

Bijlagen



Bijlage 1: overzicht betrokkenen

Direct betrokken bij het opstellen van het actieplan dan wel input voor inhoud aangeleverd of aangesloten bij een onderdeel van het plan.

Impact Houten	De Rooy Transport
De Krachtfabriek	Verdraaid Goed
PreZero	Koffie Recycling service
Goodfuture	BD totaal
Greenside	Trajectum engineering
Platform maatschappelijk ondernemen	Opgewekt Houten
Romijn Makelaardij	Coöperatie Duurzaam Eiland van Schalkwijk

Ambassadeurs Impact Houten- september 2021

De Rooy transport	Wouterse installatie en onderhoud
TSN Groen	Goodfuture
PMO Houten	Greenside
Opgewekt Houten	IP concepts
Fagerhult	P&E Bakery
Arval	Blox 21
Ondernemend Houten	Romijn Makelaardij
IKH	AH Oude Dorp
OKK Houten	Haakkranen
Theater Aan de Slinger	Trajectum Engineering
Rabobank	BD Totaal
PreZero	Food 'n Mood
Groen Zonnig Houten	Keuzes.nl
Syliva Groen	Pure&Easy

Daarnaast zijn er nog andere actieve lokale organisaties (indirect) betrokken bij dit plan, zoals de Houtense Werktafel, Wij 3.0 en Beelen en Beelen Next en kringloopwinkel Noppes. Allen zijn zij betrokken bij het project bouwkringloop. Voor meer informatie over dit specifieke project, zie bijlage 4. Als sparringpartner voor het onderwerp en het (beleidsmatig) vormgeven van dit onderwerp heeft de NMU input geleverd. De EBU heeft in het beginstadium meegedacht.

Bijlage 2: Uitgelicht: ambassadeurs, bedrijven achter acties, Impact Houten

Impact Houten

Er worden er elke 2 maanden ambassadeursbijeenkomsten georganiseerd door Impact Houten. Deze worden als succesvol ervaren, het is een plek voor netwerken en inspiratie. Binnen de betrokken groep is er veel motivatie en positieve energie. Er is nog een flinke slag te slaan in de circulaire economie, waarbij het belangrijk is om meer ondernemers/organisaties bewust te maken en aan te haken bij het bestaande netwerk.

In mei 2021 heeft Impact Houten nog een online bijeenkomst georganiseerd door de gemeente. Impact Houten was hierbij ook aanwezig. Deze bijeenkomst was specifiek gericht op de deelnemers aan de vragenlijst die geïnteresseerd waren in het vervolgproces en hierover wilden meedenken. Deze bijeenkomst werd door 4 bedrijven bijgewoond. De conclusie uit deze bijeenkomst was dat er behoefte is aan een duurzame werkplek, een duurzaam gebouw waar ook plek is voor ZZP'ers om te werken, waar kruisbestuiving kan plaatsvinden, waar kan worden gewerkt en gewoond, waar innovatie en interactie kan plaatsvinden. De circulaire economie gaat veel over verbinden, een connectie leggen met een andere ondernemer en daarmee bijvoorbeeld een afvalstroom als grondstof kunnen inzetten of een gezamenlijk project te starten. De deelnemers aan deze bijeenkomst hebben deze wens uitgesproken om een fysieke locatie te realiseren waar dit mogelijk is. Dit idee is niet nieuw, onder de energie-initiatieven in Houten leeft het idee om een 'duurzaamheidscentrum' te creëren. Dit idee wordt verder onderzocht in samenwerking met het energieteam⁴. De gemeente neemt hierin het voortouw en betreft de geïnteresseerde organisaties in het vervolgproces.

We zien dat het thema ook binnen Impact Houten meer aandacht krijgt, en dat via de ambassadeursbijeenkomsten ondernemers elkaar weten te vinden, kennis delen en hiermee elkaar inspireren. We merken dat het thema onder de vlag van Impact Houten steeds meer gaat leven. Het regelmatig organiseren van bijeenkomsten waar ambassadeurs/geïnteresseerde organisaties elkaar ontmoeten en inspireren werkt zeer positief. Voor de toekomst is het voortzetten van de samenwerking met Impact Houten en deze uitbreiden een logische stap.



