



**Let's Talk Real Skills:
Segment 4**

Report detailing results of
testing and pilot phase

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Executive summary

The Segment 4 report details the results of the testing and pilot phase arising from some of the learning pathways developed as part of the Segment 3 activities. Segment 4 testing was undertaken over an extended period between January 2020 and October 2021, principally as a result of the business interruption caused as a result of the Covid-19 pandemic. The key areas of development are in the areas around digitalisation, Information, Advice and Guidance (IAG), recruitment and sustainability with six pathways featured in this report.

Much of the focus of the new pathways is concentrated on how leadership and management teams within businesses can gain appropriate knowledge in order to effect change where necessary. In some instances, pilots are ongoing or soon to begin because of the reason mentioned above, but those that have taken place to date have provided evidence to suggest that the basic formats are workable and can deliver meaningful results. The appendices provide examples of some of the learning materials that have been developed with and for the fashion and textile sector. The concepts and many of the materials ought to be transferable to other sectors, however.

Terms of reference and scope of report

Segment 4 asked for testing and pilot activities be carried out on some of those learning pathways that had been identified, and content developed, as part of Segment 3 work. It was to include the following points:

- Testing the pathways with an action-learning group of SME employers and providers in the area.
- Ensure that pathways are deliverable and provide the necessary results.
- Measure outcomes and ensure they are fit for purpose.
- Involve SMEs in the design, development and testing of the pathways in each sector

As a membership based organisation for the fashion and textile manufacturing sector the Textile Centre occupies an important position to enable and facilitate SME employer action learning groups to support the development of fit for purpose skills and training pathways for the key occupational areas at risk of skills gap and with projected skills shortages in the nine sectors. The Centre has worked with universities, industry bodies, funding agencies and businesses within the fashion and textile sector to test and pilot activities across different aspects of need identified previously in order to report on these activities and offer some examples of workable practice going forward.

Strategic changes within the sector in light of Covid-19, Brexit and other issues

The impact of the Covid 19 pandemic on the fashion and textile sector has been significant across the sector, and indeed upon the work of the Centre itself. The

Textile sector has been negatively and significantly impacted by Covid, with a recent survey showing that 81% of businesses have been affected¹.

Much of the testing of some of the new learning pathways identified, developed and highlighted in the Segment 3 report was delayed, or in some cases has not taken place. In the case of the proposed Top Team Workshops the pilot has been overtaken by events and actions elsewhere, i.e., the incoming Made Smarter (Yorkshire & Humber) programme which is a good fit for what was planned before the pandemic. Secondly, some business priorities have changed over the course of the last twenty months, largely as a result of outside factors, e.g., Covid, but also other supply-chain issues, the rising costs of energy for businesses and the growing impact of environmental and sustainability agendas. Thirdly, the sector is experiencing some difficulties in recruiting new blood into the sector: currently, the Centre has over thirty vacancies unfulfilled with little interest having been shown to date by prospective candidates. This is exactly the sort of issue that the Centre's incoming Fashion & Textile Academy pilot is designed to reduce, if not solve.

The testing of New Pathways for the Fashion & Textiles Sector

Digital technologies

The digital agenda kicked off in 2019 having identified several areas where learning pathways might be applicable. All were borne out of conversations with businesses in the fashion and textiles sector in a variety of formats. Meetings with directors and senior managers of fashion and textile companies, either at the Centre or company premises, were the usual mode of operation but attendance at other events (an exhibition at Salt's Mill, Bradford, or a meeting of The Nonwovens Network UK at John Smith's Stadium, Huddersfield, for example) was also employed. The Digital Triptych (see further below with image) was utilised on a number of occasions in order to help identify some key digital issues that were important to individual companies.

1. Introduction to Industry 4.0 workshops

The objective of the Awareness Workshops was to provide F&T businesses with an opportunity to hear about, and in some instances to have demonstrated, some potentially useful technologies and approaches, discuss their ideas with experts and be offered an opportunity to move on to further phases of activity and development, if they wished to do so. The workshops were open to all employees of textile manufacturing companies including individuals and teams but with the expectation that most attendees would be at a management level, which proved to be the case. The learning has seen in the context of a wider suite of course development, and that one objective was to move companies on to the next phase, which includes the production of a business / 4.0 action plan for implementation within each business. The agendas for the workshop can be seen below.

¹ LET'S TALK REAL SKILLS, ENGINEERING AND ADVANCED MANUFACTURING SKILLS PLANS – FINAL REPORT, September 2021, p5

Three workshops were delivered to an audience of textile manufacturers, the first in March 2020 and two more in October 2021². The main body of the workshop was designed to be participatory with audience members asked to use aspects of technology to provide live feedback.

6th March 2020, Textile Centre of Excellence

Format:	Half day with lunch provided
Audience:	Fashion & Textile manufacturers
Technology demonstration:	AR with invited audience participation
Participants	12 people from 8 textile organisations, and one from a funding organisation Abraham Moon, Camira, Dormeuil Manufacturing, Gledhills, Pennine Weavers, Skopos, The Nonwovens Network & WT Johnson

12th October 2021, Textile Centre of Excellence

Format:	Half day with lunch provided
Audience:	Fashion & Textile manufacturers
Participants	8 people from 5 textile organisations Avie*, Camira, Harrison Spinks*, Lawton Yarns* & Pennine Weavers*

20th October 2021, Textile Centre of Excellence

Format:	Half day with lunch provided
Audience:	Fashion & Textile manufacturers
Participants	7 people from 3 textile or related organisations, and one from a funding organisation Brierley Brothers*, Cutwel* and Wootex*

Companies marked with an asterisk joined one of the two later digital workshops as a result of a skills audit engagement (LTRS directly or via a separate project with Calderdale College).

The first technology demonstration was held over lunch and in the same room. Initially, there was a disinclination amongst the audience to approach the demonstrator and explore the technology on show (VR). This was partially overcome by approaching tables and suggesting that workshop participants might like to go over and find out more about it although some did not take up the offer. Feedback on the day suggested that some were aware of the technology already, others did not

² A workshop planned for 30th September 2021 received too few bookings so did not run. Some bookings were able to be transferred to a later workshop.

see any relevance to their circumstances – something that might have been reduced or removed had the demonstration been held *after* the workshop rather than before it began. This particular aspect did not form part of the next two workshops but might well have engendered a better response had the audience been located at the AMRC buildings, for example.

Bill Macbeth (Textile Centre) opened with an introduction to the UK's policy environment for using technologies as business tools. He highlighted the 2017 Made Smarter report which had a specific chapter on the fashion and textiles sector in the UK and noted a slow take up of 4.0 within the sector. He played a video by Graeme Coddington, "Best Explanation of the Fourth Industrial Revolution" as an introduction to the subject and what it might mean for businesses³.

Shirley Harrison (AMRC) engaged the audience in the use of digital technologies by inviting them to use their mobile phones to answer three questions via a cloud-based technology platform utilising interactive presentation software (menti.com)⁴. This served a number of purposes on the day: firstly, by demonstrating to the audience that it was familiar with digital technologies and used some on a regular basis; secondly, how straightforward it could be to set up a question-and-answer session between different parties and thirdly, the role that online software could play in facilitating means of communication (probably without the majority in the audience thinking about it). She then went on to discuss potential 4.0 uses within the sector, including the following themes highlighted by textile businesses in previous meetings.

- Collecting data from legacy machinery
- Improving supply chain links
- Data analytics and the potential for machine learning or Artificial Intelligence to provide assistance
- Preventive maintenance

Bill Macbeth returned to talk about the Future Fashion Factory project, run by the University of Leeds specifically for the fashion and textiles sector in England, and highlighted a number of current 4.0 business projects within the sector involving peer companies known to the audience. Finally, Richard Axe (Textile Centre) highlighted the scope and type of business support available to fashion and textile companies within both the local region and across England and Wales generally.

The second and third workshops were held in mid-October 2021 during an eight day period which coincided with a workshop on sustainability. These were held in the morning with lunch following afterwards; they were also slightly shorter in length. Both workshops highlighted the upcoming Made Smarter Yorkshire & Humber pilot project as well worth exploration (knowledge, skills and grants) but any actual take up and participation will not be known until after the practical completion of LTRS.

³ <https://www.youtube.com/watch?v=fbWyXWTQTtE>

⁴ <https://www.menti.com/>

Once more, participants were invited to use their mobile phones to vote on key issues affecting their businesses, this time using the Slido platform⁵. The results from a question asking them to identify their most pressing business issue (choose one from three) were quite different between the two groups. The results from a second question asking them to identify the main reason stopping them from implementing digital technologies in their business was broadly similar (choose one from four). Each participant was given one vote to allow for the possibility of differing opinions within a company where more than one employee was present.

