuss their requirements with 'British Wool'.

- d) It was recorded during discussions that many of the mills in Wales did not process Welsh Mountain wool, and that they believed that it was not widely available to buy on the market. There is a question to be asked here as to whether there is a general shortage of Welsh Mountain wool, or a factor such as a lack of awareness of what is available?
- e) It seems that there is another obstacle in the processing of Welsh Mountain wool as two of the mills contacted refuse to work with that stock as the wool is not long enough, and there is a risk that the thickness of the wool will damage and clog the machine during the combing process. (Another consideration is how old many of these mills' machines are, with many of them nervous about damaging them as that can create a backlog and problems in getting the correct parts to repair the machine).
- f) It became clear that the mills could be categorized into those involved in large commercial processing, and secondly smaller processing. Of the mills that are active in Wales, there is considerable diversity in how they operate. Some process regularly and work on a number of significant private commissions, while others are idle for most of the year and then produce some for their own needs. Two mills noted that there was a gap in the market in terms of suitable processing locations for medium sized orders e.g. a farmers wanting to create 10 – 20 sweaters out of their wool.
- g) It is true that there has been a drastic reduction in the number of woollen mills in Wales over the last half century. Although most Welsh businesses, and certainly the 'Made With Wool' project would like to work with Welsh mills as much as possible, trying to do that in practice is challenging. The majority of those in Wales who offer an outsourcing service are very busy, with waiting lists of more than a year in some cases. The lead times for most mills is approximately 6 - 8 months which means that in the majority of cases there will be a long waiting time between shearing and receiving the final product back. There are also limitations as to what is possible in terms of the length and width of the material, minimum orders and the type of wool. Although it was not the initial intention, the Lafan team extended the work to assess options using mills from England and we should acknowledge all of the help the project received from Johnny King from the 'Garthenor Organic' company near Cardigan, who shared details of several mills across Britain to facilitate our work.
- h) We feel that there is room to consider the possibilities of collaborating with mills outside of Wales, as there seems to be more capacity and it opens the door to a wider skills set. The costs of transporting wool to a mill in Wales and a mill in England will be quite comparable, particularly when it is considered that the two main scouring sites are in the North of England.
- i) There is also scope for collaboration with mills in Scotland. For the purposes of this work, due to resource constraints, it was decided to focus on mills in Wales and England.
- j) To be clear, we should continue to aim to strengthen Welsh wool supply chains, and that

priority has already been identified in the Welsh Wool Manifesto. In the meantime, in order to create a supply chain that generates benefits for wool and the Welsh economy, it may be necessary to consider working with companies beyond Offa's Dyke.

- k) Between this work, and the project's further work in terms of the scouring stage, we feel that this is no longer as much of an obstacle as it was felt at the start of the project. Constructive discussions were held with the two main scouring companies in Britain, Standard Wool and Haworth, and we feel that they both offer opportunities for Welsh companies to collaborate with them. We attach a copy of leaflets from both companies which further elaborate on their working arrangements.
- l) We feel that there are many positive aspects to highlight in terms of the wool chain in Wales. Welsh farmers produce quality wool, many based on traditional and sustainable farming systems. British Wool offers more choices than ever to facilitate smaller producers to procure the type and quantity of wool they require. And a number of woollen mills are available to work with, operating to high standards and run by highly skilled and passionate people.
- m) Identifying businesses to collaborate with for the final stages of product processing and manufacturing was more challenging. Many more weeks could be spent trying to discover innovative businesses that exist in Britain and make products from wool.
- n) There were more opportunities in the field of textiles, and this is where the main opportunity lies in terms of being able to create an entire supply chain without the need to own or invest in equipment. We had some success in identifying businesses that were open to discussing working together to create more innovative products.

Recommendations

1. The work has highlighted a further need for support to building wool supply chains in Wales, through activity such as the 'Wool Supply Chain Facilitator' post and dedicated networking events, and resources such as the directory. This was reinforced by Andrew Hogley, Chief Executive of 'British Wool' and Gareth Jones, Producer Marketing Manager of 'British Wool' in a discussion with 'Made With Wool' in January 2023.
2. The directory should be considered as a live resource, and steps should be put in place to try to keep the resource up to date moving forward. For example, if information is received about a new company/mill, then it should be added to the Directory. Similarly, if it is understood that a company on the Directory is no longer in operation, then it should be removed from the list.
3. There is an opportunity to prioritise the development of certain supply chains, based on what would give the best outcome for Wales. A piece of work or consultation with the Steering Group to identify which 3 or 5 chains should be focussed on would be beneficial, and steps could be taken to draw up a plan to develop those specific chains. This could be included within the project's product development work.
4. The flow chart can be adapted to create individual flow charts for different product types. Consideration should be given to doing so if a member of the Cluster expresses an interest in seeing what a packaging material supply chain would look like.
5. Consider creating 'Case Studies' from the 3 to 5 different sectors, highlighting the different processes required and presenting suggestions as to how to build a complete chain.
6. Consider further learning steps from the different processes. A handful of the mills have tried to do this themselves through providing fact sheets on their websites <https://www.thenaturalfibre.co.uk/our-services/advice-and-information/> or <https://www.rampishamhillmill.co.uk/stages-of-processing/>, or even videos <https://www.jarbon.com/our-youtube-channel/>
7. Consideration should be given to holding a 'Made With Wool' workshop/event to disseminate the findings of the work and to stimulate further discussion about developing supply chains in Wales.
8. The brief did not include an assessment of the state of the sector in terms of existing

chains in Wales, but an assessment of the most efficient aspects for strategic investment with public funding in Wales would be useful, as it could inform future work and include the offer of financial support to improve processing infrastructure and add value in Wales, as set out in the Manifesto. There is room for collaboration with Welsh mills in particular and to complement work recently carried out by Caryl Lewis from the CELyn company that recognises similar challenges and opportunities. We support Caryl Lewis' perception that there is a golden opportunity to work closely with Welsh woollen mills through facilitating a cluster which can strengthen capacity in Wales.

9. We have sought to highlight in the report some of the most constructive discussions we have held and with what companies. It may be possible to invite some to give a presentation or workshop about their history and to elaborate on what they do in order to highlight opportunities for 'Made With Wool' cluster members.
10. Knowing that 'Made With Wool' is in the process of trying to identify a route into the market for 7 products that have been developed by The Biocompounds Centre, the information contained in this report should be borne in mind as some companies in the Directory may be interested in being involved in the commercialisation process. For example, sending open call details to the mills and processing companies could be considered. And also, if thematic clusters are formed around a product, an up-to-date copy of the Directory should be looked at to see which companies might be relevant and interested.