Ambassadeursbijeenkomst september 2021

⁴ Het energieteam coördineert de samenwerking tussen de partijen aan de energietafel Houten. De energietafel bestaat uit de initiatieven en organisaties die zich bezig houden met energiebesparing en duurzame energie opwek in Houten. Zie ook het Energieplan <https://www.houten.nl/groen-water-en-duurzaamheid/energie/energieneutraal-2040>

De mensen achter de acties & ambassadeurs aan het woord

In paragraaf 2.1 van dit actieplan is kort ingegaan op de acties die het afgelopen jaar onder de aandacht zijn gebracht bij de doelgroep. Deze hebben allen in meer of mindere mate bijgedragen aan de circulaire economie of het versterken van het netwerk om te komen tot een meer circulaire economie. Hier geven we het woord aan de mensen en organisaties achter de acties en aan enkele ambassadeurs van Impact Houten. Zij vertellen hoe zij het proces van verduurzamen en werken aan de circulaire economie tot nu toe ervaren en wat zij hiervan hebben geleerd.

1. Wilko Kistemaker – project manager Impact Houten

Wat kan ik zelf doen om bij te dragen aan duurzaamheid? Met deze instelling begon Wilko 10 jaar geleden aan 'groen en zonnig Houten'. Inmiddels is Wilko betrokken bij Opgewekt Houten en is hij projectmanager bij Impact Houten. Impact Houten bestaat nu ongeveer 1 jaar, met als doel duurzaam ondernemen structureel een plek te geven in Houten.

“Het was een vreemd jaar, maar toch hebben we bedrijven weten te bereiken. Als platform voor duurzaam ondernemen zijn we bezig met verschillende onderwerpen, waaronder de circulaire economie. Circulair heeft vele verschijningsvormen, het is de kunst om het concreet te maken en het richting het einddoel te brengen. Het circulair denken moeten we nog verder ontwikkelen. Dat moeten we samen doen. Het ultieme doel scherp stellen, maar ook de kleine stappen waarderen.”

“We merken dat we aan het beginproces staan, er worden kleine stappen ondernomen. Hierbij is ook niet elke actie voor elke organisatie geschikt. Het is belangrijk dat wij elkaar blijven zien en inspireren, in gesprek gaan. Samen leren we, zeker tijdens de ambassadeursbijeenkomsten. Samen komen en elkaar ontmoeten is nodig om van ideeën naar realisatie te komen.”



2. Leon Polman- oprichter Greenside en ambassadeur van Impact Houten

Na het afronden van zijn studie kwam Leon veel oud papier tegen. Geprinte readers, projectopdrachten, artikelen. Bij hem kwam de vraag op: kan ik hier nog iets mee, met dit enkelzijdig geprinte papier? Er zat immers veel nostalgie in dit papier, jaren van studeren. Zonde om dit weg te gooien. Het idee kwam op om dit papier in te zetten voor notitieblokken. Leon had de ambitie om een sociale onderneming op te zetten en heeft hieraan middels Greenside invulling kunnen geven. “Al vrij snel was mijn eigen papier op, toen ben ik lokaal gaan kijken:



“Een van de leukste dingen die Greenside mij heeft gebracht is te zien hoeveel leuke dingen er lokaal gebeuren. Dankzij Impact kom ik achter meer mensen en voorbeelden van initiatieven die ook impact willen maken.”

waar hebben ze papier? Toen kwam ik bijvoorbeeld bij Theater aan de Slinger en de gemeente uit. Ook basisscholen leveren papier.”

“Ik geloof in het bouwen van lokale ecosystemen. Greenside staat voor lokaal, duurzaam ondernemen en de cirkel lokaal te sluiten. Daar wil ik op inzetten en dat is ook een grote reden om aan te sluiten bij Impact Houten, meer mensen leren kennen. De ambassadeursbijeenkomsten zijn heel leuk, een moment om andere ondernemers te ontmoeten. Het is leuk dat verduurzamen en circulair concreter worden op zo’n bijeenkomst, het blijft actiegericht: blijven verkennen wat we concreet voor elkaar kunnen betekenen.”

3. Marc Degenkamp- PreZero, ambassadeur Impact Houten

PreZero heeft als afvalinzamelaar en verwerker een belangrijke rol in de transitie naar een meer circulaire economie. Het is daarom zo belangrijk dat PreZero is aangehaakt bij Impact Houten en actief deelneemt in het proces.

“Sinds maart 2020 zijn wij in contact met Impact Houten. We spreken over wat onze bijdrage kan zijn als het gaat om afvalmanagement. We willen graag onze kennis en kunde delen om een stap verder te komen. Als PreZero kunnen we niet alles zelf, daarom zoeken we graag verbinding met andere schakels in de keten. We hopen het gedachtegoed aan te kunnen jagen, onze klantportefeuille uit te breiden en ook op die manier kringlopen meer te sluiten. Ook door te kijken naar samenwerkingsvormen die ons hierbij helpen en er nu nog niet zijn. Per situatie kan er een andere samenwerking ontstaan, waarmee wij ons netwerk uitbreiden”



“Als je in het netwerk van Impact Houten komt, merk je dat er makkelijk connectie te maken is. Het is investeren in je netwerk en met elkaar tot zaken te komen. Ook voor kleine organisaties is het mogelijk, juist als kleine onderneming kun je makkelijk aansluiten bij een bedrijf of bij meerdere zelfstandigen om volume te creëren”

PreZero is betrokken bij de acties voor het circulair verwerken van koffiedik, vlaggen/banners en biedt een afvalanalyse aan.