What is your most pressing problem in business currently?		
Issue	12/10/2021	20/12/2021
Cost pressures	63%	33%
Lead times	25%	0%
Lack of skilled staff	13%	67%

What is stopping you from implementing digital technologies?		
Issue	12/10/2021	20/12/2021
Lack of knowledge / skilled workers	86%	63%
No clear business case	14%	25%
Security concerns	0%	0%
Older equipment in use	0%	13%

The small number of participants overall makes the results no more than indicative at best; secondly, a number of participants indicated clearly that more than one answer would have been provided had that been allowed.

A feature of all three workshops was how many people remained in the room afterwards, either to discuss aspects of the content with the presenters or to network with their peers. The first workshop was well received and led to four companies expressing a strong interest in exploring further how digitalisation might benefit their companies within a leadership and management context, thus providing a rationale for the Top Team Workshop format developed through LTRS. Secondly, a number of companies (Pennine Weavers, Abraham Moon, Dormeuil, Camira and WT Johnson) attending the workshop went on to develop projects (or further projects) within the Future Fashion Factory⁶, although an absolute causal link is not claimed for all cases.

Interest in the incoming Made Smarter Yorkshire & Humber programme was immediate with several companies stating their intention to follow up or register an interest via the Made Smarter website. One participant from the second workshop expressed an immediate interest in learning more about a skills training project run

⁵ <https://www.sli.do/>

⁶ <https://futurefashionfactory.org/news/> contains summaries of some of the digital projects that manufacturers have participated in

by UKFT (technical training for textile machine operators under thirty) and the Centre provided appropriate contact details and an introduction to the relevant person.

A number of participating companies were interested in receiving additional information about the range of business support on offer through the Leeds City Region and one company made an appointment with Patrick Robertson (West Yorkshire Combined Authority) to discuss other support on the spot. Further information on a variety of programmes was sent out electronically after the events, including links to relevant sites and contact personnel.

Other, specifically skills related issues to emerge from the workshops included:

- An acknowledgement that external expertise was likely to be a necessary requirement, for example, in the area of making a clear case for return on investment (ROI) in some IDT related projects;
- A lack of cloth mending expertise (and whether IDTs could assist in solving the problem);
- Concerns over whether sufficient expertise in data aggregation and analysis exists (including identifying and prioritising important data streams over non-essential or unnecessary data collection);
- An acknowledgment that most people aged 30 and under have grown up with digital technologies and could be useful as digital champions within the workplace;
- Auditing what digital knowledge and expertise exists within the existing workforce could be a valuable exercise.

Focus on the skills needs will be followed up by the Centre in the coming weeks through the likes of the Fashion and Textile Academy.

A key objective of the workshops was to show how digital technologies *might* be used to meet business needs, as opposed to being used where unnecessary or inappropriately. Taking a sector focus was viewed as important and was successful because some of the examples provided as practical evidence, already available via the Future Fashion Factory, illustrated the potential benefits for others in that industry. As such, the workshop format ought to be highly transferable to other sectors with appropriate examples.

Appendix 1 provides copies of the agendas for workshops one and two/three to show the slightly differing approaches taken.

2. Top Team Workshops

Top Team Workshops were first introduced in the Calderdale and Kirklees regions in the 1990s as a means of asking the senior management teams within individual companies to come together and really focus upon the key issues facing their business; to find solutions, create an action plan for delivery and then to implement those actions. Such a concept was deemed to be appropriate to the digital agenda and was planned to be one follow-up option as a result of attending an introductory workshop.

By the end of March 2020 two manufacturing companies had expressed an interest in participating in a Top Team Workshop (Pennine Weavers, Gledhills) with a further two interested in at least pursuing the concept further. Prospective dates and a venue had been agreed for the first workshop and a prototype agenda had been agreed with the AMRC and Sheffield University (see Appendix 2). The subsequent Covid-19 restrictions forced a rethink, and the passage of time and the imminent close of the LTRS project led to the adoption of elements of the national Made Smarter programme as a suitable replacement once it launches in Yorkshire and The Humber in November 2021. The key elements on offer for Made Smarter (Yorkshire & The Humber) will be as below.

- Supporting companies with digital road-mapping and a bespoke action plan
- Training in specialist leadership/management
- Internships (graduate placements)
- Contributions towards equipment purchases

3. Introduction to Industry 4.0 at Levels 3 & 4 management

The second area of digital content development came about as an identified need within a leadership and management context – at all levels. Two different approaches were undertaken: one at director and senior management level (Top Team Workshops, outlined above), a second pitched around ILM Levels 3 and 4.

Content to complement the ILM modules took some of the material from the workshop format and added an exercise using a digital triptych, designed to tease out the digital aspects most relevant to an individual business under three headings (Business Challenges, Digital Technology Themes and Jobs). An outline of this material can be found in Appendix 3. This model was first tested on Wednesday 8th January 2020 with a group of Level 3 management students from one textile manufacturer; the target time for delivery was between 2 and 2½ hours. Bill Macbeth and Richard Axe introduced the content.

Overall, the content was well received and sufficiently thought provoking for one of the participants to submit an idea for a digital project to the company's management the day following. Once again, the value of being able to provide industry relevant technology examples was apparent. The introduction to 4.0 worked better than the exercise with the triptych. More time would have allowed for a fuller exploration of the objective, which was for the students to explore and prioritise which digital concepts they felt to be most relevant to their company, and which were not. The triptych element was expected to be useful in a one company environment but would require a slightly different format when used with multiple company participation.

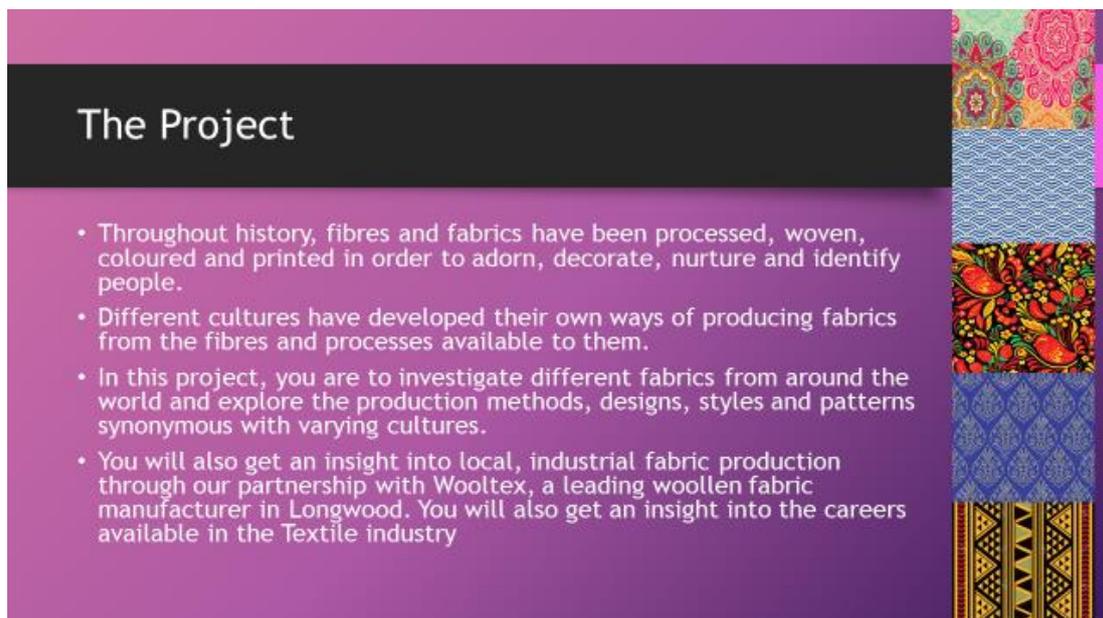


An example of the Digital Triptych in action

Appendix 2 provides a template for the delivery of such a programme.

Recruitment and retention of employees

The Segment 3 report highlighted a new approach to building better links between fashion and textile businesses and local schools by creating a series of collaborative projects. One example, a project between Wooltex and Salendine Nook School, can serve to highlight the basic methodology. The slide below reflects how the approach was delivered to the school's students.



Much of the work to improve the links between individual fashion and textile businesses and local schools was put on hold due to the Covid-19 pandemic but was able to restart in practical terms later in 2021. Three individual projects have been highlighted for inclusion here, all now ongoing beyond the date of this report.

