

The present and future of the textiles & clothing circular economy

Insights in re-use, recycling, repair and waste prevention impacts from the BLUEPRINT Project

What is this brief about?

This BLUEPRINT Project brief explores the circular economy of clothing & textiles in England and France. It covers insights in the current state of re-use and recycling to compare both countries, and provides a forward-looking perspective as to the benefits of a circular economy in terms of reduced waste flows and jobs generated. Currently still 45% and 39% of clothes are landfilled or incinerated in England and France, respectively. Our envisioned future is one where 3 out of 4 pieces of clothing and textiles are acquired from re-use and recycling, and where we generate 40% less clothing waste thanks to repair, re-use and waste prevention. This would lead to up to 5000 additional circular economy jobs across South and South-East England and Northern France.

What is this brief about?

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A circular economy snapshot for clothing and textiles

Historically, clothes were used to their full life potential. Clothing repair was common as well as handing over clothing across generations, mostly for financial reasons. However, this behaviour has increasingly been abandoned since the 1950s due to lower cost of clothing driven by advanced industrialisation and globalisation. More recently, the rise of fast-fashion has driven clothing into a disposable good, with clothes discarded well before their end-of-life: *clothes now have an average lifetime of only 2 to 3 years*. Today, the main circular economy system in place for clothes in France and England are donation points for re-use, including street clothing banks and second-hand clothing shops. Clothes are collected and brought to a sorting facility usually managed by non-profit operators. There they are sorted by hand into up to 200 grades of types of clothing and qualities, based on brand, colours, and fibre types, which determines their market value. Typically, a small portion of sorted high quality clothes is sold at second-hand clothing shops in France and England, and the majority is sold in bales to resellers in Eastern Europe and Global South countries. Sorted clothes which are too worn or not in demand are divided into recyclable and non-recyclable grades. The latter go to landfill or Energy from Waste incinerators. If recyclable, they are processed into wiping rags, insulation materials and mattress stuffing. Closed loop clothes to clothes recycling does not yet exist for clothing, although innovations are underway to realise this. Clothes made from recycled materials do exist, but they use plastics from recycled bottles.

An overview of clothing circularity in England and France

What difference does it make to have an Extended Producer Responsibility law in place?

France - The French government in 2007 introduced an Extended Producer Responsibility (EPR) law for clothing & textiles. This makes clothing producers responsible for the proper collection and management of end-of-life clothing, and provides incentives to ensure the recyclability and re-usability of clothes through eco-design. There are an estimated 45,000 drop-off points in France that account for 84% of textile and clothing waste collected. In 2020 33% of collected textiles were sent for recycling within France influenced by their material type and quality as assessed in the sorting process. Cotton-rich textiles are turned into cleaning cloths and rags. In the case of blended textiles, they are turned into insulation material for roofs, walls, and car doors, or into stuffing material for sofas and pillows. Additionally, growing investments are going towards innovations in chemical recycling technologies and closed loop recycling to turn used clothes into new clothes.

England - An Extended Producer Responsibility (EPR) law has been announced as a legislative initiative in the United Kingdom, and may come into force in the 2024/2025 period. The legislative gap has been filled since the 1990s by sector initiatives who collect and sort clothes for re-use, mostly charities such as Oxfam Novib, Islamic Relief and Traid. Presently, there are an estimated 15,000 clothing banks in the UK to donate clothes. Less than 10% of what is donated is locally resold, and most clothes are exported to Eastern European and West-African countries where a portion is sold in second-hand markets and the remainder is disposed of locally. Recycling of clothing in England is only done at a very small scale due to the absence of an EPR law. Therefore, the majority of unwanted closed are exported or incinerated.

