InReturn

Group 2

Lars Barneveld - 1852426 - l.s.barneveld@student.tue.nl

Jort Postema - 1845926 - j.postema@student.tue.nl

Luc Verhoeven - 1839764 - l.h.m.verhoeven@student.tue.nl

Lot Vogels - 1801317 - l.i.vogels@student.tue.nl

Jort Wiersma - 1825682 - j.wiersma@student.tue.nl

Euwe de Wilde - 1780514 - e.a.d.wilde@student.tue.nl

Contents

Introduction

Over the last few years, the role of e-commerce within the fashion industry has become more and more important, with projections indicating an annual increase of 8.52% (Online Shopping Statistics (2024): Growth, Sales & Demographics, 2024).

With this growth, the amount of returns also increases. This can be attributed to end-consumers making uneducated buying decisions and ordering the wrong size. With the last reason accounting for 52% of global returns (Van de Poel, 2023).

These returns are very costly for both businesses and the environment. Businesses spend an average of €12.50 per return (NOS, n.d.). It is also an environmental disaster, with many companies opting to burn the clothing, instead of properly processing the return (Van Doorne, 2024).

Over the years, many things have been tried to reduce the amount of returns. Zalando introduced a digital fitting room using avatars (Zalando Brings A Virtual Fitting Room Pilot To Millions Of Customers, n.d.). And other retailers are fining customers for every return (Wehkamp Zet Toon met Nieuw Retourbeleid, 2023).

Aside from the huge problems linked to sustainability and the economics of returns, a legal aspect emerged as well in 2024. The European Union passed a law prohibiting the destruction of returned garments. Retailers have until 2026 to adapt their delivery chain to facilitate returns without destroying the garments (Michielsen, 2024). Taking all of these factors in mind, a picture of a perfect storm of legal, societal and economic pressure emerges. This was confirmed during our market analysis, when we talked to two members of the sustainability team within PostNL. Our company will help logistics companies and their direct customers, retailers, adapt to this new reality.

There are a lot of issues with overconsumption in the Netherlands. Dutch people buy on average 46 pieces of garments annually, and throw out 40 (Ranjbar, 2021). This indicates that clothing waste is not just something that happens in big corporations, it happens in our own homes as well. We did short semi-structured interviews about clothing waste. Many participants indicated that they did not have an issue with returning too many items, they experienced an issue with forgetting to return items within the return window, or not returning items due to negligence. In summary: people buy too much stuff online which they don't necessarily need, and neglect to return it. The solution to this would be a more user-friendly return system.

When looking at E-Commerce we believe that returns are a necessary evil. You can't expect end-consumers to buy items without seeing it in person, and not expect them to return the item if it doesn't meet expectations. That is why the only way to run your ecommerce

business in a sustainable way, in terms of economic, environmental and societal pressure, you need a best of breed user-friendly and sustainable return process. Designing this process is something InReturn is very good at. The rest of this report outlines our vision on sustainable clothing returns: a system that instantly compensates end-customers and optimizes the logistical process for our direct and indirect customers.

Technology and product description

Our company InReturn has developed a clothing locker that provides a more efficient way to process returns of clothing items such as trousers, shirts, dresses and many more. However, this locker cannot process hygiene-sensitive or irregularly shaped clothing items such as underwear, shoes and socks.

Figure 1: Product mockup

The locker can be compared to the currently used lockers of delivery companies. These lockers are often placed in easily accessible places such as stores and gas stations. The differences between the current locker and our locker is that the locker of InReturn can store more clothing items than a normal locker can. The return process is more consumer friendly and sustainable.

A mockup of the product can be seen in figure 1. From the outside the locket has the same look as an ordinary locker. The locker is equipped with an interactive display that allows the consumer to start the return process.

After the interaction with the display the door of the locker will open. The consumer sees a hook with a clothing hanger on it. The consumer can hang the clothing piece on the clothing hanger and close the door. The door of the locker is equipped with an AI vision system. This vision system will scan the clothing and detect if there are any stains or holes in the clothing. To scan all sides of the clothing item, the hook will rotate 360 degrees and come back to its initial position.

Figure 2: Opened door

There are multiple scenarios that can happen during this process. The first process is that the AI vision system detects the clothing without any damage, then the process will continue. However, if the item is damaged the consumer can choose between keeping the item or allowing it to be processed without financial compensation. It can also happen that the clothing is not hung properly on the hanger and then the door will unlock itself again so that the consumer can try it again.

In Figure 3 the vision system is displayed. A transparent plate protects the system from outside disturbances. The vision system furthermore guarantees the quality of the clothing.

Between the clothing and the storage space for the clothing there is a wall that ensures anti-theft. This wall can be seen in figure 3. When the vision system is done scanning the wall will slide back so that the clothing can be stored on the clothing rack.