1. Wooltex with Salendine Nook High School

Prior to the pandemic, the project was nearing completion. This project had already created a very tight working relationship between the school, the students and the company, due to the amount of work and time already invested into the project. Students had already visited the company's manufacturing facility a number of times to look in depth at the dyeing processes by machine and by hand. The next stage was to create a 'cultural bag', incorporating the techniques learned from the company visits, using materials provided by the company. The Textile Centre and Wooltex were due to attend the textile sessions and assist with manufacturing, however, the school was forced to close.

Once schools had reopened, the scheme of work created for the project was completed, but using a stripped back version, without the presence of the company. Students completed practical workshops where bags were created. While neither the company nor the Textile Centre were able to attend because of lockdown, it was great to see that the learning from before the pandemic was used and taught throughout the remainder of the year. Since September 2021, the Textile Centre of Excellence has arranged a meeting with the school and company to provide a full update. The school has expressed a desire to complete more projects, and create more close working relationships with other textile companies, which will be addressed and discussed in the above meeting.

2. Joshua Ellis with Upper Batley High School

Prior to the pandemic, the school and company agreed to design and produce a lamb's wool scarf. This was to be in their school colours, and the project completed all aspects from the research, costings, sizes, patterns etc., and completed their design. The students were then due to attend at the company to start manufacturing their scarves. Unfortunately, this was unable to take place due to lockdown.

Since September 2021, when the school has been able to accept visitors and plan the remainder of their project, the Centre has arranged for the project to re-commence, with a view to completing the project by the end of 2021. Previous plans to create 200 scarves will no longer be possible, as the company partner is extremely short of staff as a result of Covid. However, the partnership will remain and the Centre is continuing to work closely with the project partners to ensure successful completion.

3. Harrison Spinks with Cockburn John Charles Academy

The students and teachers created an after-school club, in which sessions with Harrison Spinks took place and the project was introduced. The partnership chose to design a head-board, looking at new and exciting concepts by incorporating

magnetic, interchangeable headboards. The school has covered all aspects of research and design, and were still to complete the manufacturing aspect.

Due to the elongated timescale caused by the pandemic, the students that took part at the beginning in 2019 are unfortunately no longer at the school, but the school has expressed a desire to complete the remainder of the project with another group of students. A 'Teams' meeting has been arranged to take place in October, involving the textile teachers, the Centre and the company, to establish how the project will be completed with the new students and finalise the schedule of work. This has been an extremely exciting project and the partnership created has been of real benefit to both parties to date, hence the desire to complete the project.

Appendix 3 offers a template for the scope of a pilot project with a range of pilot materials developed subsequently.

A new learning pathway through the Fashion and Textile Skills Academy

The launch of the Centre's Fashion and Textiles Academy is imminent, after an extended hiatus due to the Covid-19 pandemic. Once open, it will allow businesses to address the skills shortages for sewing machinists and production staff for apparel, furnishing and technical textile products. The Academy will offer learners the opportunity to gain the industry-specific skills and knowledge they need, to excel and progress within textile and fashion manufacturing, along with real opportunities to work and learn with local companies.

The Centre has recruited a new Course Leader/Tutor who is now well underway with initial learner engagement across client groups. With the building blocks now firmly in place, we anticipate hosting the first cohort on the Academy programme in December 2021, with further cohorts in February, April and June (bi-monthly).

The Centre currently has 30 job vacancies advertised across its social media platforms. That number of vacancies provides the Centre with a solid starting point for the first programme, which will seek to enrol at least 8/10 candidates onto the December programme, followed by 8/10 learners on each cohort thereafter. Initial engagement has involved with the Job Centres on a programme of Assessment Days/Awareness Days to speak to those currently seeking employment and agreeing timescales for the structured course delivery. All candidates selected will join the Fashion Academy programme which will provide a minimum of 15 hours per week over 6 weeks of training. On completion, all candidates will as a minimum be offered an interview combined with a practical skills test with their preferred employer. Some candidates are expected to continue their learning to secure a Level 1 qualification with a proportion joining the Centre's apprenticeship programmes once employment has been secured.

Appendix 4 provides a template for the elements planned as part of the expected delivery.

Sustainability

In business, large companies are increasingly requiring compliance from their supply chains and investors are seeking 'climate related financial disclosures'. For companies, cost and risk concerns can be outweighed where manufacturers can identify new opportunities arising from the circular economy and lever value from sustainability, moving beyond compliance to generate competitive advantage.

During 2021 it became evident that there was a need for a practical programme to provide manufacturers with the analytical tools to identify where to start to identify and prioritise risks and opportunities, providing support to plan, implement change and develop a company strategy involving all employees, recognising the 'corporate capacity' of SMEs. A number of drivers were identified, ranging from a need to explore the subject ahead of the introduction of further regulatory compliance to a real desire to make a difference. The impending Climate Change Conference (COP 26), to be held in Glasgow, has acted as a relevant factor as have an increased number of reports in the media relating to pollution or poor practices in the fashion and textile sector.

The first workshop took place on 13th October 2021. Twenty delegates from 13 companies attended. A strong message was promoted that businesses have to look at sustainability as part of an overall strategy and with clear vision and focus. Companies taking a 'greenwash approach' are likely to be found out at some stage with a consequent risk of damage to their reputation and brand.

Feedback from companies was very enthusiastic with real appetite for a programme of training and mentoring to enable companies to prepare their own sustainability strategy.

Attendees suggested that their companies would consider making changes in the following areas, amongst others.

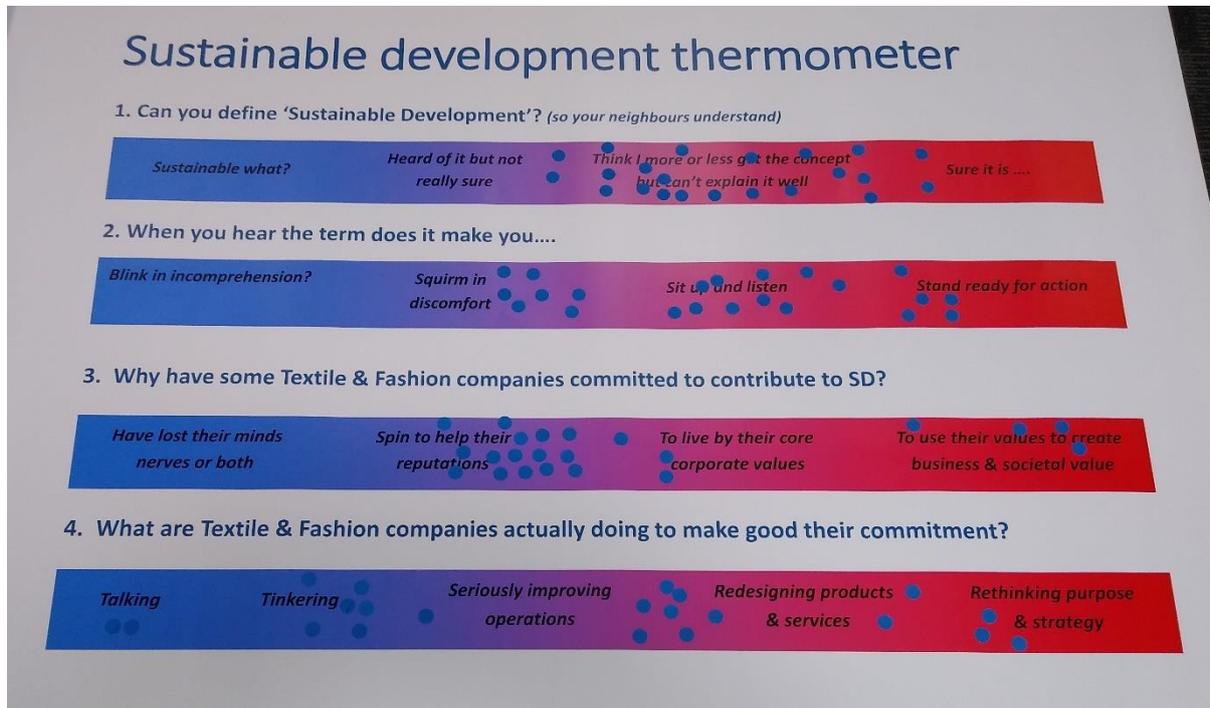
- To look at production process to make more efficient
- Develop sustainability champions to replace 'Green Team'
- Waste and recycling
- Energy consumption and traceability
- Company values, staff buy in, involvement of full team
- Implications of net zero
- Look at alternative products, talk to current suppliers for more sustainable options,
- Waste management/packing materials

In addition, participants suggested that assistance would be beneficial in the following areas.