The geography for which circular economy scenarios were developed

The scenarios provide an outlook on the job creation and waste reduction potential for textiles & clothing from the advancement of reuse, recycling, repair and waste prevention. The report provides a forward-looking scenario analysis using estimates of the current textile waste flows in the North of France and South and East of England (Figure 1), which have a population of 9.5 million and 15 million respectively. The works were made as part of the BLUEPRINT Project, a €5.6M project, of which €3.8M were contributed by the European Regional Development Fund under the Interreg programme. The project is led by Essex County Council and seeks to support local governments in France and England to develop their circular economy.

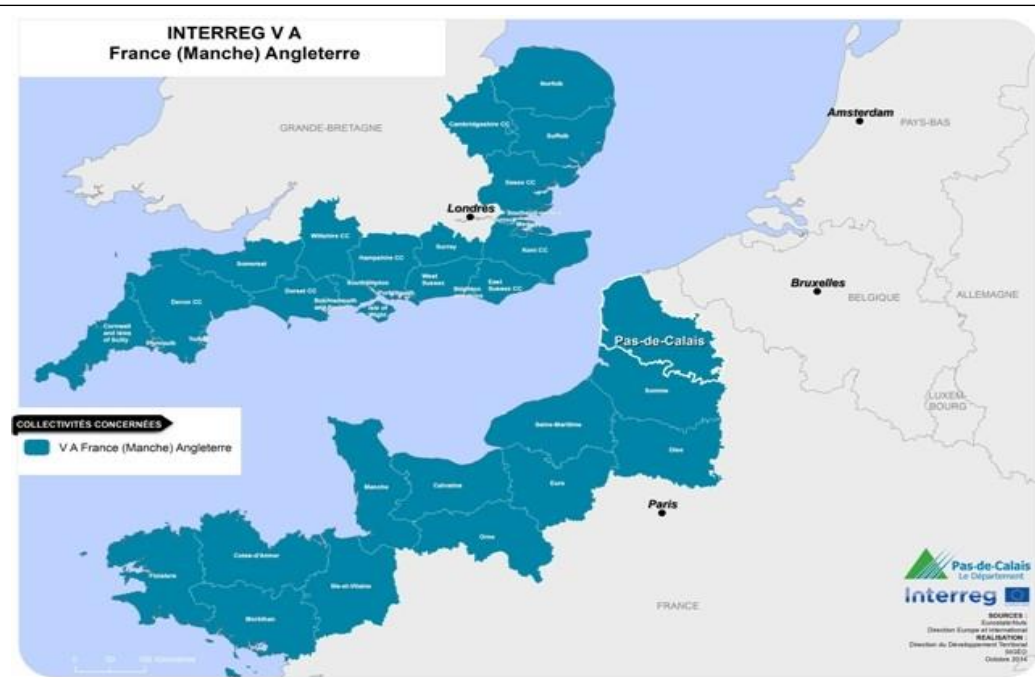


Figure 1. The Interreg ChannelManche regions of North France and South and East of England used as a geography for creating the baseline and circular economy scenarios.

Our approach to developing circular economy scenarios

Scenarios were made to assess the impacts of large-scale implementation of the circular economy strategies re-use, recycling, repair and waste prevention. The approach covered four steps of calculations:

1. A baseline was made of the current total waste tonnages and re-use, recycling and disposal routes for textiles & clothing in the North of France and South and South-East of England (Table 1).
2. The estimated current % of clothing & textile flows for each circular economy strategy was assessed, and an optimal achievable foreseeable future % estimate made. Representing a world in which a circular economy is nearly fully achieved (Table 5).
3. A set of low-medium-high ambition scenarios in % improvements in re-use, recycling, repair and waste prevention was developed and applied to the baseline, resulting in a circular economy impacts on textiles & clothing flows in tonnes (Table 3). This was done by portioning the distance between the baseline and the optimal % changes (under step 2) into four steps of improvements, and taking the first three as the low-medium-high ambition values.
4. An assessment of the job creation potential in numbers of circular economy jobs was made. The estimation uses the tonnage change for each scenario per circular economy strategy (step 3) and multiplies this with coefficients for jobs created per 1000 tonnes of activity in re-use, recycling, repair and waste prevention (Table 4).

