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## TELL US ABOUT YOUR COMPANY AND YOUR BUSINESS MODEL

<b>Your "punch" line, in 140 characters</b>	We transform blended textiles wastes to new raw material with the same or higher value while mitigating the microplastic release
<b>Foundation Year</b>	2022
<b>Choose the cleantech segment that best reflects your core activities:</b>	Recycling and Waste
<b>Provide additional key words that describe the sub-segment / focus areas you operate in</b>	Textile wastes recycling, polycotton recycling, blended fiber recycling, dyeing of textile, Textile treatment and functionalization, textile manufacturer
<b>Tell us about the problem you are solving and why it is important:</b>	Today, less than 1% of textile wastes are recycled to produce new fibers for the textile industry. Furthermore, textile industry is responsible of 14MT of microplastic every year, important energy consumption, 20% of the clean water pollution as well as CO2 emissions. It is crucial today to produce new resource out of the textile wastes which are mostly burned or landfilled in order to preserve our natural resources, protect the environment and the human life.

**Describe your technology or solution in detail:**

Renasens develops a waterless technology to recycle pure & blended textile wastes & produce high value raw materials using supercritical fluids . The first step of the process is dyes & additives extraction from the polycotton wastes, and then cotton polymer dissolution (without depolymerisation) with a supercritical phase containing a co-solvent with a high affinity toward cotton. The recovered polyester fibers and defibrillated cellulose from cotton are both used as new fibers for the textile

**Is your solution:**

Hardware

**What is innovative about your idea?**

This technology involve the use of recyclable green solvents in order to extract the dyes and additives without destroying the fibers structure and property and then a meticulous separation of cotton and polyester fibers through the dissolution of the cellulose polymer while the polyester fibers remains intact. With this waterless technology, we do not depolymerise the cotton nor the polyester which preserve the fibers properties and energy.

**Describe your business model**

Renasens AB is planning to build its pilot plant of 100 kg/day that will allow the first market validation. After that a pilot plant of 1 t/day will be built in order to supply our customers with polyester and Lyocell raw materials as well as services of dyeing and functionalisation of textile fibers. The goal is to licence Renasens technology to, among others, European & Asians countries where most of the textiles is produced today and this is why we are building a strong patent portfolio.

**Application areas**

Our first application area is within textile recycling for fashion and clothing. We will be supplying our customers with recycled fibers as well as dyeing and treatment services. The second target is textile coming from hospitals and medical application and the goal will be to sterilise the textile using Renasens technology and then to recycle it. The third application is to use our technology in order to impregnate high value molecules into the textile and produce technical and medical textiles

**Tell us about any intellectual property you have:**

We have performed an FTO prior to start writing our first patent application regarding the separation process of fibers using Renasens technology. This application prepared by Zacco AB will be pending before the end of the year 2023. Moreover, 2 other patent applications will be made early 2024 in order to protect in amore complete method Renasens technology.

## ENVIRONMENTAL IMPACT

**What environmental benefits can be achieved with your solution?**

Renasens technology enables the generation of new resources within the planet boundaries, will reduce the use of new virgin fossil fuel based fibers, reduce the CO2 emissions related to the burning and or the landfilled textile wastes, reduce the water use and pollution related to textile production, as well as mitigate the microplastic release form the textile to the environment during its life cycle. The

microplastics have a huge negative impact on the environment, ocean and human health.

**How can/will your innovation support, directly or indirectly, the reduction of carbon emissions?**

By generating new resource out of textile waste, we reduce directly the CO2 emissions of production of new fibers (natural or synthetic), by recycling the textile, we avoid the CO2 emissions related to the landfilling and wastes burning, and also we reduce the CO2 emissions related to the textile production process since we do not depolymerise the recycled textile and we use a clean and energy efficient method.

**Have you calculated the environmental impact, actual or potential, of your solution?**

Yes

**Please provide the results of your impact assessment**

Renasens technology allow the reduction by 5778 kgCO<sub>2</sub>eq comparing to primary source of fibers, avoid 423.4 kgCO<sub>2</sub>eq by recycling the textile wastes that would have been landfilled. Moreover, we do not use any drop of water which will limit the water use & pollution. The functionalisation treatment using our technology reduce up to 40% the microplastic release during the garment life cycle. The long-term goal is to reach at least 60% of potential microfiber release mitigation.