This can also be seen in figure 4. When the delivery van comes to pick up the clothing, a door on the side of the locker can be unlocked. After this the delivery van can slide out the moving clothing rack and pull a bag around the clothing to protect it. This bag is already beforehand placed in the basket at the bottom. This makes it easy for the person collecting the clothing to put the bag around the clothing. Furthermore this also ensures that clothing does not get lost if it falls off the clothing hanger during any stage of the process.

Figure 3: Vision system & Protected clothing rack

When the process is done, the rack can easily be slid back into place by the rails on the ground that ensure that the clothing rack is placed at the exact same place every time.

Consumer walkthrough

To simulate and further develop the experience of the consumer a second mock up was made. This mockup has a functional display. To engage with the display a return label needs to be scanned so that the system can retrieve customer information to personalize the experience and so that the system knows which clothing items need to be returned.

Figure 4: Clothing storage

During the process the display gives clear instructions to the consumer and asks feedback on their clothing item. For instance if the reason for a return is the size of the clothing item, then the consumer can choose to order a different size immediately.

The (interaction) process of the display can be seen in the following figure:
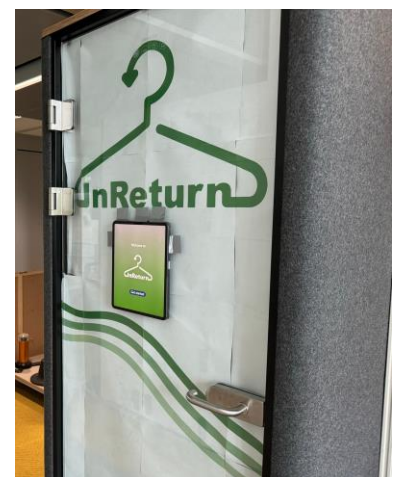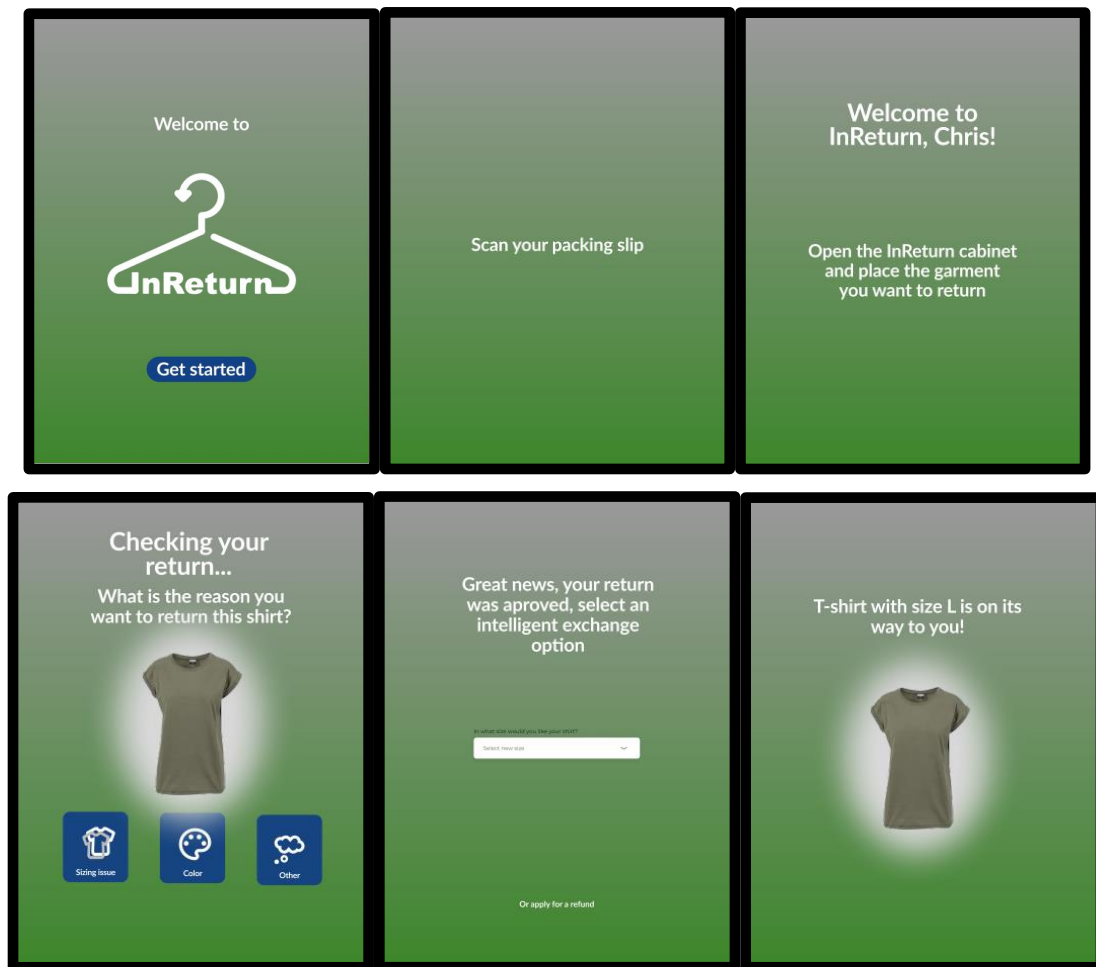