Our envisioned future is one where 3 out of 4 pieces of clothing and textiles are acquired from re-use and recycling, and where we generate 40% less clothing waste thanks to repair, re-use and waste prevention.

This is visually shown in Figure 4

Results for circular economy scenarios for textiles & clothing

The available figures from official French and England government sources were compiled and yielded 73,489 and 356,090 tonnes of textile & clothing waste, respectively (Table 1). After accounting for population it was established that there is a significant inconsistency between available statistics. Based on available data people in South and East England generate three times more clothing & textile waste than in Northern France at 24 kg vs 8 kg per person per year which is unlikely to be correct (Table 2). We suspect that this is due to errors in how textiles & clothing are accounted in the English Waste Data Interrogator database from the Environment Agency, which is less systematic than the regional French data accounting systems.

The total reductions in waste arisings range from 13-23% in the low to 39-63% in the high scenario for South & East England and North France, respectively (Table 3). As a result of the combined impacts from growth in re-use and repair and overall clothing & textile use reductions. The changes assume a widespread increase in clothes rental, peer-to-peer re-use sales, local re-use sales via 2nd hand stores and sellers, as well as clothing fast fashion awareness campaigns to reduce overall acquisition and ownership. The underlying scenario values can be broken down into:

- A reduction in the number of clothes in circulation of 3% to 9% across the low to high scenarios, resulting in a consumption reduction of 10,683 to 32,048 tonnes in South and East England, and a reduction of 2,205 to 6,614 tonnes in North France.
- An increase in the number of clothes re-used of 6% to 18% across the low to high scenarios, resulting in 20,724 to 58,328 tonnes of additional clothes re-used in South and East England, and 4,110 to 12,037 tonnes in North France.
- An increase in the number of clothes repaired of 1% to 3% across the low to high scenarios, resulting in 2,529 to 6,947 tonnes of additional clothes repaired in South and East England, and 151 to 850 tonnes in North France.
- An increase in the number of clothes recycled of 3% to 9% across the low to high scenarios, resulting in 10,254 to 38,839 tonnes of additional clothes recycled in South and East England, and 1,735 to 4,808 tonnes in North France.

The total job impacts of the circular economy scenarios were found to range from 1,442 to 4,052 additional job in South and East England, and 266 to 738 additional jobs in North France (Table 4). Reuse and repair have the biggest impact, which provide for 39% and 46% of the jobs potential.

Textiles & clothing circular economy scenario results tables

Table 1. Total textile and clothing wastes, re-use & recycling and disposal in tonnes

Textiles and Clothing	North France (t)	South-East England (t)
Total	73,489	356,090
Reused or recycled	36,696	34,424
Disposed	36,793	321,667

Table 2. Total textile waste arisings per person in North France and South-East England

Waste arising in kg per person per year	North France	South-East England
Textiles and Clothing	8	24

Table 3. Low-medium-high circular economy impacts on textiles & clothing wastes in tonnes

Scenario	Low	Medium	High
South-East England			
Reduced (t)	10,683	21,365	32,048
Reused & repaired (t)	54,075	75,834	96,096
Recycled (t)	13,857	23,470	32,442
Disposed (t)	277,475	235,421	195,503
Total waste prevented	33,937	66,378	97,323
% Waste reduction	-13.7%	-26.8%	-39.2%
North France			
Reduced (t)	2,205	4,409	6,614
Reused & repaired (t)	27,533	31,518	35,193
Recycled (t)	15,190	16,793	18,263
Disposed (t)	28,561	20,769	13,419
Total waste prevented	6,497	12,686	18,586
% Waste reduction	-22.5%	-43.6%	-63.5%

*Waste prevented from a combination of reduced, reused and repaired

Table 4. Job creation impacts of low-medium-high circular economy scenario

Scenario	Low	Medium	High
South-East England			
Reuse jobs	599	1,081	1,567
Repair jobs	665	1,287	1,865
Recycle jobs	176	338	491
Reduce jobs	43	86	129
Total	1,442	2,792	4,052
North France			
Reuse jobs	104	199	287
Repair jobs	123	237	342
Recycle jobs	30	57	82
Reduce jobs	9	18	27
Total	266	511	738