- How to recycle materials/blended polyesters
- Measurement and carbon offset
- Circular models
- How to become a circular company/improving waste streams/possible CO2 outputs
- Net zero help, reporting and measuring

- Grants and reports
- Alternative outdoor fabric specialists & or recycling specialists
- Funding and employee engagement

The Centre has opened discussions with a handful of organisations to explore avenues of potential support for the development and delivery of this important new programme.



Using blue stickers, participants were asked at the outset to post their views to these questions posed by Dr Mark Wade

Businesses attending the Sustainability workshop were as follows.

Avie, AW Hainsworth, Brierley Brothers, Davy Textiles, Green and Brown, Harrison Spinks, John L Brierley, Lawton Yarns, Thornton & Ross, Wooltex and Wools of New Zealand

Appendix 5 offers a list of factors considered important to the creation of a sustainability workshop.

Conclusions

Despite the enforced absences from face-to-face delivery which severely hampered this pilot phase, all the items that have been piloted between early 2020 and 2021 have enjoyed some success. Some, like the session created for a Level 3 Leadership and Management course or the recent Sustainability Workshop, had an immediate impact: the first was responsible for a digital project being submitted to the Camira management team on the day following; the second has received excellent feedback with a clear mandate to delve more deeply into the subject on

behalf of the fashion and textile sector. Others, such as the projects between schools and textile manufacturers are displaying clear benefits such that another project proposal has been generated in order to roll out a phase II version.

Appendix 1: Digital Awareness Workshops



**Let's Talk
Real Skills**



**Future Fashion
Factory**

Industry 4.0 Workshop

Friday 6th March 2020 - 12.30pm – 4:15pm

Co-hosted by the Advanced Manufacturing Research Centre, University of Sheffield,
and The Textile Centre of Excellence, Huddersfield

Venue: The Textile Centre of Excellence, Red Doles Lane, Huddersfield, HD2 1YF

Agenda:

Lunch, Networking & Digital Demonstrations by the AMRC		12:30
Introduction: Why are we doing this?	Bill Macbeth	13:15
What is the 4 th Industrial Revolution and how could it help you?	Shirley Harrison	13:35
Future Fashion Factory: Some industry examples	Bill Macbeth	15:15
Business support available to the sector	Richard Axe	15:55
Make an appointment with the Textile Centre to discuss how digital technologies might help		
Closing		16:15



Let's Talk
Real Skills



European Union
European
Social Fund



Let's Talk
Real Skills



Future Fashion
Factory

Industry 4.0 Workshops

Thursday 30th September 2021 - 10:00am to 12:45pm

Tuesday 12th October 2021 - 10:00am to 12:45pm

Wednesday 20th October 2021 - 10:00am to 12:45pm

Co-hosted by the Advanced Manufacturing Research Centre, University of Sheffield,
and The Textile Centre of Excellence, Huddersfield

Venue: The Textile Centre of Excellence, Red Doles Lane, Huddersfield, HD2 1YF

Agenda:

Introduction: Digital Technologies for Manufacturers The Made Smarter Report and the Region's response Some industry examples from the 'Future Fashion Factory'	Bill Macbeth	10:00
What is the 4 th Industrial Revolution and how could it help you?	Shirley Harrison	10:20
Business support available to the sector and Next Steps	Richard Axe	11:50
Close		12:10
Lunch, Networking		12:10

Appendix 2: An introduction to Industrial Digital Technologies: a short training programme

Brief introduction

Best explanation of the Fourth Industrial Revolution by Graeme Codrington

<https://www.youtube.com/watch?v=fbWyXWTQTtE>

Main message from Graeme's video?

The 2nd Revolution wasn't anything to do with new technologies. It was to do with using the new technologies from the 1st Revolution to work in a better way.

Graeme is suggesting that the 4th Revolution isn't about new technologies - it's about using the new technologies from the 3rd Revolution (IT, computers, internet, comms) to work in a better way.

How to describe the four industrial revolutions in one word? What were they about?

1st. Production

2nd. Efficiency

3rd. Automation

4th. Connectivity (connecting data from every part of the operation from raw materials to the customer and beyond – to the end of the product lifecycle)

About working better, faster, (cheaper) and smarter to satisfy changing needs of the market better than the competition.

How is the market changing?

- Growth in luxury markets
- Customers want the product now
- More customisation
- Sustainability increasingly important
- Rent not buy becoming a new norm
- Technology slowly becoming part of F&T, e.g., luxury brands putting microchips in their products

What do companies need to do better?

Be more flexible

Be slicker / faster

Make better communications between its supply chain and with customers

Be more responsive

Be greener – less waste, less environmental impact

Be more innovative with its products and processes

Future Fashion Factory

One local example of HE / R&D Centres working well with the industry.

5 HE based projects, and the first 8 company projects:

1. Analysing massive data from all sources to enable faster design decisions. Matching words, emotions etc. to colour palettes that will resonate with customers. Any word, any language 'Colourpedia'. Prof. Steve Westland.
2. Using more data on historic trends, preferences for styles etc. to provide faster design ideas powered by machine learning.
3. Creation of massive AI databases to produce potential designs where choices are triggered by words / phrases, e.g. 1920s, reggae, empire, Chicago, beer.
4. Very late stage fabric modification (handle, appearance, texture). Production on demand rather than from stock.
5. Online communications to transmit tactile and aesthetic properties over the internet – through touch (haptics). Immersive customer (buyer) experiences.

FFF video: <https://www.youtube.com/watch?v=Mevml7hkRyQ>

Five new training courses in development

1. This one!
2. A half-day introduction to IDTs in manufacturing for businesses (to be piloted in first half of 2020)
3. A 5-day course offering a broad introduction to IDTs, integrated with an apprenticeship course or offered as a stand-alone
4. A 2-day Top Team Workshop considering integration of IDTs across manufacturing operations (to be piloted in first half of 2020)
5. 10 day digital training and consultancy package.

The Gamification Digital Triptych

On the table:

5 key business challenges

17 digital themes (terminology might be strange, e.g., servitisation: Rolls Royce, leasing aircraft engines, or My Yorkshire Wardrobe, rental rather than purchase of clothes, as two examples)

9 job roles seen as critical to the industry now and in the future

- Take 2 minutes to discuss amongst yourselves which ones are important to your company – rank them in order of priority and put them on the board.
- If a business challenge isn't listed but you think it's important then write it on a blank and put it up there.

- Next, take 2 minutes to choose the digital themes you think will help most to help meet the business challenges. Put them on the board.
- Finally, take 2 minutes to choose the occupations that you think will be needed to help your company.
- Photo of the results

Are your instructions clear?

Discussion on new occupations

Do you think you have the skills and expertise in your company now? How do you know?

If so, where? If not, how will you find it / more of it?

Feedback

Appendix 3: Some templates used within projects carried out by individual companies to analyse their future skill needs and develop a range of practical activities to improve the image of the industry and their own links with local schools

The practical exercise

Part 1

The first stage of the practical exercise project was to do an introductory session with the school, the company and students that were interested in participating. This was to decide what type of project all parties would like to do. A document was created to help brainstorm ideas and help focus ideas towards fitting the project into the school curriculum, as well as the company working closely with the students. This document can be found at Annex 1.

Part 2

The next stage was for the company and school to work together to get a introduction/outline/brief/timeline together. Please refer to Annex 2 which will give you an idea as to what stages were agreed between the company and school to kick start the project.

Part 3

An outline timeline template which was useful for students to understand what deadlines were approaching.

Part 4

Practical exercise TOP TIPS. Having completed one project already, there were several lessons learned and we have documented a few of our top tips for others who are starting out doing a new project.

Part 5

As this project had a large number of students interested in taking part, and we only had a relatively small number of places available, it was agreed that students who wanted to participate would submit an expression of interest, and they would then be invited to an interview with the teacher to determine who would be given the places. Annex 5 is the interview questions we used should you need to complete an interview process.

Part 6

Once the group of students was chosen, they had to use the brief/timeline to create documents where they will gather ideas and document research etc. They chose to have a document for each element of the process.

Part 7

Before choosing the materials to use, the students visited the manufacturing facility so they had a clear idea as to what they needed to know and what they needed to plan for. Students were therefore required to complete a consent letter by a parent/carer in order to authorise an external trip.

Part 8

Before allowing students to attend on premises, the company was required to do complete a risk assessment, of which was sent to the school in order to prove a risk assessment has been completed. A number of risk assessments for various locations can be found at annex 8 as examples.

Part 9

During the visit to the school and to TcoE, the students were given a financial input from both the company and TcoE's Finance manager/Company Secretary. Powerpoints can be found at Annex 9. This gave students an input on how to cost a project.

