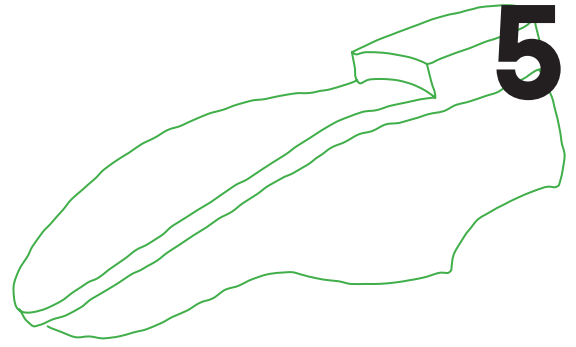


Circular soles / Circular shoes



Description of the business

Background

Timberland made a big splash in the world of the circular economy when it partnered with Omni United to recycle old tyres into shoe soles. They are thereby integrating this recovered material into certain models in their range, thus contributing to the circular economy.

However, there are a few "buts" to add because:

- The tyres that will be recovered are based only on those specially designed by Timberland itself (and sold with their branding) due to quality criteria (where ensuring the consistency of raw materials is a recurrent problem in recycling);
- The soles are only made up of 50% recycled material, the other 50% is new.

There may be discussions as to whether this is really upcycling, recycling or a first attempt at thinking bigger.

As it seems the idea has some room for improvement, in order to reuse as many different tyres as possible this time and especially to extend the life of the many shoes that die because of their soles. Targeting a more specific market, typically shoes of a certain value or with particular characteristics (e.g. orthopaedic), craft shoemaking seems to be regaining a certain popularity, as Camille Labro-Méler and her "Dispensary" in Brussels can testify.

Industry Activity

The idea would therefore be to go to the end of the re-use process and to take an interest in all tyres (or almost all, depending on criteria to be laid down regarding materials or quality), in all suitable shoes (again, models to be determined) and to extend this in the form of a real service.

Based on the same technology, the idea would be to establish a centre that specialises exclusively in soles and offering:

- Recycled soles to every manufacturer who wants them;
- A local re-soling service for existing shoes (on quality shoes, it is the sole that fails first, whether it be the insole or the outsole);
- Manufacturing shoes adapted for patients requiring orthopaedic corrections (rather than buying soles for €150).

If it proves to be a success, it would be possible in that case to look at the whole shoe and not just the sole, and then propose:

- Upcycling of old shoes;
- The forward sale of shoes 'as-service' (but the manufacture of large volumes and distribution require a different structure).

The business activity would involve the following key steps:

- Recovery/collection of used tyres (with the right characteristics)
- Treatment and reconditioning tyres into soles of different sizes and characteristics
- Primary and secondary packaging: placing on pallets
- Distribute to manufacturers
- At the same time, develop a resoling workshop (B2C service while the volume is done as B2B)

Technical feasibility

Feasibility is demonstrated by the Timberland project. However, as the devil is always in the detail, it will be necessary to examine it more closely or request a visit or an interview in order to fully understand the limits of the system (in particular the reason why they chose to manufacture their own tyres in the first place).

This will shed light on the constraints to be taken into account in order to go further and imagine a more universal system.

Initial areas of consideration for the project team

- The possibility of rolling out the 'Timberland' process or the need to develop a different process must be addressed as a first step.
- This will be followed by making contact with a number of shoe manufacturers to understand the reality of this B2B industry and the relevance of offering them recycled soles for their shoes.
- Validate the economic model accordingly, in the knowledge that the B2C workshop will have to find its own balance separately but will not be able to sell the volumes of soles needed to cushion the whole process (hence the initial B2B focus).

