ACTIVITY 09

CIRCULAR BUSINESS MODELS - THE BRANDED T-SHIRT CASE

HOW CAN WE USE THE CIRCULAR ECONOMY BUILDING BLOCKS TO CONSTRUCT AND MODEL CIRCULAR VALUE PROPOSITIONS?

CONTEXT FOR THE ACTIVITY

A key aspect of the circular economy is the circulation and cascading of product, materials and resources at their highest value for the longest period, leading to a number of potential benefits and positive outcomes.

Whilst there is a growing literature and case study library describing illustrative case examples, how these benefits and outcomes are achieved and the evidence base to reveal the benefits and outcomes is less well documented. Moreover, the extent to which any case example is circular, or aligns with the grounding principles of a circular economy, is often taken for granted rather than subject to critical analysis and appreciation of wider system consequences and requirements.

The starting position in this workshop activity is that in order to move from linear to circular requires the deployment of a set or configurable actions known as ‘circular economy building blocks’. These have been widely documented in the literature of the Ellen MacArthur Foundation (EMF, 2015) and can provide a useful starting point for all circular economy value propositions. These four building blocks are circular design, circular business model innovation, management of reverse logistics/cycles and harnessing of various system enablers through a range of forms of collaboration.

This activity introduces workshop participants to the creation of a circular value proposition using the four building blocks, and gives hands-on experience of the challenge of re-designing a current real linear sales/ownership/dispose model to a potential circular model.

This business-focussed case is based on a real world example from a recent UK industry-university innovation research project. The case involves cotton T-shirts and raises issues about the disposal of valuable product and materials well before economic, biological and technical life spans - a common issue in circular analysis. The learning points from the case are widely relevant to broader debates in the clothing industry such as fast fashion and workwear, and the challenges facing many clothing retailers.

The context is a UK SME that imports, brands and sells fair trade cotton workwear and branded T-shirts into UK Higher Education. The company is concerned that, despite its ethical/fair trade credentials, the clothing that they are selling is often only worn once (for charity events, 'freshers week' etc.) and therefore generating waste and missing an opportunity to promote the principles of circularity to this target group. Secondly, items purchased for workwear (such as university bar staff or security) are also often discarded and replaced well before the item has reached the end of their material life span.

The challenge for the company therefore, is whether it is possible to generate a new circular value proposition that will continue to deliver the required function of the T-shirt, but also allow the product and materials to be re-circulated in repeat cycles and still make a profit.

A key part of this business case is to provide a background to the idea of circular economy building blocks, notably designing products and their recovery into a new business model, and how to initiate and structure a business case for such a circular value proposition

RESOURCES AVAILABLE

- 9:R1a Intro PPT slide
- 9: R1 PPT slide set: T-shirts, building blocks and business models
- 9:R2 Setting the scene
- 9:R3 Value creation and waste in T-shirt linear value chain
- 9:R4 The product design problem: the T-shirt branding issue
- 9:R5 The heart of the circular business model: prerequisites for capturing the value opportunity profitably
- 9:R6 Summary table of six clothing re-use or product extension models
- 9:R7 Background on textile/clothing disposal in UK to set the scene and the issue of T-shirts/Student unions in particular

ORGANISATION

- This workshop activity will benefit if the facilitator can collect and bring along a selection of T-shirts with varying colours, designs and brands to illustrate the points in the activity
- Small groups of between 2-5 – or more if required

TASK(S) AND RUNNING ORDER

1) Initial plenary and set up of 'buzz' groups
2) Consider in groups the linear approach to manufacture, retail and use of T-shirts and how this linear approach generates waste in the value chain
3) Consider in groups how to re-think or re-design the T-shirt to enable badges and visible logos to be removed cost effectively
4) Groups consider the prerequisites for the T-shirt circular business model to perform at least as well as the current linear case
5) Plenary to address unanswered questions and reflect on circular economy as a systems perspective

TIMINGS

Overall approximately 120 minutes. But can be extended or shortened depending on the group, prior experience, how much time is available and the use of any extension activities. Some suggested timings are: Task 1: 20 mins; Task 2: 15-20 mins; Task 3: 20 mins; Task 4: 30 mins; Task 5: 15 mins.

AIM OF THE ACTIVITY

This activity introduces workshop participants to the interaction between circular economy building blocks to generate circular value propositions and gives hands-on experience of re-designing a current real linear sales/ownership/dispose model to a potential circular model. The case is set up so that the learning is transferable to a wider variety of contexts rather than being 'locked' to the specific case example.