Table 5. Current and optimal scenarios for each circular economy strategy

CE Strategy		Current EN Strategy	Current FR Strategy	Optimal scenario	Notes on the estimated current values	Direct source (if applicable)
	Clothing & textiles that are locally purchased from virgin or open-loop recycling based materials	85%	84%	33%	Calculated by subtracting the circular economy loops from 100%, excluding exported clothes and closed loop recycling.	
Prevention	Share of clothes that are reduced from circulation by reducing fast fashion and overall less ownership	<1%	<1%	10%	Estimate from the authors in absence of existing data. Based on an estimate of the number of people who actively are following a wear only what you need, and wear what you have clothing lifestyle.	Refashion (2020)
	Share of clothes that are rented instead of owned and associated increase in usage of a particular piece of clothing (reduced disused clothing).	2%	2%	15%	Estimate from the authors in absence of existing data. Estimated share of population that rents clothes multiplied by the proportion of clothes used and disused that are rented.	
Repair	Share of clothes repaired, lifespan extended & new purchases prevented	1%	1%	5%	Estimate from the authors in absence of existing data.	
Local re-use	Direct re-use via handovers to friends and family	4%	4%	5%	Estimate from the authors in absence of existing data.	
	Peer to peer re-use sales via APPs like vinted or depop	2%	2%	7%	Estimate based on an assumed 3% of clothes offered for peer-to-peer sales and a resulting 2% of actual sales.	
	Re-use sales via 2 nd hand stores and sellers	5%	6%	21%	Based on 56.5% (FR) and 66% (EN) share of clothes estimated to be donated for sorting. Out of this 10% (FR) and 10% (EN) are local re-use sales and 52% (FR) and 76% (EN) are exported, 5% go to disposal and the remainder goes to open loop recycling	Kleiderly (2020) Morlet et al. (2017) Rodgers (2015) Refashion (2020)
Export	Re-use sales via exports (unknown how much ends up as actual re-use)	38%	29%	21%		
Recycling	Closed loop recycling - share of clothes recycled into new yarn and clothing	<1%	<1%	14%	Based on global numbers for share of clothes to clothes recycling.	Soukenya (2021)
	Open loop recycling - share of clothes recycled into insulation materials or other purposes.	5%	19%	14%	In France 33% of collected clothes are sent for recycling and in England 9% out of a share of 56.5% (FR) and 66% (EN) clothes collected.	Edie (2021) Refashion (2022)
Disposal	Share of clothes that go to incineration or landfill in England or France	45%	39%	18%	Calculated by subtracting from 100% clothes exported, re-used or recycled.	

Figure 2. The current estimated flows of textiles & clothing in England from manufacturing to end-of-use including re-use, repair, recycling and disposal routes.