Sources of inspiration

- Timberland Tires : <https://www.timberland.com/blog/archive/timberland-tires.html>
- Timberland recycled soles : <https://www.environmentalleader.com/2009/03/sole-purveyors-of-green-rubber-shoes-strike-partnership/#:~:text=With%20a%20new%20exclusive%20partnership,50%20percent%20of%20recycled%20tires.>
- Shoemaker, Le Dispensaire: <https://1819.brussels/blog/demarrer-son-entreprise-camille-labro-meler-et-son-dispensaire-cordonnerie-artisanale-et>

Business potential

Market

In 2017, the value of Belgium's shoe production amounted to 30 million Euros. But it sells considerably more shoes than that. Three major factors have influenced this market in recent years:

- Firstly, there is a price positioning problem which comes at a time when a large part of the shoe market is battling lower and lower prices, with large retailers favouring the lowest possible price over quality;
- The emergence over the last few years of trainers, which are now worn on a daily basis and are regaining a very significant market share at the expense of "smart shoes" and other dressier styles;
- Online retail, which has shaken up consumer habits and also brought competition to an international level with groups like Zalando: billions of euros are gradually shifting from physical shops to online shops.

More specifically regarding soles, it is difficult to find precise information despite a dedicated report coming out in 2020 (see references). Unsurprisingly, we find the players to be the big names in footwear, especially trainers (Nike, Adidas, Bata, Puma, Columbia Sportswear) along with big names in (petro)chemicals (Dow Chemical, Hunstman, BASF SE). The main materials for shoes are leather, rubber and plastic.

But far from these large groups and the huge numbers they generate, shoe manufacturing remains very present in our regions, and this is undoubtedly where it should be approached, with a local and circular offer, which is therefore distinctive. Of course, being based locally is more often associated with rather upmarket brands such as Torfs and Ambiorix or the new Rivka brand. In recent years, more and more brands have taken an interest in the environmental impact of footwear and have developed all or part of their range based on this criterion, resulting in footwear made entirely of recycled materials. Alongside international brands such as Veja, there are also more local brands such as Norm from Belgium. On a larger scale, we should also consider Belgian groups such as Maniet-Luxus, who still design a good proportion of shoes sold despite being middle of the range.

The second-hand market, which has grown considerably in recent years with more and more second-hand shops and apps such as Vinted, also affects shoes. In view of this, aboneobio.com claimed in early 2020 that, "in 2019, 39% of French people bought at least one second-hand garment or fashion accessory. Some shoe brands have also recently positioned themselves in this market." Thus the French brands Bocage and (the very high-end) Weston offer either rental or second-hand (quality, after cleaning and restoration).

Competition

The sole market is clearly a high-volume market where prices are severely constrained. But in the light of the initiatives mentioned above, and many others, it remains dynamic and there is clearly room to stand out. However, finding a niche will certainly depend on a partnership with a manufacturer.

For soles as-a-service, there are obviously the existing shoemakers but also in B2C, for example, there is a shoe upgrade service offered by VIBRAM: <https://www.vibram.fr/26-reparer-et-customiser> - of course the new value proposition compared to the existing one is to bring in recycled soles.

The circular nature of the business

By rolling out the reuse of old tyres in shoe soles, the primary material is clearly "circularised". This is recycling, not upcycling, but with potentially very large volumes.

In addition, the B2C service offer would complement this by promoting the re-use (of the shoes) through repair, which aims to prolong the life span.

Key figures

Assumptions

B2B model

Norm shoes show total transparency on their manufacturing costs. It is possible to see that rubber soles made of 75% recycled rubber and 25% fair trade rubber cost €5 or €2.50 per sole. <https://norm.shoes/pages/product-1111-01>. The insole costs €3.



Starting from a retail price per sole of €2 excluding VAT and a material cost of €0.65, that leaves €1.35 to be divided between opex (operating costs, excluding staff), staff, capex and margins. As this is a high-volume business, capex (investments) are likely to be significant.

We establish a model with the following parameters:

- Raw materials: 33% of the retail price, i.e. €0.65 per sole
- Staff: 25% of the retail price, i.e. €0.508 per sole
- Opex: 15% of the retail price, i.e. €0.305 per sole
- Capex: 3% of the retail price, i.e. €0.067 per sole
- Margin: 17% of the retail price, i.e. €0.333 per sole

The following table shows the key figures for different production volumes in a factory operating 250 days per year:

No. pairs of shoes	62.500	125.000	375.000	625.000	1.000.000	2.500.000
No. soles per year	125.000	250.000	750.000	1.250.000	2.000.000	5.000.000
No. soles per day	500	1000	3000	5000	8000	20.000
Turnover per year	250.000	500.00	1.500.000	2.500.000	4.000.000	10.000.000
Margin	41.667	83.333	250.000	416.667	666.667	1.666.667
Team	63.542	127.083	381.250	635.417	1.016.667	2.541.667
Opex	38.125	76.250	228.750	381.250	610.000	1.525.000
Capex	8.333	16.667	50.000	83.333	133.333	333.333
Raw materials	81.250	162.500	487.500	812.500	1.300.000	3.250.000

It is immediately apparent that the minimum volume necessary to cover team costs is around 5000 soles produced per day. This €630k of staff costs cover an administrative and commercial management team of 3 FTEs (€210k) and €420k for production, i.e. approximately 8 to 10 FTEs.

The model can be refined depending on the capex required.

It can be seen that in this configuration, production amounts to 1,250,000 soles per year, which requires fitting no less than 625,000 pairs of shoes, hence the importance of forging partnerships with existing producers, if possible Belgian, such as TORFS and Maniet for example, but also of supplying producers with sustainable and ecological shoes.

B2C service offer

The rates displayed by the shoemakers range from €25 to €40 per sole depending on the work done. In particular, see: <http://www.bottier-cordonnier.com/tarifs.htm> and <http://www.cordonnerie.fr/grille-tarifaire>

1 FTE = 220 days = €45,000 salaries + €10,000 opex contribution + €10,000 minimum margin, i.e. a minimum of €65,000 turnover excluding goods, i.e. €300 turnover per day.

We assume €5 for goods and €10 for shipping costs (outward and return).

This leaves between €10 and €25 per sole, i.e. to reach €300, between 15 and 30 soles need to be made per day, i.e. between 2 and 4 per hour. This number of between 4 and 5 soles per hour seems reasonable (10 to 12 minutes per shoe worked on).

Not including shipping costs, the margin then becomes very interesting (additional profit of €10 per shoe or per pair) but requires a sufficiently large community close to the workshop.

Comments: At this stage we are not dealing with orthopaedic soles or insoles because the materials used are different.

Potential for job creation

The team should consist of the following full-time equivalents:

- General Management
- Admin & finance
- Salesperson to manage relationships with the
- Workshop manager
- Workers for manufacturing the soles
- Workers for repair work

Potential for the recycled tonnes

Assuming the soles are made of 100% recycled material and the weight of each sole is 25g, the number of recycled tonnes comes to 31 tonnes per year given 5000 soles per day.

Production in Brussels

Local raw material sources

There are a lot of tyres... 6 million used tyres were collected in Belgium in 2016 (this weighs 83,000 tonnes; in 2019, 85,454 tonnes were collected, showing a real stability in this collection) in just over 5,000 collection points, including container parks, tyre shops and garages. The whole thing is coordinated by Recytyre, who state in their key figures that more than 95% of the material is used, while less than 5% ends up in energy recovery (in cement works). However, these 4,000 tonnes of tyres are still a large enough source for the project! In addition, in order to find better sources of waste tyres, Recytyre has set up a fund with the King Baudouin Foundation to support new initiatives, the GREEN.er fund. (See also sheet 4 on retreading tyres).

Local partners

Partners

- Connect with the most recent shoemakers in Brussels, if only in terms of image and know-how.
- Establish a partnership with shoe manufacturers wishing to develop an environmentally-friendly range (Torfs, Maniet as a priority) and publicise our offer to producers of environmentally-friendly shoes made in the EU.

Suppliers

- Recytyre seems key for the tyre material, and its mission is precisely to recycle it as much as possible.
- RECYWALL has information about an environmentally friendly process for devulcanising rubber: see <https://www.yumpu.com/fr/document/read/29731461/recyclage-des-pneus-usacs-par-la-technique-de-recywall> operated by the company <http://levgum.com/>
- Project leaders should also examine the conclusions from the Bioproof project in France with a view to identifying potential actors or producers of recycled rubber: <https://www.environnement-magazine.fr/recyclage/article/2016/02/01/46719/bioproof-travaille-sur-caoutchouc-durable>
- Others involved in devulcanisation: REP International, Watson Brown (Germany): https://www.k-tradefair.fr/fr/La_d%C3%A9vulcanisation_du_caoutchouc
- See also the techniques offered by Allcock & Sons in the UK: <http://www.allcocks.co.uk/fr/produits/recyclage-du-caoutchouc/dvulcanisation.htm>

Distributors

In this case, distribution would be carried out by the shoe producers via their own network.