The tasks detailed below are designed to enable participants to identify and assess:

a) Ways in which product design and materials choices combine to create successful linear products but often restrict or prevent the recovery and circulation of the same product and materials in repeat cycles or cascades.
b) The significant loss of materials and value from these apparently successful models including negative externalities in the growing, extraction and processing of primary materials.
c) How to move from the founding principles and building blocks of a circular economy into practical value propositions to generate significantly improved resource productivity, reduced negative externalities and business opportunity.
d) How to design circular business models to capture and circulate that value.

GUIDANCE FOR FACILITATORS INCLUDING DEBRIEFING NOTES

The PowerPoint slide set (R1) that accompanies this activity is designed to provide an introduction into the circular economy, circular economy value propositions and building blocks and a summary of what is meant by the term 'business model'. Subsequent slides match the handouts for each workshop task and allow the facilitator to initially talk through the tasks to the groups.

It is assumed that the facilitator and participants have some basic background to the circular economy, the 'butterfly diagram', the goal of decoupling resources from growth and the generic case for re-using resources. The PowerPoint slides 2-6 on the 'big idea' can be used as an introduction to build on this background knowledge. Slides 7-8 then introduce the idea of the circular economy building blocks to look at business opportunities from going circular and the configurable elements that typically need to be considered in creating a new value proposition. Slide 9 sets out a definition of a business model and three basic questions that need to be addressed when considering a new circular value proposition. How will the proposal create value (and who else might be involved), how will the business capture the value (and who else might capture value) and how will the value be distributed and circulated (who might benefit and who might lose out from the new proposition)? Slides 10-12 set the scene for this branded T-shirt activity and provides a short context to the scale of the corporate 'workwear' problem – large volumes of clothing are thrown away each year in the UK (and elsewhere) as a result of material choice, design issues, business model and lack of reverse networks as well as issues such as security and tax-tagging[1].

TASK 1

Arrange participants to work in small 'buzz groups' of between two and five people. In an introductory plenary with these groups, use R1a, R1 PowerPoint slides 1-12 and the handout R2 (Setting the scene) to:

a) Introduce the wider context for the activity (using the Context notes above).

b) Then set the scene for the overall branded T-shirt activity with reference to slides 10, 11 and 12 on the PowerPoint. Invite participants to work in their buzz groups to design a circular business model value proposition for the branded T-shirt case. Give each group copies of the handout R2.

TASK 2

BUZZ GROUP A

The next task is to run buzz group A. Provide groups with the handout R3. Summarise this task with reference to PowerPoint slide 13. In this first buzz group, ask the participants to consider the current linear value chain approach to the manufacture, retail and use of T-shirts and how this linear approach generates waste and externalities at various stages in the value chain. With reference to R3, ask the groups:

Where and how is value created in this value chain?

Where and how is waste potentially created?

Where and for whom do you think there is an opportunity to turn 'waste' into 'value'?

Is there anything missing from this value chain?

The handout R3 and Slide 13 shows a value chain from the point of import to the end of use of the garment. Few consumers think about the value chain and certainly not the origins of the materials which go into a product at various stages. This task therefore deliberately misses the stage of cotton growing, harvesting, processing and production through to the cloth being exported to the UK.

Some groups may pick up on this point straight away. There is an extension activity on this interconnected set of issues. The initial focus in this activity therefore is to address what happens to the T-shirt after it is imported and sold into the UK market.

Some groups may ask what is meant by 'value'. For this session, we consider what value means to the following three groups:

- the manufacturer (FAIRCO)

- the retailer (who sells the T-shirts to the end consumer)

- the customer

Other questions that could be raised with the groups:

What value does each of these groups receive from their activities/purchases in the chain?

What actions and activities does each actor carry out in the chain to create additional value compared to the imported T-shirt?

How and why do they make money from this?

At the end of this task perhaps show participants slide 14 - it provides some indicative ideas of waste along the linear value chain.

The ability to create value from the imported T-shirt rests on a wide number of issues but essentially requires fulfilling or creating a demand that allows the different players in the chain to make a profit at a level that covers costs and is superior to alternative allocation of the resources and capabilities of the firm and retailer.

The extent to which each player can make a profit depends on a wide number of factors including the ability to manage costs and design and brand a product that consumers are willing to pay more for, compared to a rival or similar product.

If the consumer doesn't purchase the product at the required price then the business making and selling the product will quickly be in trouble.