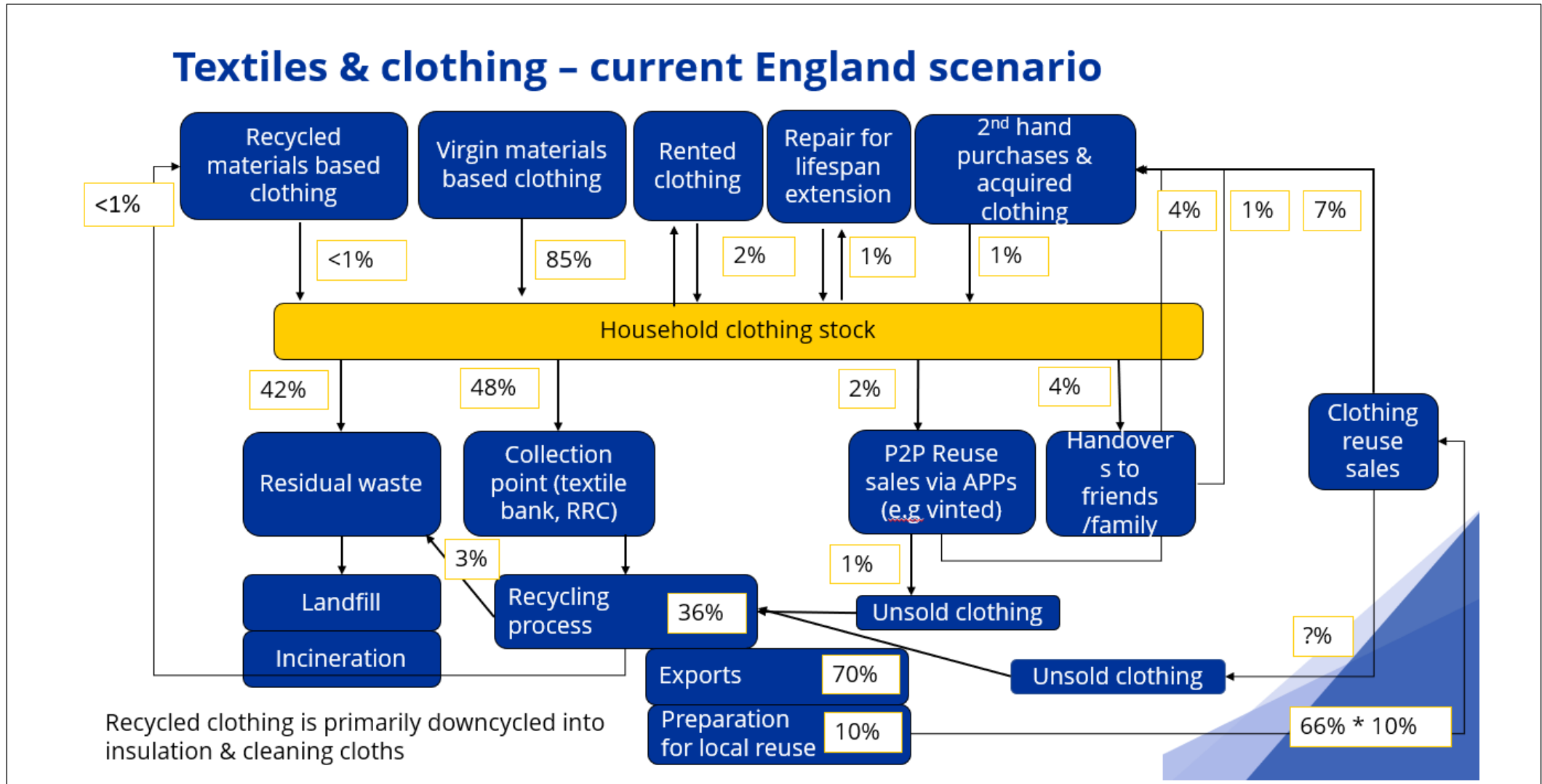


Figure 3. The current estimated flows of textiles & clothing in France from manufacturing to end-of-use including re-use, repair, recycling and disposal routes