Part 10

Once the students had decided on their project, and done the background research etc, the students had to choose the material used for the blinds, therefore, they had an input from the blind manufacturer as to the different options available, and were then invited down to TcoE and conducted various tests on the material to ensure that it was appropriate and met the necessary standards to be used as a classroom blind. The various tests completed were FR tests and Abrasion tests. The worksheets the students completed during the tests can be found at Annex 10.

Part 11

The students were also asked to complete an exercise within their science class (links to the curriculum) once they had completed the test. This exercise booklet can be found at Annex 11.

Once the students had completed the various tests, and ensured the costings were sustainable, they used their initial design ideas, and sent their design to print. Once they had received the design back from print, the students attended the manufacturing facility and the blind manufacturer held a session where they completed the manufacturing process. Once this was complete, the company then visited the school to fit the blind so the students could see their project complete and installed.

Part 12

Throughout the project, a number of media students used this project as part of their media BTEC, of which they created a video of the project from the very beginning to the final product. This video can be found at Annex 12.

Textile Business – School Project

This project aims to strengthen links between local manufacturing companies and schools and give teachers and careers advisors the knowledge to correctly inform students regarding careers within the industry. The next stage of the project will involve Centre working with four textile companies and four local schools to create exciting, innovative and informative practical exercises where companies and schools work together.

The Centre has recently completed a pilot project which was a huge success. The pilot phase saw Netherhall Learning Campus working closely with Yorkshire Blinds and Curtains Ltd to design and learn about manufacturing window blinds for specific areas within the school. Students were required to prepare and outline the design concept whilst working closely with the company, and to work alongside the Centre to:

- Identify appropriate materials for the product including specifications for abrasion, colour-fastness, flammability and strength/stretch,
- Determine the appropriate labelling requirements,
- Carry out performance tests,
- Work with the company to manufacture the chosen design into window blinds,
- Develop financial and marketing strategies to promote the products.

The aim was to ensure students were given a true insight into the industry and what opportunities are available for students and young people. John Beevers of Yorkshire Blinds and Curtains said the project was a “good opportunity to show people what it’s like in a working environment. It’s been a very good project because it involved the Textile Centre of Excellence, the school and ourselves, so it’s a good insight into what our business does and how they actually manufacture blinds”.

The school has undertaken formal feedback sessions with the participating students. 100% of students felt the project gave them a good insight into the Textiles industry, 100% of students felt challenged by the project, but most significantly, 82% of students said they would now consider a career in the textile industry as a direct result of the practical exercise. The Centre is now keen to continue this work and conduct further practical exercises, widening the scope for more companies and students to get involved.

The Centre has secured support for four further projects, and is now inviting your company to join us in creating better, stronger links to the industry for students and young people in your local area.

We are looking for companies who can provide insights into careers in the textile sector, and commit time to deliver this practical project. The Centre of Excellence will be there throughout the project to support and guide both your company and school ensuring you are getting the best results possible from working together. We can also offer support in facilitating meetings/sessions, conference rooms for meetings, and also use of our facilities here at the Centre should you wish to undertake performance tests where you require a lab.

We are now seeing expressions of interests from companies who would consider getting involved. We have identified _____ as your local high school, and would recommend working with students from year 10, as this is the year before they choose their next phase of education, with a potential of looking into apprenticeships. Again, this is flexible according to your needs and preferences. If you have an alternative school you would prefer to work with the Centre will be able to facilitate contact.

Please see the timetable (notional dates) for proposed dates for the project activity.

November 2021: Company and School briefing and practical exercise selection

November/December 2021: Project idea finalisation

10th January 2022: Kick-off event where companies will meet with schools to have a short taster session and introduction session to what is to come. All new projects will be showcased, with all companies and schools involved.

10th January 2022 – 8th April 2022: Undertake and complete practical exercise.

29th April 2021: Final project showcase.

Martindale Equipment

Fabric Abrasion Test

Print Name.....

Date.....

Introduction

There are several abrasion test procedures used to assess fabric serviceability and resistance to abrasion during use. These utilise the Martindale equipment which abrades samples against a standard worsted fabric. End point is generally when adjacent threads are ruptured but can also be used to calculate fibre loss by weighing samples before and after exposure to the Martindale procedures.

Practical

Cut 2 fabric samples using the equipment supplied from each of the fabrics supplied. Ensure the samples cut are representative of the whole width of the supplied fabrics. Weigh the cut samples and record the weight in grams. Position the samples in the equipment holders and set the Martindale to carry out 3000 rubs.

Remove after the set period and weigh the samples again in grams. The difference in weight can be expressed as a %age loss against the original weight and show fibre loss.

After weighing check each sample for thread breakage within the fabric in any direction.

Recorded results:

Before Abrasion procedure: -

Weight of sample 1 from fabric A	g
Weight of sample 2 from fabric A	g
Mean weight from sample A	g
Weight of sample 1 from fabric B	g
Weight of sample 2 from fabric B	g
Mean weight from sample B	g
Weight of sample 1 from fabric C	g
Weight of sample 2 from fabric C	g
Mean weight from sample C	g

**Insert a
sample from
fabric A here**

After Abrasion procedure: -

Weight of sample 1 from fabric A	g
Weight of sample 2 from fabric A	g
Mean weight from sample A	g
Weight of sample 1 from fabric B	g
Weight of sample 2 from fabric B	g
Mean weight from sample B	g
Weight of sample 1 from fabric C	g
Weight of sample 2 from fabric C	g
Mean weight from sample C	g

**Insert a
sample from
fabric B here**

**Insert a
sample from
fabric C here**

Calculate % fibre loss of

Sample A

Sample B

Sample C

Record No. Thread breakages

Sample 1 from fabric A

Sample 2 from fabric A

Sample 1 from fabric B

Sample 2 from fabric B

Sample 1 from fabric C

Sample 2 from fabric C

Additional comments or observations: -

BS5867-2 Type B**FABRIC FLAMMABILITY**

Print Name..... Date.....

Introduction

Legislation requires that Curtains/Drapes/Window Blinds installed into a commercial or public building must meet stringent flammability standards. The British Standard for this is BS5867-2 Type B.

Practical

Cut fabric samples 200mm x 150mm. Hang each sample vertically onto the frame and apply a butane flame of 25mm length to the face of the fabric for 15 ±1 seconds. Observe and note:

- How close the flames burn to the edge of the fabric
- Duration of flaming
- Do burning droplets of fabric fall into the chamber and continue to burn

N.B. Tests must be performed in the ventilated fume cupboard and PPE must be used as directed.

Results

The fabric passes this FR standard if:

- The flame does not burn through to the edge of the fabric
- There are no burning droplets

Sample No./Name & Direction	Duration of Flaming (Secs)	Flaming Debris Yes/No	Flame to Edge Yes/No	Hole to Edge Yes/No
Length				
Width				

Sample No./Name & Direction	Duration of Flaming (Secs)	Flaming Debris Yes/No	Flame to Edge Yes/No	Hole to Edge Yes/No
Length				
Width				

Sample No./Name & Direction	Duration of Flaming (Secs)	Flaming Debris Yes/No	Flame to Edge Yes/No	Hole to Edge Yes/No
Length				
Width				

Sample No./Name & Direction	Duration of Flaming (Secs)	Flaming Debris Yes/No	Flame to Edge Yes/No	Hole to Edge Yes/No
Length				
Width				