FAIRCO: in this case FAIRCO creates a distinctive value proposition to its retailers by offering a Fair trade cotton T-shirt, which aligns to the ethical values of its intended target market. FAIRCO offer a range of different colours and adds logos and badges to the garments that are unique to each University retail outlet. The challenge for FAIRCO is that they are a small company, with a large number of customers purchasing relatively small numbers of garments per annum making it difficult to achieve economies of scale and creating inventory problems.

Retailers: the retailers purchase the garments to fulfil customer demand based on forecasts at the start of each purchasing cycle. The retailer adds a margin to the product to cover its costs including purchasing, storage, display and eventual sales, and to make a profit. There will be other non-fair trade

cotton garments with similar branding on display which will most likely be cheaper than the FAIRCO version.

Customers: the main customers for the product are students and professional service functions within University (security, catering, estates). FAIRCO has a small and loyal student audience but has not had significant progress in selling the product to professional services for a range of reasons.

Although the FAIRCO T-shirt is more expensive, customer research shows that many students share the values of fair trade and are willing to pay (WTP) the additional amount to support fair trade farmers.

The key point for this task is to have a fast moving debate and feedback session taking one or two points from each group to compare and contrast and think about key issues.

Some groups may get stuck or interested in what is meant by the term value. As a facilitator, explore or explain these points depending on time available or the level/prior knowledge.

Key points to reflect on with participants:

a) Manufacturers and retailers seek to add value and make money in a wide number of ways but have to at least cover their costs and make some profit.

b) The major single cost in this value chain is the addition of the 'branded' label to the garments as it has to be embroidered or stitched onto the garment for durability and security.

c) Each stage of the chain involves costs and therefore adds to the final selling price and those costs have to be paid for.

d) The fair trade cotton is a more expensive material than non-fair trade cotton hence the final T-shirts will be more expensive than non-fair trade competitors, which limits the size of the market and means FAIRCO faces significant competition from alternative suppliers.

e) Waste can be generated at each stage in the chain, through: damaged goods (at the import stage); manufacture (poor work etc.); transportation (damage to packaging etc.); overstocking or excess inventory; final disposal by the customer.

f) The cost of this waste is largely absorbed by each player but will reflect on the eventual profitability of the garments.

g) The material losses from this waste is a wide spread issue in the fashion and garment industry (see slide 11 for notes on waste in the workwear industry).

Task 2 above sets up the next part of the workshop activity - whether there are ways that the groups can re-design the T-shirt sales model to address the waste created and, if so, what needs to change and how. And from a business perspective, is it possible to do this at a profit?

BUZZ GROUP B

Next, run buzz group B and hand out R4.

Before starting the buzz group, first ask participants to consider the questions: "What alternatives to the current sales-based model to enable T-shirts to be circulated more than once can you think of? What are the biggest challenges to achieving this?" Allow 10 to 15 minutes for this.

Indicate to the groups that one of the biggest obstacles and challenges to the recovery, re-use and re-sale of a T-shirt or workwear garment is when a logo, patch or labelling has been added to the garment to signify the name of the company (University X), the activity ('Freshers' week) or the service (e.g. Bar staff). The reasons for this are security (garments with labels such as security, police, nurse could lead to mis-use) and context (a garment with University X would not be readily resellable to someone in University Y).

Now invite the buzz groups to begin work. The challenge in this buzz group is to consider whether or not it is possible to add a logo or label to a T-shirt in such a way that it can be removed at a later stage to increase the scope to maintain the underlying garment as a garment and re-label it if required for a second sale.

Note that there are a number of different ideas that have been considered, all of which has some advantages and disadvantages: stick on/Velcro patches; reversible adhesives (removed using UV light); heat transfers which can then be removed; digital system; embroidered and then unpicked by hand; embroidered/stitched using microwavable thread. In a search engine enter the term 'Wear2' if images are required of a technology such as microwavable thread.

The groups will come up with a range of ideas which have advantages and disadvantages - some likely ideas are shown in the table below. The trick here is to wrap up this task by highlighting that the microwave thread and stitched patch was the preferred option as it was the most cost effective and overcame all the barriers previously identified. This highlights how technological developments can open up new options and opportunities for re-thinking ways to design/recover product and materials at their highest value.

1 A tax tag refers to a label sewn into a workwear garment required by Her Majesty's Revenue and Customs (HMRC) to avoid clothing being seen as a fringe benefit and hence taxable. The use of logos and labels insisted upon by HMRC can limit the reusability of a corporate wear garment at end-of- life.