Subcontractors

Difficult to determine at this stage but a priori none.

Competitors

There is an abundance... but few with a highly sustainable approach. Even the Timberland project, considered exemplary by many, covers only a tiny fraction of their production.

Location

A space of approximately 500 to 2000m² is needed to start up the business, depending on the size and number of machines required and above all the condition in which Recytyre can supply the raw material. It would be interesting to see if certain machines (grinding, heating, etc.) can be shared with other companies, as well as perhaps space.

By way of comparison, the Spanish company Karey Solano produces 30,000 pairs per day (60,000 soles) in a 10,000m² factory on a 25,000 m² site. <https://www.kareysolano.com/fr/karey-solano-footwear.php>

Ideally, recycled (and devulcanised) rubber should be sourced directly from a local producer. Devulcanisation could also be carried out by the recycled tyre operator to the benefit of the sole manufacturing company. It is also possible to source from existing operators, but probably not from Brussels, which compromises the circularity of the model in terms of the local aspect of reusing "local" tyres. See in detail OTH shoes stating their soles are made from recycled tyres AND recycled rubber.

Key factors for success

Operational and commercial barriers

The trade barrier is obvious: a manufacturing partner is needed.

On the operational side, it will be necessary to define the precise process and determine whether it places particular constraints on the quality or nature of the material and therefore the types of tyres to be collected. And then see if this is feasible and in what volume with Recytyre.

The cost of labour in Belgium may also be an obstacle.

Intellectual property

It will have to be analysed whether Timberland (or other players, such as the environmentally friendly footwear manufacturers OTH or Norm) have filed any patents on the transformation process. For example, Norm purchases its soles from Portugal. Note that for Europe the majority of manufacturers are in Spain or Portugal.

Legislative obstacles

As used tyres are considered waste, it is necessary to check whether they are subject to any legislation. However, Recytyre has certainly already taken care of this.

Other risks

None.

Skills of the project team

Due to the technical nature of reprocessing tyres into soles, it seems essential to have a chemist or someone familiar with materials science in the team. This would be necessary from the outset since this is the first aspect to be refined.

For the rest, the team will require "conventional" entrepreneurial skills, with one person responsible for management and finance, one person with good sales and negotiating skills (partnerships with manufacturers), and someone with an operations profile to coordinate the recycling/production process.

Actions by the Brussels Capital Region to make the project a success

Calculate the environmental and climate impact.

References and links

Ambiorix	https://www.ambiorix.be/fr/
Bocage	https://www.bocage.fr/vos-chaussures-en-disent-long/comme-neuves
Shoemaker, Le Dispensaire	https://1819.brussels/blog/demarrer-son-entreprise-camille-labro-meler-et-son-dispensaire-cordonnerie-artisanale-et
Global Footwear Sole Material Market 2020 Research Forecast 2026	https://spiremarketresearch.com/report/global-footwear-sole-material-market-87116#report-details
GREEN.er	https://www.greener.fund/
Norm	https://norm.shoes/
Recytyre	http://www.recytyre.be/fr/traitement-et-recyclage-que-se-passe-t-il-precisement
Rivka	https://www.rivka.shoes/
Timberland recycled soles	https://www.environmentalleader.com/2009/03/sole-purveyors-of-green-rubber-shoes-strike-partnership/#:~:text=With%20a%20new%20exclusive%20partnership,50%20percent%20of%20recycled%20tires.
Timberland Tires	https://www.timberland.com/blog/archive/timberland-tires.html
Torfs	https://www.torfs.be/fr
Maniet – Luxus	https://shop.maniet.be/fr/qui-sommes-nous
Weston	https://www.westonvintage.com/fr
OTH	The shoe with soles made from recycled tyres and recycled rubber https://oth-paris.com/products/graviere-suede-cognac-semelle-off-white Further information: https://www.mensup.fr/mode-homme/on-veut-des-sneakers-oth-a-semelles-en-pneu-recycle-chaussures-167935