Figure 5: Physical mockup

Figure 6: Display on machine

The hook should be able to move in multiple directions. Firstly, it should be able to rotate. For this a strong stepper motor is needed that has enough torque to rotate the hook while a heavy clothing item is on it. Furthermore should the hook move over the horizontal plane that it is located at. This means that the hook is able to move into the depth of the locker to get to the clothing rack, but it should also move over a small width of the locker. This is needed for the hook to move around the clothing rack.

The vision system will be outsourced. The reason for this is the lack of specialism on AI vision systems. Our team has experience with AI and vision systems, however to guarantee the quality of the clothing a highly developed system is needed. In the rapid developing AI sector it is thus easier to outsource our system to another company. This will reduce costs by not starting a high tech research and development department and will reduce our time to market massively.

The locker has a more efficient way of storing items. A normal locker has an X amount of spaces for small, medium and large sized packages. Often the package itself will not require that much space, but because of a separation of each package there is relatively

a lot of space needed to store the packages. In our clothing machine/locker the clothes are stored together in one space which saves space. This means that the locker is able to store more returns in the same space.

To ensure low return costs for our customers it is important that there is little air in the package. By packing the clothes all in one bag, the clothing can be packed very efficiently with less air.

However air is also important as it protects the clothing, because there is little air in the bag there is also slightly lower protection. To ensure the quality of the clothing thick and strong bags are used to protect the clothing.

The locker furthermore brings the responsibility of returning clothing without any damage a lot more to the consumer. This stimulates the consumer to behave more sustainable, because consumers will not take the risk of not being able to return their clothing. We met with our potential customer PostNL and they seemed to be intrigued by the product. To learn about the preferences and requirements of our potential customers, we pitched our product. From this it was found out that the customer experience provided an important selling point for our product. However points for improvement were also noted such as the cost. This improvement is made in our latest version where clothing items are packed more densely. For our customers it is important that the price for a return is as low as possible.

Intellectual Property of the product

Two patents are found that can possibly interfere with our product concept. These patents involve the automation of clothing returns. One patent also uses a system where the clothing is hung on a clothing hanger and then moved using a robot. However we believe that our systems differ from this patent. The actual automation is different and the way of storing the clothing items is different (Bernini Fabrizio, 2010).

The second patent involves the packaging clothing for delivery orders. In this patent a specific process for packing clothes is patented. However the automation that is used in this process to pack the clothes is much different as in this patent it is picked up from a conveyor and secondly is the method of packing the clothes (Quelle Schickedanz AG & Co, 2007).

The technologies we use do have a lot of patents. However most of these components are bought, so we have freedom to operate on them. For our company the process of returning clothes is the most important intellectual property. At the moment this process does not infringe other patents.

Cost Price

Our product is quite complex and technologically advanced. Some parts of the product will be outsourced and some will be developed by our own Research and Development department. As discussed will the software for the AI vision system be outsourced. The first version of this system will be relatively simple and thus a relatively low cost is expected. We estimate an initial investment of €250,000. A cost price of €400 is made for each locker.

However this does not include the cameras and computers needed to process the data. This heavily depends on a lot of factors such as the resolution of the cameras, amount of cameras and the needed computing power. In the prototype a lot of cameras are shown, but it is expected that less cameras are needed. A budget of €1,000 is expected for the hardware cameras only (Basler 2024).

As discussed earlier, the robotic system is not that complicated as it moves over one plane in linear motions. A good robot, which fits within our space requirement is around €1,500 euros (Igus, 2024). The display that is needed is around €300 as the software that is needed to control the locker is made ourselves (Beetronics, 2024).

Assembly will be done at our own location. Firstly by our own team, but later on employees are needed to make multiple lockers at a time. By manufacturing the locker ourselves we expect to reduce costs and have a faster iterative process. Furthermore this ensures the quality that is expected from the locker. The goal for the assembly is to have such a design that it is really easy to construct, so that less time is needed for assembly. We do expect a minimum of a day for each locker for around two persons. This includes installing the electronics. The expected cost is €500.