TYPE OF LOGO/PATCH AND REMOVAL METHOD	ADVANTAGE	DISADVANTAGE
Heat transfer patch - some form of chemical removal	Would enable full recovery of the underlying garment	Not technically possible as the transfer is bonded to the garment fibres
Removable dye	Would enable full recovery of the underlying garment	Not technically or commercially possible
Velcro patches	Potentially simple, easy to remove	Patches not durable, not washable and could be misused
Reversible Digital Printing	Would be erasable	Not technically feasible currently, or very expensive
Embroidered/sewn patches, hand picked	Practically possible. Would enable full recovery of the underlying garment	Expensive and risk of damage to underlying garment
Microwaveable thread and stitched patch	Thread removed and patches/ logos fall out. Potential to automate and operate in bulk.	Possible cost although the evidence shows it to be the most cost effective solution

TASK 4 BUZZ GROUP C

Set up buzz group C and and hand out R5. In this task move the discussion on to discuss some of the financial aspects of the business model. The participants might have varying levels of prior knowledge about how the price of a product is arrived at and the costs on which it is based. The PowerPoint slide showing cost and margin provides the basic data that will allow the groups to understand the cost of importing the T-shirt, the additional costs through to the point of sale and the gap or margin between the costs and the eventual sale price.

This then provides the base for analysing the linear case and the constraints and opportunity in moving towards a different circular business model. Refer the groups back to the slide on the basic building blocks of a circular economy. What needs to change in the design and what are the costs involved (using microwaveable thread for example)? How will this support the business model (ability to recover and resell or rent the garment again without the costs of importing a new T-shirt)? What is involved in recovering the garment (the management of reverse flows e.g. collection, segregation, washing, repackaging, re-transporting)? What new forms of collaboration are involved? Will FAIRCO run the microwave system or third parties, who will wash and launder the garments, will the garments be sold back to current customers or retail into new markets via a resale platform?

In this example, recovering the shirts, removing the logos and patches (using the microwave technology), and washing, repackaging and redistributing the T-shirts all have costs. Note that the challenge is to be able to ensure these costs allow FAIRCO to create at least as much revenue as the linear case and ideally more - in order to persuade the FAIRCO senior managers that this is a model worth pursuing. For the purpose of this activity, the costs have been estimated and simulated but based on realistic market data.

At the end of task 4 show slide 18 of the designed circular business model. Here bring attention to the building blocks of design, reverse network and system enablers on the right hand side and how these are essential elements of the business model redesign. The bullet points under each building block can be related back to feedback from each buzz group.

The slide shows the feedback loop from the use phase to enable the garments to be circulated back to FAIRCO - which is when the company is able to make money whilst at the same time keeping the garment in circulation, thereby achieving one of the goals of a circular economy - circulating products, materials and components at their highest value for the longest period.

In this case, the model reduces the amount of waste in a number of ways - not just extending the life of a T-shirt but also cutting out stocking requirements (Inventory) which is a major source of waste in retail and also ties up capital. Note as well that for the model to work, the T-shirt will need to be made more durable (e.g. stronger stitching) which will make the original cost of production higher.

Slide 19 takes the data previously shown and some assumptions about number of cycles and return rates to generate a circular economy business case. Make the point here about the importance of developing a structured method and calculating and presenting the business case. The numbers here are based on realistic assumptions about the cost of removing stitching, recovering garments and reselling them. The key here is that FAIRCO avoids the import cost of a new T-shirt and as long as the revenues are equal or greater than additional costs of recovering/reselling and the avoided cost of importing, then the business case is positive relative to the starting linear case.

Slide 20 then reminds us that in making a switch from linear to circular there will be a redistribution of benefits - with the potential for some losers (e.g. cotton growers). This slide shows a simple way to reveal the direct and indirect benefits and impacts to the retailer and end user. This template can potentially be used for setting the groups some extension work on another case example.

This final slide might bring back the discussion about the impact of the new model on the Fair Trade cotton growers and cotton production. Will it reduce demand and therefore impact on the livelihoods of Fair Trade farmers? Fair Trade cotton is not necessarily organic and it is widely recognised that cotton is one of the most resource intensive textile fibres requiring large volumes of water, pesticide and fertiliser application. For one perspective on this you could refer to WWF work on cotton: https://tinyurl.com/b4tvqht Or set an extension activity to review and assess whether cotton is a crop we should encourage for textiles and how or whether there are better ways to grow cotton, or other crops to replace cotton, and maintain livelihoods.