## MARKET, CUSTOMERS AND COMPETITORS

**What is your target market and how big of an opportunity is there?**

We are targeting the textile recycling market in Europe as a first step and then in Asia. More specifically, our initial target is the polycotton recycling market which is estimated at 2B euros in 2022 and expected to reach 3,4 B euros by 2030. Our SOM estimated for the coming 5 years in Europe is estimated at 6,1 M euros.

**In which geographical markets would you be most interested, in the short term?**

Our first geographical market interest is in Sweden and France in the short term.

**Describe your target customer**

Our target customers are fashion brands and textile manufacturers willing to have a positive social and environmental impact through the sourcing of their raw materials and the process used to produce textile. Customers such as Ecoalf, Houdini and Patagonia.

**How many customers or users do you currently have?**

We have validated the market traction with 107 potential customers among fashion brand and textile manufacturer who confirmed the market need and their interest on our technology, 5 out of those customers are willing to collaborate with us at early stage and 1 of them is going to be our early adopter where we are going to start a development project together early 2024.

**Who are your competitors?**

Our main competitors targeting blended textile wastes are Once More, Worn again and Circ technology. They use water and break down the polyester structures to monomers, which among other reduce the quality of the regenerated fibers. Renasens's technology allows the extraction of additives/dyes and the separation of fibers without their depolymerisation. Renasens technology is waterless, use green and recyclable solvent, produce high value raw materials and mitigate the microplastic.

**What is your unique selling point?**

Waterless and energy efficient technology using green and recyclable solvent in order to separate mixed fibers without depolymerisation or degradation of their properties. Our technology could be tuned for extraction or impregnation of textile which make it versatile with endless application. We re-engineer the textile wastes most polluting the world to create value and circularity.

## TRACTION AND FINANCIALS

**How are you financing your activities?**

Renasens AB is part of the incubator LEAD at Norrköping and we are getting financial support from Vinnova (innovation checks) and Almi Företagspartner Östergötland AB. We are also bootstrapping.

**Provide your most recent turnover (in EUROS)**

0

**Select the option that best describes your company's development stage**

Prototype and Validation

**What have you accomplished so far and what are your next steps?**

We have the first patent application, we have advanced the technology development where we proved at laboratory scale that we could remove dyes and additives from polycotton, we could separate the fibers without depolymerisation or damaging their properties, also develops a functionalisation method to limit the microplastic release. We are planning to recruit team members, start building a pilot plant, continue the technology development and raise funds.

**How much funding have you raised so far? (in EUROS)**

0

**Are you currently looking for funding?**

Yes we are looking for pre-seed funding.

**Please specify the amount and type of preferred actor (e.g. strategic, passive, industrial, private) and**

We are planing to raise 500 000 euros and we have a preference for strategy and industrial partners. This raised money will be used to increase the TRL of our technology from 4 to 5, start building a small pilot plants, pay for the two new patents and higher a textile engineer and a CFO.

**what you are planning to use this funding for**

## TEAM

**Describe the founders and key team members. Cite background and competences.**

The CEO & founder is Jade Bouledjoudja, the core of Renasens' technology is partially coming from her PhD thesis. She is a chemical engineer & hold PhD in material science & green process. She had + 10 y. experience of new technology development, 2 y. of business development and +4 different family patents. She was the CTO of Woodoo SAS (Woodoo raised 34 M£). We have two senior advisors Serge Mouangue (ex Director Innovation Lab. Groupe Renault) and Johan Sundblad (CEO of united recycling).

**Why is your team the right team to bring this solution to the market?**

Jade Abir Bouledjoudja has been working for more than 10 years now with new technology, recycling and alternative to fossil based material, she had been leading successful teams at Woodoo (raised 34 M£), Finecell and Trifilon. She has the support of two senior and successful advisors working with design, innovation and recycling. They support the company with strategic planning as well as connection with suppliers and customers. And we are looking to hire in order to build a strong team.

**What key additions to your team are needed in the short term?**

Our short long term hiring plan is to hire a textile engineer and a CFO early 2024 and to hire another textile engineer and a business developer (part time) late 2024. The goal is to build a strong team that will lead to the success, scalability and commercialisation of Renasens technology.

## CONTACT DETAILS

**Contact Person 1**

Jade Abir Bouledjoudja

**Title/Position - Contact person 1**

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