The logistics and installation will also be done by our own company. A van is needed for this, which will be operational leased. This is a relatively cheap and convenient way of leasing a van. An employee is needed to deliver and install the locker. The total costs of this are estimated to be around €300. The reason for doing the delivery ourselves is the installation of the locker. If this would be done by an external party then there is more chance of making a mistake during installing the locker and it would cost more. Especially if the amount of lockers increase than the costs will be reduced

Warehousing of parts and a building to do the assembly is also needed. A production hall will be rented and these costs will not be that high due to the small production line. However the inventory for the building is quite expensive. A lot of precision tools and machines are needed to assemble the locker. This is estimated around €400 for each locker. However this will drastically increase by making more lockers.

The materials for the locker are also quite expensive. It is chosen that the plates needed to assemble the locker will be made in size and painted by an external party. A lot of

equipment is needed if this was done by ourselves. An estimated cost for this is €1,000 for the materials of each locker. The locker will be made out of stainless steel to prevent it as much from rusting. This results in a cost price of around €5,400.

Situation Analysis

Environmental Conditions

If we look at the area our business operates in outside of the conditions of industry there are a couple of things to recognize and keep in mind when making decisions and steering the business.

There is currently a push towards sustainability at the national and international levels. For example, the Dutch government targets climate-neutral operations. It requests a 50% reduction in primary raw materials used by 2030 and the European Commission supports the development of net-zero technologies, which works in our favor (Rijksoverheid, 2024; European Commission, n.d.).

There is also an economic shift towards more sustainable products where customers are willing to pay more for those products and see them more and more as a basic requirement than a "nice-to-have" (Petro, 2022). This is mainly because of the social trend of sustainability, where more and more people are aware of their impact on the environment (Reichheld, 2023; Deloitte, n.d.). However sustainable products come with a price tag, with the production of sustainable clothing can lead to a 75% increase in production costs (Gusta, 2024).

AI is currently a hot topic and advancements in that field are made rapidly. Improvements and studies in computer vision, like Meta's SAM, benefit the development of our vision significantly and will make our system better detect if returned clothing is reusable (Meta, n.d.).

And a good working vision system is needed, since the current fashion industry has a major environmental impact, being responsible for 10% of the world's greenhouse gas emissions (Adeogun, n.d.). Lots of the returned clothes get burned while they are still perfectly fine to wear, which brings up another concern of a risk of shortage of lower-impact materials, like cotton, by 2030 (Kent, 2023).

Legally the main things we should keep in our head are return policies, for example, the Dutch 14-day return period for products (ICTRecht B.V., n.d.).

Industry Conditions

Let's take a deeper look at the industry conditions that affect our business. PostNL, DHL, and Budbee currently dominate the market regarding package lockers, but since we also want to sell to them, we need to make them our customers and not our competitors. This will be done by making our product work more efficiently and cost-effective than their current return solutions, which will be challenging.

Our business is a new entrant and we have to work with economies of scale. There are likely high switching costs, which could result in some challenges regarding competitive pricing. Also, it is good to note that not all clothing retailers do have a fixed delivery company, which is good to keep in mind when developing our product.

In the industry, as mentioned before, there are a couple of suppliers already, however with the development of our own AI technology, other suppliers cannot easily move into our industry, and that way we can likely get a decent profit.

The potential customer base is quite small, but it mainly consists of well-established companies in the shipping industry, which could in theory copy our technology. However, we offer a unique selling premise which leads to a competitive advantage.

Strategic Options

	Helpful	Harmful
Internal	**Strengths** • Efficient Return Process • Waste Reduction • Customer Convenience	**Weaknesses** • High Initial Investment • Technical Challenges • Maintenance Requirements
External	**Opportunities** • Integration with Logistics • Technology Advancements • Sustainability Trends	**Threads** • Competition • Customer Adoption • Potential for Misuse

Figure 7: SWOT Analysis

From our SWOT analysis, some strategies were made to combat them. High Initial investment costs of the development of our own AI vision system could for example be combatted if it were outsourced by partnering with technology companies, which can do it better and faster since they have more resources. And by continuously investing in the R&D we obtain a strong relationship with those companies and it at the same time allows us to offer a competitive product.

We should also make use of our strength to make the return process as efficient as possible to win over potential customers, the AI vision system should help with this. Our system needs to be robust to make the return process reliable and to prevent fraud.

Pricing

The selling price will be €9,500. This leaves us with a margin of margin of around 43%, which converts to €4,100. This is needed to pay the founders, pay interest on possible loans, pay investors and what is leftover will be reinvested in the R&D department. A second source of income is our subscription plan. Companies who buy the locker can choose to pay an annual fee of €840, so that we service the machines and bring small updates to the software. This includes the cost of parts.