TASK 5

The case examined in this workshop activity is a real study and the proposal presented is a real solution, which is currently being piloted. It was the preferred solution of the many considered, but may fall short of some expectations of how we deliver the service of workwear in a circular economy.

In a final plenary discussion, try to highlight areas that seem important to a circular economy but which are not covered or captured in this specific business model re-design. In this final discussion, ask participants questions such as:

Is the case study ‘solution’ consistent with the core principles of a circular economy?

Does cotton as currently grown, regenerate, add to or at least preserve natural capital stocks e.g. soil (see discussion above)?

There are many issues and barriers to moving from linear to circular - in this case, or more widely, what are the system requirements (policy, regulation, reform of finance) to allow the flourishing of circular business model activity?

What else might be required to shift the ‘successful’ linear business model paradigm to circularity at scale?

Who is likely to gain from the new business model proposal and how? Could there be any ‘rebound effects’ (where we end up with more T-shirts or garments in circulation)?

Do the same opportunities and barriers apply to other fashion items or product categories (phones, kitchen products, tools, books etc.)?

POSSIBLE EXTENSION ACTIVITY

Invite participants to think about different models for extending the life of clothing or giving access over ownership and how and why this might lead to less waste, higher value and support the principles of a circular economy. Clothing hire and return has a long standing history - often for high end items such as weddings. Clothing hire in these instances allows the consumer convenient access to expensive clothing that is likely to be worn solely for that occasion. Hire and return for lower costs items has been much rarer although a range of schemes has begun to appear. The table in R6 summarises six business approaches to promote the extension of the life of clothes as garments and increase the proportion of garments which are re-used instead of being discarded prematurely. Ask the groups to use R6 to come up with their own ideas to avoid the 'ownership' of clothes or fashion garments - before revealing these 6 models. This can then lead into a discussion about advantages and disadvantages of each model, their own experiences, different attitudes to each model and whether they would work for different types of clothing.

SUPPLEMENTARY RESOURCES

The resource R7 could be used as a background reader to set the scene on textile and clothing disposal in UK.

REFERENCES AND FURTHER READING

Amitt, R. and Zott, C. (2012) Creating value through business model innovation.

Sloan Management Review. Spring 2012, 53, no 3

Casadesus-Masanell, R. and Richart, J. (2011) How to design a winning business model. *Harvard Business Review* January issue. Available at: https://hbr.org/2011/01/how-to-design-a-winning-business-model

Useful general review of business model definitions-relationship to strategy etc

Ellen MacArthur Foundation (2015) *Towards a circular economy* Volumes 1, 2 and 3 Executive Summary. Available at: https://ellenmacarthurfoundation.org/towards-a-circular-economy-business-rationale-for-an-accelerated-transition

Jukka-Pekka, O. (2016) *Business Models for a Circular Economy - 7 Companies Paving the Way.* SITRA

Lewandowski, M. (2016) Designing the Business Models for Circular Economy - Towards the Conceptual Framework. *Sustainability 8*

Review and design of circular business models. Visualisation of a circular business model canvas

Osterwalder, A. and Pigneur, Y. (2010) Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers. Wiley

Potting, J., Hekkert, M., Worrel, E. and Hanemaaijer, A. (2017) Circular economy: measuring innovation in product chains. Policy report. PBL Netherlands Environmental Assessment Agency. Available at: http://www.pbl.nl/en/publications/circular-economy-measuring-innovation-in-product-chains

Rizos, V., Behrens, A., van der Gaast, W., Hofman, E., Ioannou, A., Kafyeke, T., Flamos, A, Rinaldi, R., Papadelis, S., Hirschnitz-Garbers, M. and Topi, C. (2016) Implementation of Circular Economy Business Models by Small and Medium-Sized Enterprises (SMEs): Barriers and Enablers. *Sustainability 8*

Rizos, V., Tuokko, K. and Behrens, A. (2017) The Circular Economy A review of definitions, processes and impacts. CEPS Research Report No 2017/08, April 2017

Good review of circular economy processes such as: remanufacturing, refurbishment and reuse; product life extension; product as service; sharing model; recycling; use of renewable energy sources.

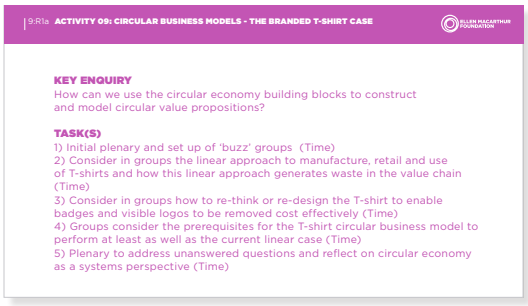
ACKNOWLEDGEMENTS

This workshop activity has been developed from an original case co-created by Markus Zils, at Returnity Partners, with Peter Hopkinson and Michele Miller from Exeter University. Particular thanks for all their work and guidance on the development of this activity.