My Investigation handbook

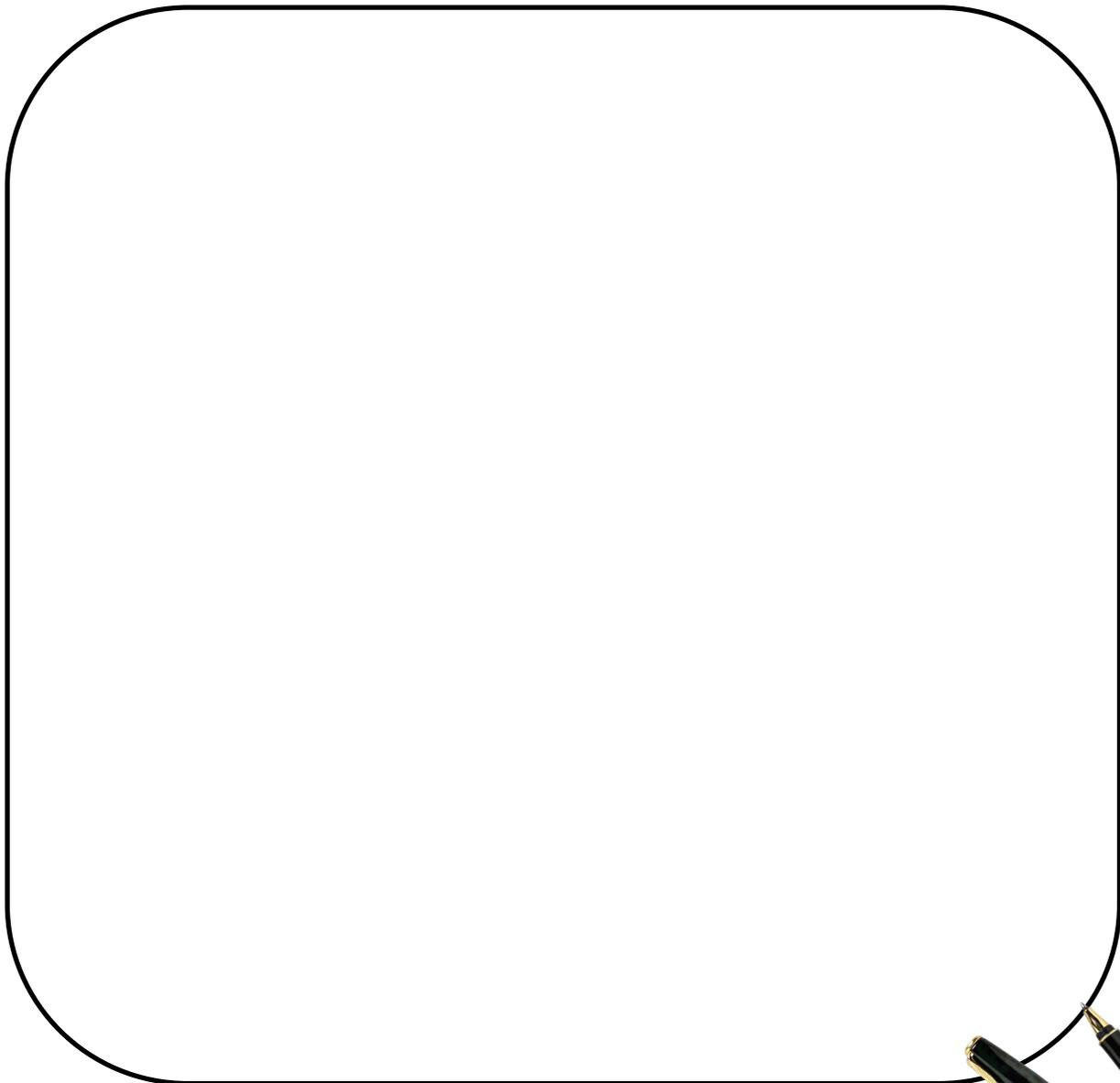


How can we test if our
blinds are safe?

Name: _____ Form _____

Context

Yorkshire Curtains and Blinds want to check the fabric they are using to make their blinds is safe. What things could they check to make sure the blinds are safe for the classroom.



	Prediction		Continuous variable	A variable which can have any numerical value
Valid	The results and conclusions will be this if the variables are correctly controlled		Dependent variable	This is the variable that changes as a result of a change in the independent variable
Fair test	This is where only the independent variable is changed and the others controlled		Uncertainty	The range around a true value. For example 20cm +/-2 cm
Hypothesis	A scientific statement that explains certain facts or observations		Measurement error	The difference between the real value and the measured value
Interval	This is the difference between the values of your independent variable		Anomaly	A result that does not fit the pattern
Data	Information or measurements that you collect		Random error	This error causes measurements to be spread around the true value – can be reduced by taking repeats and calculating a new mean
Datum	One piece of information		Zero error	When a piece of measuring equipment should be reading zero but it doesn't
Systematic error	This is an error that is always the same for each repeat – usually because of an error in the equipment used		Accuracy	How close the reading is to the true value
Resolution	The smallest change that can be read from a measuring device for example a ruler measured in mm or cm		Precision	This is determined by the scale on the measuring apparatus e.g. a ruler marked mm is more precise than one in cm
Repeatable	If the same person can get the same reading using the same equipment and method		Calibration	When we make sure that measuring apparatus is making correct readings e.g. the temperature of melting ice is 0 degrees celsius
Categoric variable	A variable that can be described by a label or category such as colour or surface		True value	This is the real value of a measurement in an experiment
Control variable	Variables that remain constant, to make sure that an investigation is valid		Reproducible	If another person can get the same result using the same method and equipment or with different method or equipment.
Independent variable	This is the variable that is changed during an investigation. There should only be one of these.		Range	The maximum and minimum values of the independent or dependent variables e.g. 'from 10cm to 50cm'

Hazard Symbols in the work place

What do these hazard symbols tell you if you see them in school/home or in a work place?



Variables

A variable is something that can change

Match up the type of variable to the description



Control Variable	The variable that changes as a result of changing the independent variable. This is the one you measure.
Independent Variable	A variable that is kept constant (i.e. not changed) during an experiment.
Dependent Variable	The one thing that you decide to change.

We are going to test 5 different fabrics to find out how flammable they are.

Why is it important to test the flammability of a fabric?

For our flammability investigation what are the:

Independent Variable -

Control Variables – try and name at least 5.

- 1.
- 2.
- 3.
- 4.
- 5.

How could we measure which fabric was the least flammable?

Method - you are always asked to write one of these

When we describe a method we need to include:

1. A list of equipment
2. Measurements you would take
3. How you would take the measurements
4. What you will do to make it a fair test
5. Risk assessment

Can you write an equipment list for this equipment?



Method writing

How could you test the flammability of the fabrics? How will you know which one is the least flammable?

Step by step method

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.



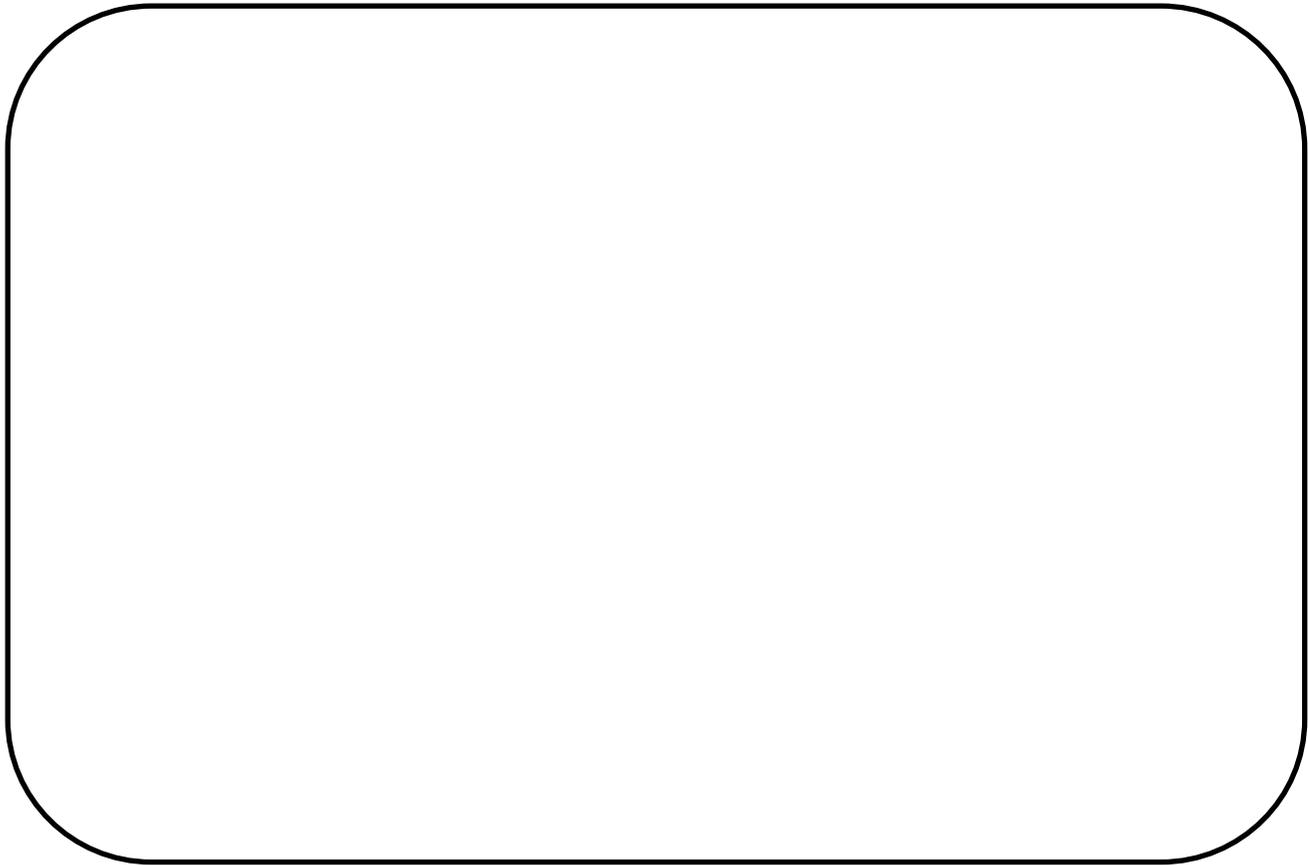
Can you write a risk assessment in the form

<u>Hazard</u>	<u>Risk</u>	<u>Control</u>

Table of results

Tables of results must include titles and units and they should be headed with the dependent variable and independent variable.