We expect that the service is not needed often. However a fee of 840 euros is estimated for the costs of the parts, a call service seven days a week and labor is needed. However the call service will be outsourced. This means we need to pay an external party a monthly fee to pick up our phone calls. The company uses the same van for service as they do for delivery.

Market Analysis

To acquire an effective position in the market, the groups of interest must be accurately determined, as well as targeting our marketing plans specifically towards these target groups. In this segment, elaboration is given on the performed market analysis.

Segmentation

Our product is in a unique situation regarding its potential customers. While the end users of our product are people who want to return their clothing, our business model is selling the lockers to a business. Thus, it is a business-to-business product, which is designated for an extremely specific group, namely shipping companies. To further define this particular group, we will examine some statistics.
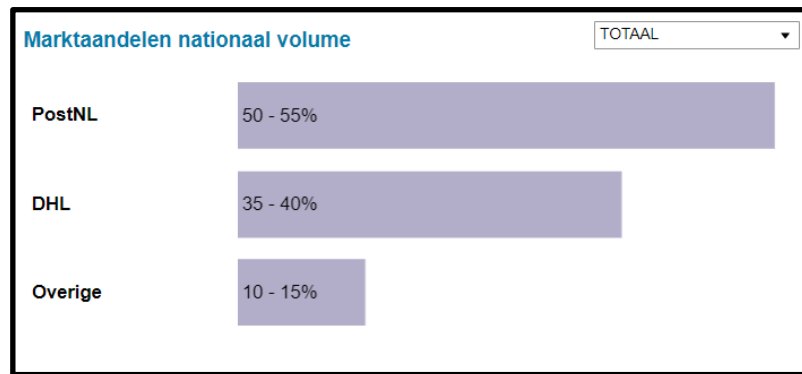
Figure 7: Market shares of Dutch shipping companies

In the Netherlands, the total share of package volume by shipping company is as shown in the graph above (ACM, 2023). PostNL and DHL are the two main shipping companies, combining for an enormous total of 85-90% of the package volume. It is clear that this market share is largely composed of these two.

On a continental level, i.e. Europe, there are more different companies. Different countries have different leaders in large-scale logistics (Eurosender, 2024), for example:

- In Germany, DHL, Hermes and UPS combine for 75% of the package volume share, though DHL is 49% of this.
- In France, La Poste is the leader with 48% total market volume. DPD, which is active in other countries, also belongs to La Poste (DPD, 2024).
- In the UK, the market is more equally distributed, with Royal Mail, Hermes, Amazon Logistics and DHL combining for 66% of volume share.

Additionally, there is room for further segmentation to a different customer group, namely clothing stores. This idea has been experimentally discussed and is a potential way to create more customers, but this will not be discussed in this report.

Targeting

To determine the target group for our product, a table was designed, weighing the pros and cons of certain relevant categories for each of the segmented groups, namely Dutch (national) and European shipping:

	Market size	Segment growth	Segment profitability	Match with customer needs	Competition	Available resources	Score
Dutch	PostNL 55-60% DHL 35-40% Other 10-15	+	+	++	0	0	3
European	More evenly spread, different countries	+	++	++	0	- -	1

While the potential customer group is larger in Europe, it would strongly affect our high initial investment (as seen in the SWOT analysis), further exposing one of our weakest points. Thus, it was decided that our target group would be Dutch shipping companies.

To appeal to these shipping companies, we must make clear to them what benefits we can provide them with, i.e. we need to communicate a message to them. Following the SWOT analysis, one such message is that we are a sustainable company. With the rising global sustainability trends, it is appealing to companies to have sustainable solutions, which we offer by reducing waste. We also want to make clear to them that our product can greatly facilitate the return processes for them. Easier returns mean less logistic costs for them and a higher efficiency. Thus, we focus on benefit-based positioning. The message for the shipping companies is that they gain a **new, sustainable tool that they can use to ease their processes**. Our fitting slogan is: ***Sustainable returns, made easy.*** This is also how we differentiate from existing lockers by PostNL or BudBee, since:

- our lockers have a new, integrated AI-vision system;
- our lockers have a clearly defined sustainable goal.

Validation

Our potential buyers in shipping companies are likely from a sustainability department. PostNL is already working with young green pilot projects for sustainability, showing that they are open to new technologies or systems.

To promote ourselves to this department, our best bet is to plan in individual meetings, keeping PostNL up to date with our product while maintaining them as warm leads, since we already have had a meeting with them.

We had a meeting with two PostNL employees: the program manager sustainability and environmental lead of PostNL. The feedback we received was that the product is certainly pointed in the right direction, but there need to be tweaks to be able to make the returning process even more convenient and cheap for PostNL. Also, one of PostNL's main goals is reducing the amount of air in packaging for sustainability, which is also something we incorporated into our product by eliminating the use of boxes.