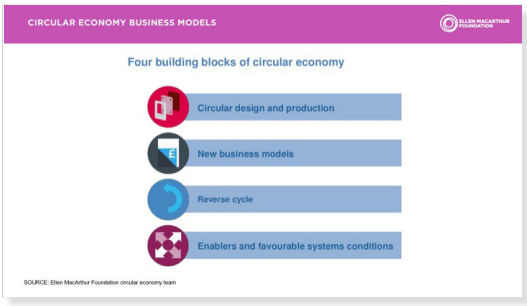
THUMBNAIL RESOURCES

CLICK TO DOWNLOAD HIGH RESOLUTION VERSIONS FROM BELOW

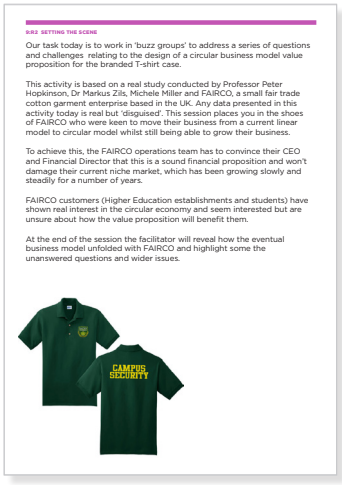
9:R1a Intro PPT slide



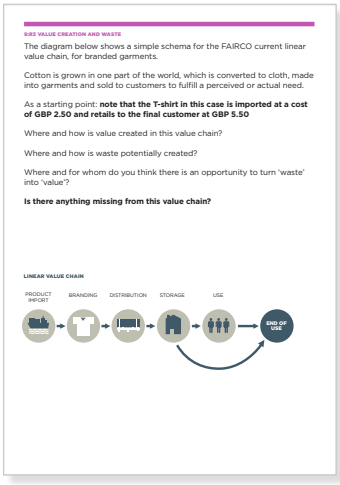
9: R1 PPT slide set: T-shirts, building blocks and business models



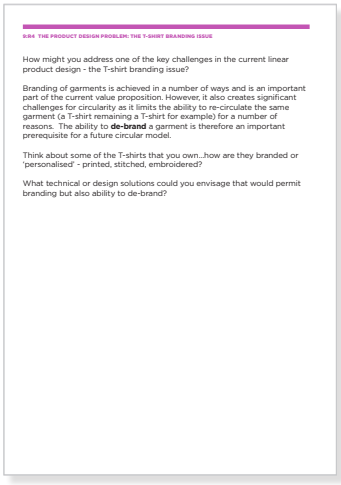
9:R2 Setting the scene



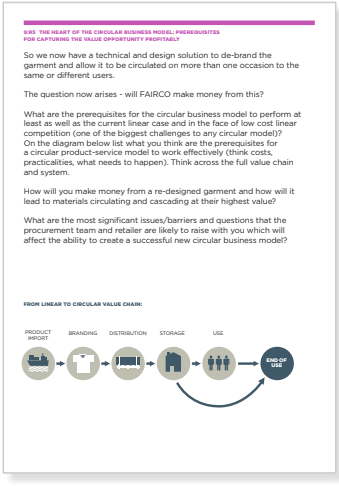
9:R3 Value creation and waste in T-shirt linear value chain



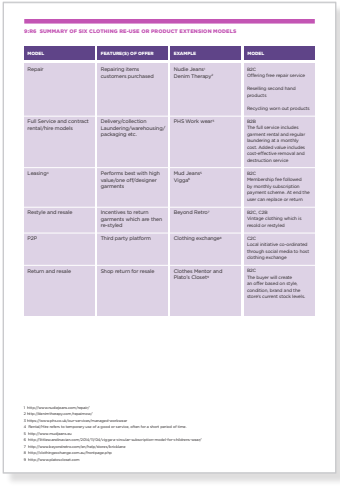
9:R4 The product design problem: the T-shirt branding issue



9:R5 The heart of the circular business model: prerequisites for capturing the value opportunity profitably



9:R6 Summary table of six clothing re-use or product extension models



9:R7 Background on textile/ clothing disposal in UK to set the scene and the issue of T-shirts/ Student unions in particular