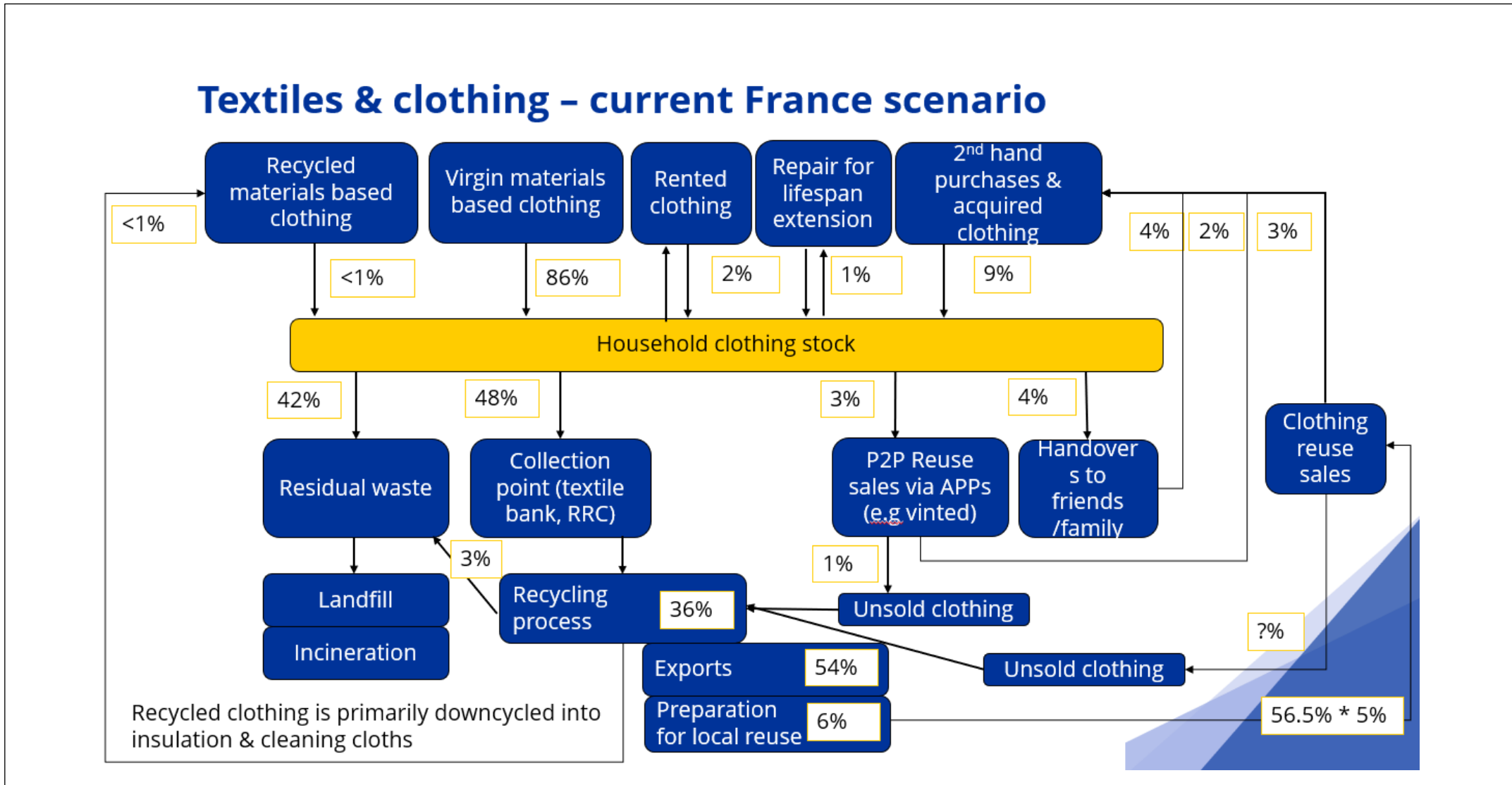
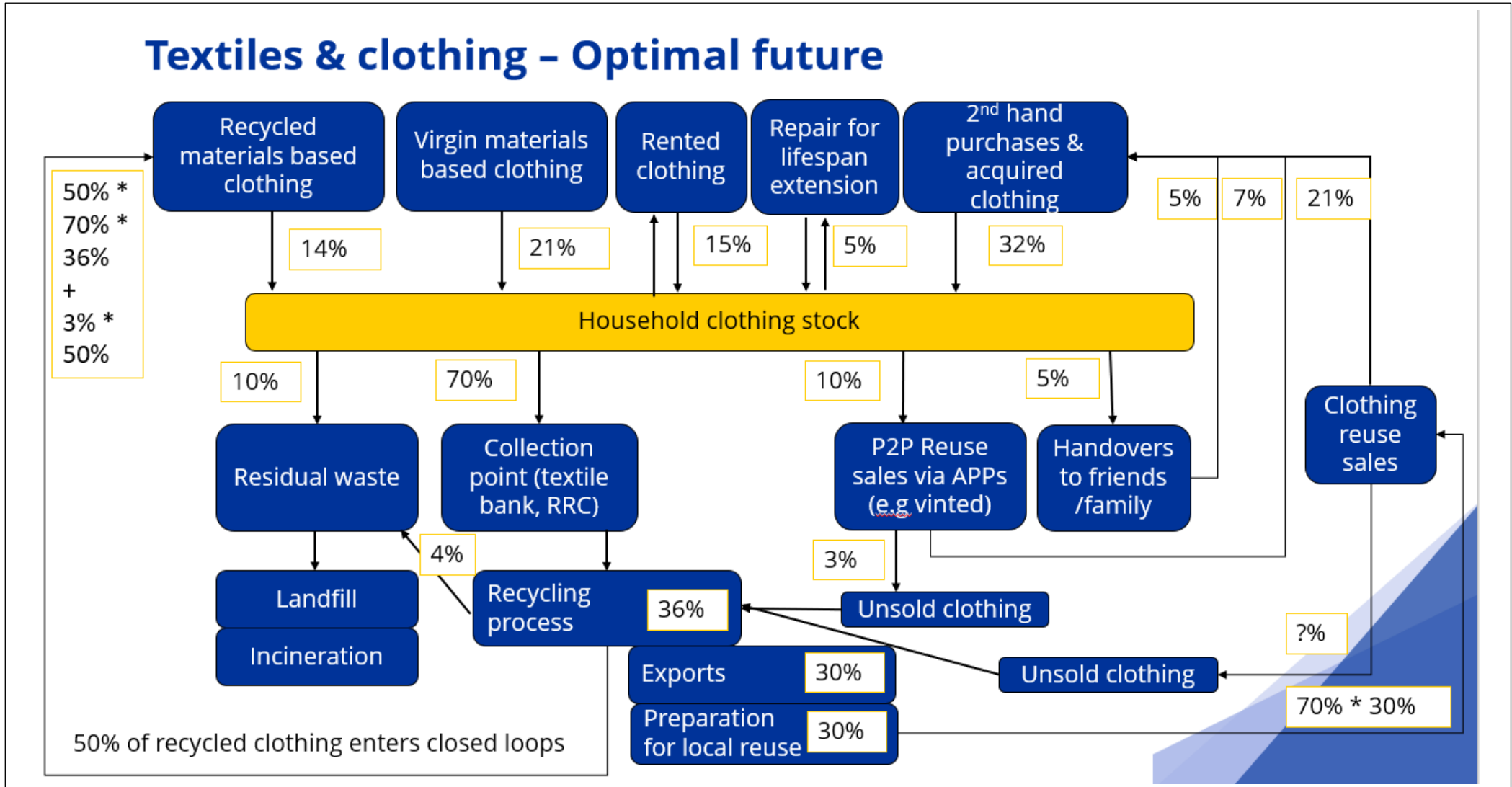


Figure 4. The optimal envisioned future of flows of textiles & clothing from manufacturing to end-of-use including re-use, repair, recycling and disposal routes



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Appendix 1. Parameters used to calculate job impacts

Job impacts per estimated 1000 tonnes of waste per circular economy strategy

Category of materials/products	Parameters for jobs per 1000 tonnes of CE activity						Recycle (incl. sorting)	Reduce or prevent
	Reuse or repurpose	Repair	Redesign	Remanufacture	Refill			
Textiles & clothing	28	200				17	4	

The report is made in association with the BLUEPRINT to a Circular Economy Project, an Interreg-funded project with a total budget of €5.6M, of which €3.8M were contributed to the European Regional Development Fund led by Essex County Council. The project will help local authorities in France and England to implement a circular economy by working with social enterprises, schools, local authorities, and households.

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