Sales, costs & break-even

Our cost price was already defined in detail earlier as €5,300. We estimate an initial investment of €250,000 to set up our company. Our selling price is defined as €9,500. The initial rollout of the project is planned to run in a few cities within the next three years, assuming we can strike a deal with PostNL or DHL. Depending on how long striking this deal takes, we have additional costs for renting, maintenance etc.
Each city will incorporate 5 to 10 machines. We will sell in batches of 30 machines. The first batch will return a total of €285,000, while the costs for this batch would be €15,000, leaving us with a profit of €126,000. Selling another batch would thus leave us with a total profit of €252,000, which would be our break-even. However, we can also assume we invest some of the profits from the first batch into the company, for example for R&D of the AI vision system. Thus our break-even is reached after two or three batches, depending on how we spend the money.

Customer Journey

Following up on the STP analysis, please find the customer journey map below. It should be noted that the customer journey may not be as relevant for this business model as it would be for consumer products, as only a very small number of customers need to be reached. The main insights can be found in the pain points, for which different solutions are provided. Please find a larger version of the customer journey map in the appendix.

	Awareness	Consideration	Decision	Onboarding / Service	Advocacy / Loyalty
Customer Activities	R&D, Looking to make investments in or aqcuire relevant startups	Financial calculations, C-suite level discussions	Discuss contract, start redesigning logistics/distribution centers	Advertising, employee training, selecting locations, informing customers	Additional orders, continued advertising
Customer Goals	Differentiate & Be sustainable	Learn about product, consider risks and rewards	Smooth planning and decision-making process	Share new product with the world	Increase machine count and availability
Touchpoints	Direct messages / Conferences	Meetings with executives	Meetings with executives and middle management	Employee training assistance and machine repairs	Machine delivery & maintenance
Experience	Curious & Skeptical	Exited but skeptical	Exited & Frustrated by costs	Content	Happy & Proud
Pain Points	Lack of credibility	High costs, risk-taking	Logistical issues, unexpected costs, disagreements on machine prices	Lack of employee understanding	Possibility of slow rollout
Solutions	Provide information, share research, show prototype	Lower risk for customer by assisting in cost calculations and providing information	Unexpected costs and logistical issues should be reduced with careful planning	InReturn can assist in employee training	By looking for additional investments a faster rollout can be guaranteed
Business Goals	Get in contact with as many people from delivery agencies as possible	Be transparent, convince customer	Be as helpful as possible	Increase customer satisfaction, minimize maintenance costs	Increase machine count, minimize maintenance costs
Organization Activities	Attend professional meetings, send messages, pitch product, work on prototype or product	Provide information, tours, and prototype; improve product	Discuss contract, start production	Production, maintenance, employee training assistance	Production, maintenance

Figure 8: Customer journey map (see appendix 1 for larger version)

Business Model

Customer segment:

Our customers include large shipping companies like PostNl and BudBee. These companies already have return lockers but with our product the return process could be enhanced.

Customer relationship:

Since we are working with large companies we will need to have a close relationship with them to keep them as customers. We can enhance this relationship by providing repairs and making sure we will create a smooth integration of the system with their lockers. In general, our customers will want to have as little contact as possible, which is a sign the machines work smoothly.

Channels:

We will reach our customers through face to face meetings. This will be most effective since we are a new venture and have little customers. However, these customers are large so creating a good bond via direct contact will be beneficial for our customer relationship. We will also have contact with our customers via our customer service platform on our website so we can be reached whenever there is an issue with our product and we can arrange a repair to be made. Making consumers and delivery employees able to indicate if there is a problem with the locker will also ensure the faults are discovered as soon as possible.

Value proposition:

We provide a machine that is able to return clothing in a unique, sustainable and efficient manner. For both our customers and consumers this device will make the return process

quicker, cheaper and more environmentally friendly. With our product the customer can separate themselves from other return companies. Another value we bring to our customer is that we will reduce the amount of air per package. After discussing with PostNI, we learned that this is a large problem for our direct customer since transporting air brings no value for them. By reducing the amount of air per package with our product we will bring more efficiency to our customers.

Key activities:
Our activities will be continuously maintaining and building the lockers. We will also offer repairs and will deliver/install the lockers to the customers.

Key resources:
Our resources consist of the AI vision system (trade secret), the activity of the lockers for our customers, materials for the lockers, branding and our website.

Key partners:
Our partnerships will lie with other companies who focus on making the fashion industry more sustainable such as HappyReturns who have sustainable clothing bags for return processes (HappyReturns, n.d.). With these partnerships we aim to share our insight and receive theirs so we can keep developing a more sustainable future when it comes to the fashion industry.