Can you make a table for the flammability experiment

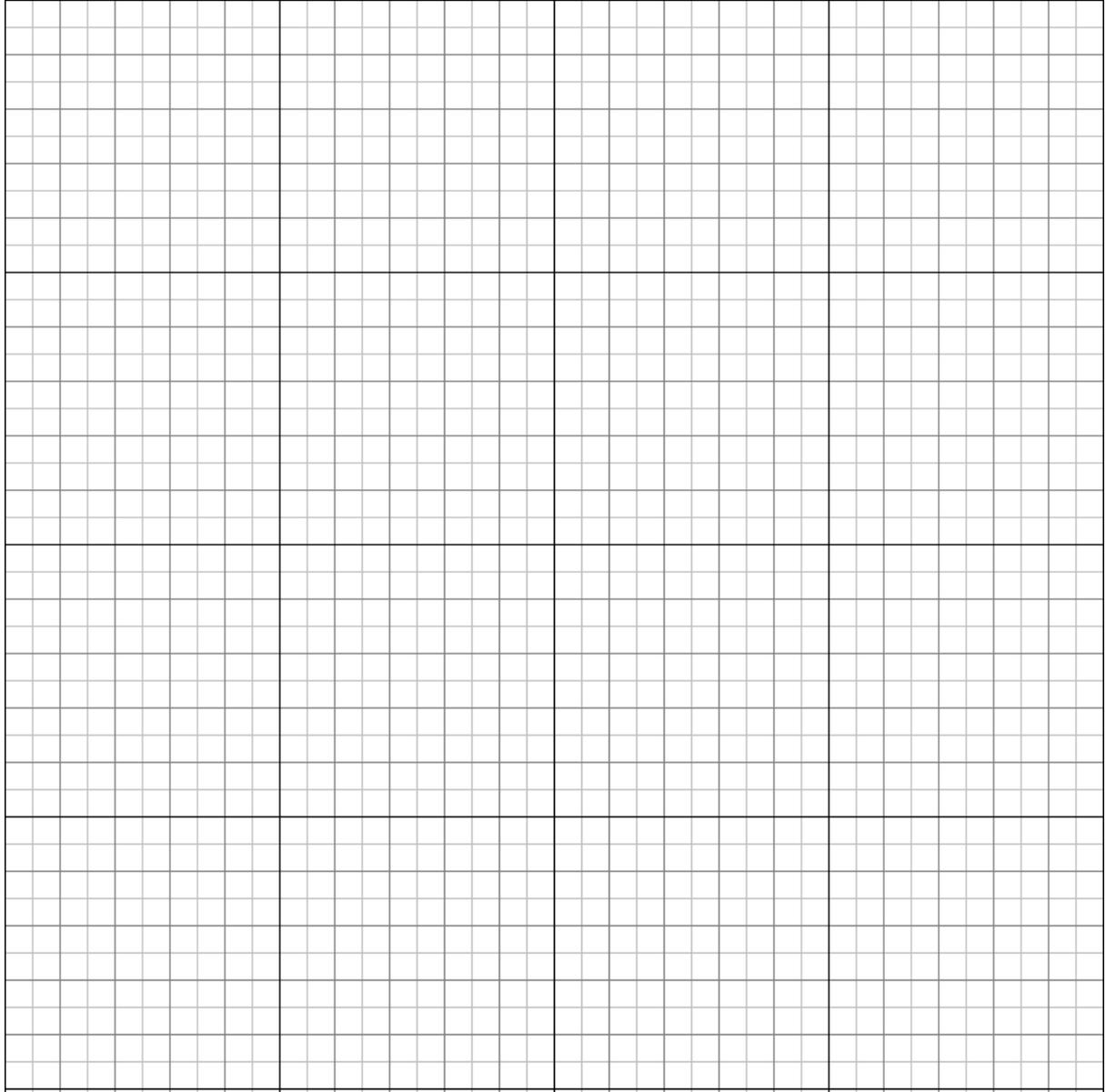


Drawing a graph

You need to include

- 1) Axes titles and units
- 2) All points plotted to within +/- 1mm
- 3) Line of best fit (could be curved or straight)
- 4) Appropriate scale (fill at least 1/3 of your axes)

Tip: Use a sharp pencil and ruler. Try and keep your scale simple and use a cross to mark each point.



Results

Rank your 5 fabrics in order, starting with the least flammable

- 1.
- 2.
- 3.
- 4.
- 5.

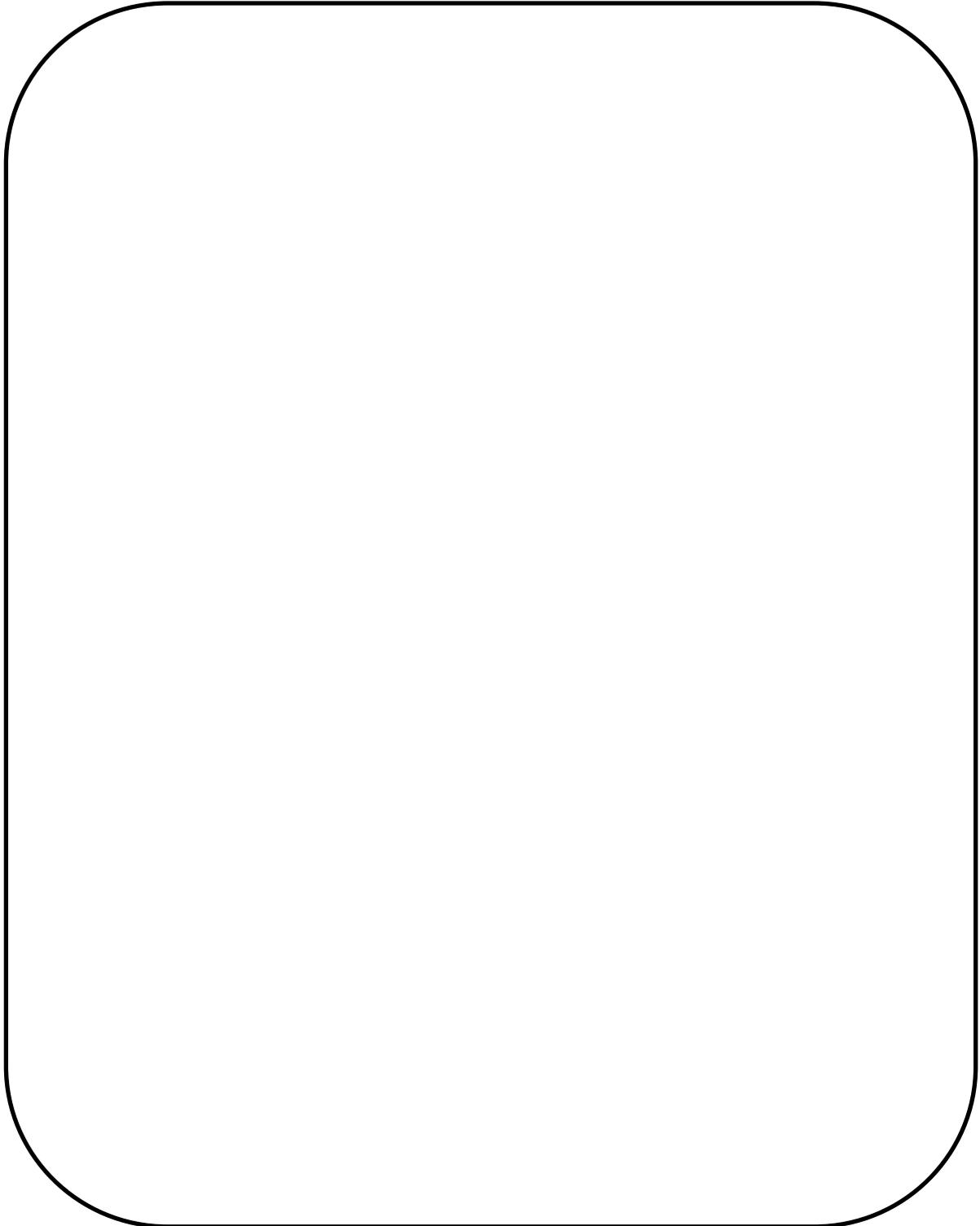
Explain how you came up with this order, using your data to help justify your answer.