Revenue streams:
We will sell our products to our customers, in bulk or separately. One locker will cost 9500 euros, this does not include reparations. If the customer decides to include reparations, we will ask an annual fee of 840 euros for reparations.

Cost structure:
The bulk of our cost is in the production of the lockers, this will be 5300 euros. There will also be costs in delivering the lockers to the customers and installing them in the preferred spot, this will be 800 euros.

Conclusion

Our inReturn clothing return locker is an innovative solution to combat the problem of returned clothes ending up being burned. The AI vision system for quality checks and simple return processes is what differentiates us from current return systems. To make it work seamlessly

however further R&D investment is needed to optimize the product and make it seamlessly integrate in return systems.

The making cost per unit is €5,300 and is sold for €9,500, leading to a healthy profit which could be used for example for future R&D. We will reach a break-even point after 2-3 batches of 30 machines. Added to the base price, an annual maintenance fee of €840 per unit provides us with a recurring revenue stream.

We ask for an initial investment of €250,000 to set up the company, and to obtain this we seek venture capital funding or angel investors who cover our startup costs. As mentioned, the main revenue from initial sales will be reinvested in R&D and scaling production, to grow as a company.

We see big potential in the Dutch market, where we will be targeting major shipping companies like PostNL and DHL. If this works out, we see an opportunity to expand to other European markets in the future. Added to that, the demand for more sustainable options in e-commerce creates favorable conditions for our company to operate in.

There are however some challenges we need to tackle. The initial investment and development costs are on the high end, which is why we need to be strategic in the way we invest. We also need to establish strong partnerships with shipping companies and eliminate potential competition from established players who develop similar technologies by making our system robust and easy to integrate.

Our future steps will be to finalize the prototype and conduct pilot tests with potential customers. We also need to secure initial funding and form key partnerships. Besides that, a detailed strategy to enter the Dutch market should be made.

Our venture shows promise by changing the way the current returns of clothing are handled where we focus on sustainability and efficiency. There are challenges, but the potential for growth and positive impact on the industry is significant.

References

1. Adeogun, J. (n.d.). *Fashion forward: How to combat climate change through clothing*. https://www.imperial.ac.uk/stories/fashion-forward/

2. Autoriteit Consument en Markt. (n.d.). *Post- en pakketmonitor*. Retrieved June 27, 2024, from https://public.tableau.com/app/profile/autoriteit.consument.en.markt/viz/Post-enpakketmonitor/OVER

3. Basler (2024) acA1300-60gm (CS-Mount) | Basler AG (baslerweb.com)

4. Beetronics (2024) 7 inch touchscreen | Beetronics.

5. Bernini Fabrizio. (2010, October 15). *Device for the automatic return of clothing items*. EP About this file - European Patent Register (epo.org)

6. Canaves, S. (2023, 15 February). *Returns surged during the pandemic-fueled ecommerce boom, but some relief is in sight*. EMARKETER. https://www.emarketer.com/content/returns-surged-during-pandemic-fueled-ecommerce-boom-some-relief-sight

7. Deloitte. (n.d.). *Sustainable consumer behaviour and lifestyle 2023*. Deloitte United Kingdom. https://www2.deloitte.com/uk/en/pages/consumer-business/articles/sustainable-consumer.html

8. DPD Nederland. (n.d.). *Over DPD*. DPD. Retrieved June 28, 2024, from https://www.dpd.com/nl/nl/over-dpd/

9. European Commission. (n.d.). *Sustainability*. Internal Market, Industry, Entrepreneurship and SMEs. https://single-market-economy.ec.europa.eu/industry/sustainability_en

10. Eurosender. (2024). *Parcel delivery statistics in the EU*. Eurosender. https://www.eurosender.com/en/resources/courier-parcel-statistics

11. Gutsa, A. (2024, April 20). *Are sustainable products more expensive?* Ecoswap. https://ecoswap.uk/are-sustainable-products-more-expensive/

12. ICTRecht B.V. (n.d.). *Herroepingsrecht | Recht van retour advies*. https://www.ictrecht.nl/juridisch-advies/e-commerce/herroepingsrecht

13. Igus (2024) Platte lineaire robot | DLE-FG-0003 | Werkruimte 500 x 500 mm (igus.nl).

14. Kent, S. (2023, October 31). *Fashion faces massive shortage of more sustainable raw materials*. The Business of Fashion. https://www.businessoffashion.com/articles/sustainability/fashion-sustainable-materials-gap-2030/

15. Meta. (n.d.). *Segment anything*. Meta AI. https://segment-anything.com/

16. Michielsen, T. (2024, March 4). *Verbod om nieuwe kleding te vernietigen zadelt modesector op met kopzorgen.* De Tijd. https://www.tijd.be/ondernemen/textiel/verbod-om-nieuwe-kleding-te-vernietigen-zadelt-modesector-op-met-kopzorgen/10530950.html