What else would you need to know about the fabric before choosing it to make a school blind from?

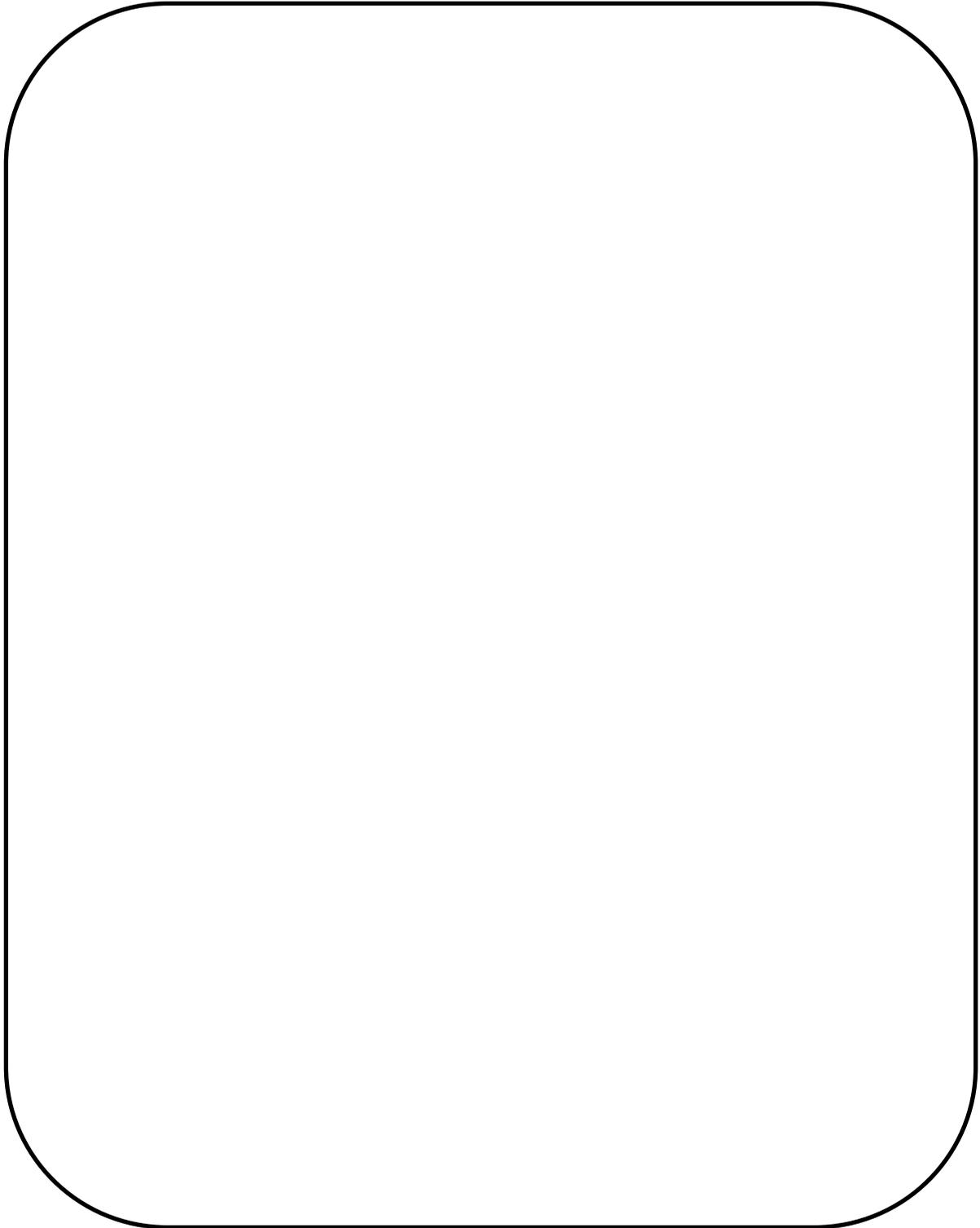
My current choice of fabric is _____

because _____

How do they test the flammability of a fabric at Yorkshire Blinds and Curtains



How do they make sure their results are reliable? Include a list here of all the control variables you see.



D.I.R.T.

You have worked on the following skills this week

- Identifying Variables
- Writing a method
- Carrying out a risk assessment
- Working safely to collect results
- Making a graph.
- Writing a conclusion
- Comparing your method to the one used in industry

What investigative skills do you think you improved on this week?

What investigative skills do you need to work more on?

What are you actively going to do to improve on the skills you identified to work more on?

Appendix 4: Skills opportunities obtained via a Fashion Academy

Candidate Eligibility:

- Candidates actively seeking work or currently in work but with no recognised sector based qualification;
- Candidates that have the legal right to work in the UK;
- Candidates completing the programme should ideally be eligible for an Apprenticeship

Operation:

Candidates of all ages (employed or unemployed) are enrolled onto the FTA programme. Referrals may come from a series of intermediaries such as such as DWP, the Work Programme, Welfare to Work, JCP or other projects within the locality as well as via the Centre's members and from the anticipated marketing campaign.



Referred individuals are screened for programme suitability and initially assessed against appropriate mechanisms for programme success and completion.



Between weeks 1 and 6, the programme will deliver work readiness training, health & safety training as well as practical activity (such as machining, cutting, garment structuring, pattern laying etc.). This will be delivered by competent, industry specialist tutors.



Programme tutors and mentors assess ongoing skills development and support individuals to become 'work ready' for potential recruitment into the textile and apparel manufacturing sector. Along the journey, learners will develop their own garments to submit as formal recognition of their capability.



Candidates completing the programme will receive job suitability training and mock interview practice to prepare them for future job expectations. Candidates will be supported with job applications for existing vacancies within the sector.



After 6 weeks, candidates completing the programme will be *considered* for employment in the sector. Candidates who are offered a job at interview will be offered employment in line with the company's contract policy (such as hours of work, pay, holidays etc.). All candidates will undergo a paid work trial.



Assuming a successful work trial, all candidates will be assessed and their performance monitored throughout their employment and will (where appropriate) be assessed with a view to commencing a programme of vocational learning, i.e. apprenticeships.



(Ongoing) Individuals undertake skills programmes (i.e. apprenticeships) and are considered to be competent in the workplace. National accreditation of their skills is provided.

Appendix 5: Environmental sustainability for the sector

A pilot one-day introductory Workshop could inform the structure of the programme. The Workshop might cover the following areas:

- What is driving Sustainability?
- What exactly does 'net-zero' mean for a company?
- What type of commitments are being made by:
 - Governments
 - Local Authorities
 - Brands
 - Major companies
- What are the implication for supply chain partners?
- What new business opportunities will arise from the 'Circular Economy'?
- Examples of sustainability strategies
- Where to start?
- Identifying and prioritising risks and costs
- Materiality Analysis
- Securing buy in from management and employees
- Legal compliance and moving beyond compliance
- Promotion and dissemination
- Impact measurement
- Sources of Support and Next Steps

Creating Value from Sustainability Workshop

Wednesday 13th October 2021 - 10:00am to 13:00pm

The Textile Centre of Excellence, Red Doles Lane, Huddersfield, HD2 1YF

Agenda:

<p>Introduction:</p> <ul style="list-style-type: none"> • What is driving Sustainability? • What exactly does 'net-zero' mean for a company? • What type of commitments are being made? • What are the implication for supply chain partners? • What new business opportunities will arise from the 'Circular Economy'? 	Bill Macbeth	10:00
<p>Integrating Sustainability into Business</p> <ul style="list-style-type: none"> • Understanding the challenge and where to start • Aligning the 'corporate compass' • Integrating sustainability, introducing manageable activities • The role of leadership, empowerment and innovation 	Dr Mark Wade	10:20
<p>Sustainability in the Fashion & Textile Sector</p>	Steven Parsons - Wools of New Zealand	11:20
<p>Case Study: Harrison Spinks</p>	Claire Burns & Richard Essery	11:40
<p>Support available from the West Yorkshire Combined Authority</p>	Vincent McCabe	12:00
<p>Lunch, Networking & Next Steps</p>		12:20