17. NOS. (n.d.). *Retour Rumoer.* https://app.nos.nl/op3/pakjes/index.html

18. Online Shopping Statistics (2024). *Growth, sales & Demographics.* Capital One Shopping. https://capitaloneshopping.com/research/online-shopping-statistics

19. Petro, G. (2022, February 20). *Consumers demand sustainable products and shopping formats.* Forbes. https://www.forbes.com/sites/gregpetro/2022/03/11/consumers-demand-sustainable-products-and-shopping-formats/?sh=48aa89166a06

20. PostNL. (n.d.). *Econnections innovation programme.* PostNL. Retrieved June 28, 2024, from https://www.postnl.nl/en/about-postnl/strategy/corporate-responsibility/sustainable-logistics/sustainable-postnl-news/econnections-innovation-programme/

21. Quelle Schickedanz AG & Co. (2007, December 28). *Method for distributing return articles in a mailer dispatchcenter, in particular clothing.* *EP About this file - European Patent Register (epo.org)*

22. Ranjbar, A. (2021, 11 May). *Onderzoek wijst uit: Nederlanders kopen gemiddeld 46 nieuwe kledingstukken per jaar.* FashionUnited. https://fashionunited.nl/nieuws/retail/onderzoek-wijst-uit-nederlanders-kopen-gemiddeld-46-nieuwe-kledingstukken-per-jaar/2017112930179

23. *Returns software and reverse logistics for e-commerce merchants.* (n.d.). Happy Returns. https://happyreturns.com/

24. Reichheld, A. (2023, September 18). *Research: Consumers' sustainability demands are rising.* Harvard Business Review. https://hbr.org/2023/09/research-consumers-sustainability-demands-are-rising

25. Rijksoverheid. (2024, February 21). *Duurzame doelen bij de Rijksoverheid.* Denk Doe Duurzaam. https://www.denkdoeduurzaam.nl/doelen

26. Van de Poel, J. (2023, 31 May). *Hoe verlaag je je retourpercentage: 7 tips.* Returnista. https://en.returnista.nl/blog/retourpercentage-verlagen-tips

27. Van Doorne, S. (2024, 4 March). *De ware kostprijs van retourzendingen: 3,4 miljard vernietigde t-shirts.* Trouw. https://www.trouw.nl/binnenland/kleding-retour-zenden-dit-is-de-ware-kostprijs~b61ec9cb/?referrer%3Dhttps://www.google.com/

28. Wehkamp zet toon met nieuw retourbeleid. (2023, 17 April). Wehkamp.nl. Retrieved 30 June 2024, https://www.wehkamp.nl/pers/read/1207/wehkamp-zet-toon-met-nieuw-retourbeleid

29. Zalando brings a virtual fitting room pilot to millions of customers. (n.d.). Zalando Corporate Website. https://corporate.zalando.com/en/technology/zalando-brings-virtual-fitting-room-pilot-millions-customers

Appendix

Appendix 1: Customer Journey Map

	Awareness	Consideration	Decision	Onboarding / Service	Advocacy / Loyalty
Customer Activities	R&D, Looking to make investments in or aqcuire relevant startups	Financial calculations, C-suite level discussions	Discuss contract, start redesigning logistics/distribution centers	Advertising, employee training, selecting locations, informing customers	Additional orders, continued advertising
Customer Goals	Differentiate & Be sustainable	Learn about product, consider risks and rewards	Smooth planning and decision-making process	Share new product with the world	Increase machine count and availability
Touchpoints	Direct messages / Conferences	Meetings with executives	Meetings with executives and middle management	Employee training assistance and machine repairs	Machine delivery & maintenance
Experience	Curious & Skeptical	Exited but skeptical	Exited & Frustrated by costs	Content	Happy & Proud
Pain Points	Lack of credibility	High costs, risk-taking	Logistical issues, unexpected costs, disagreements on machine prices	Lack of employee understanding	Possibility of slow rollout
Solutions	Provide information, share research, show prototype	Lower risk for customer by assisting in cost calculations and providing information	Unexpected costs and logistical issues should be reduced with careful planning	InReturn can assist in employee training	By looking for additional investments a faster rollout can be guarantueed
Business Goals	Get in contact with as many people from delivery agencies as possible	Be transparent, convince customer	Be as helpful as possible	Increase customer satisfaction, minimize maintenance costs	Increase machine count, minimize maintenance costs
Organization Activities	Attend professional meetings, send messages, pitch product, work on prototype or product	Provide information, tours, and prototype; improve product	Discuss contract, start production	Production, maintenance, employee training assistance	Production, maintenance