“De actie voor het circulair gebruiken van vlaggen en banners loopt, maar kan nog concreter worden in de komende periode. Als een grote partij zoals de gemeente meedoet, zal dit een enorme boost geven. Zo zijn we ook in gesprek met de AH Oude dorp. In het kader van de afvalanalyse zijn we in gesprek met Trajectum en BD totaal. We bekijken samen de specifieke afvalstromen die in een bedrijf vrij komen, welke bruikbare stromen zijn er? Bijvoorbeeld koffiedik. Als we dit uit de afvalstroom kunnen halen scheelt dit restafvalkosten en starten we tegelijkertijd een traject om een nieuwe grondstof in de keten te brengen”.

4. Chiya Djabar – Trajectum Engineering, recent aangesloten als ambassadeur bij Impact Houten

Chiya was voor het eerst betrokken bij Impact Houten middels de online bijeenkomst die werd georganiseerd in maart 2021. Inmiddels is Trajectum Engineering een samenwerking gestart met Greenside, in gesprek met PreZero over hun restafval en hebben ze de verbinding gelegd met Goodfuture.

“Veel ondernemers willen wel verduurzamen, maar wat levert het op? Het netwerk kan helpen: wij hebben verduurzaamd en we hebben er ook aan verdiend.”

“In de basis zijn wij bij Trajectum altijd bezig met duurzaamheid, wij zijn een advies- en engineerbureau op het gebied van verduurzaming van gebouwen, denk aan verwarming, koeling en ventilatie”.

Als recent aangesloten ambassadeur verteld Chiya hoe hij dit proces tot nu toe heeft ervaren.

“Het was een open deur om ons bij Impact aan te sluiten. Wij zijn een duurzaam bedrijf en willen ook daad bij het woord voegen. We

zijn gevestigd in Houten en willen hier ook blijven, we willen ook meegaan in de Houtense ambities. Vanuit de eerste bijeenkomst in maart is de samenwerking met Greenside gestart. Wij printen veel enkelzijdige bouwtekeningen. Deze kunnen we nu mooi hergebruiken voor eigen notitieboekjes. Impact Houten heeft ons ook in contact gebracht met PreZero. We willen graag ons restafval beter kunnen scheiden en gescheiden laten ophalen en verwerken. Hierover zijn we met PreZero in gesprek, maar lopen we er tegenaan dat we geen eigenaar zijn van het pand. Daarnaast zijn we in contact gekomen met Remco van GoodFuture, over duurzame bedrijfskleding.”

“Aansluiten bij het netwerk van Impact is waardevol. Zo komen we met ondernemers in contact die we eerst niet kende, we hebben het over wat je voor elkaar kan betekenen. Het draagt echt bij aan het netwerk, er zit veel kennis over verduurzaming en daarmee veel bruikbare kennis en kunde. De ambassadeurs functioneren als een soort encyclopedie, een ideeënput. Om stappen te maken heb je een team die helpt om dit vorm te geven.”



“Door ambassadeur te worden kiezen we er bewust voor om andere ondernemers tegen te komen en het draag bij aan ons netwerk. De ambassadeursbijeenkomsten functioneren goed. We merken dat we allemaal nog zoekende zijn, maar samen komen we verder!”

Paul Soeterbroek - BD Totaal

BD totaal is een biologische groothandel in Houten. BD totaal levert aan horeca, zorginstellingen en particulieren in het hele land, met een focus op de provincie Utrecht. De coronacrisis bracht uitdagingen met zich mee, maar gaf ook ruimte om verder na te denken over duurzaamheid. BD totaal schreef een plan waarin zij aangeeft op welke manier het bedrijf verder aan duurzaamheid wil werken. Naast het eigen bedrijfspan verder verduurzamen (in gesprek met Impact Houten over zonnepanelen), is BD totaal ook actief bezig om voedselverspilling tegen te gaan en de lokale, circulaire economie te stimuleren. Bijvoorbeeld door gebruik te

maken van de Utrechtse Euro als betaalmiddel, dit stimuleert dat lokale bedrijven bij elkaar kopen en zo lokale cirkels sluiten. BD totaal is ook aangesloten als ambassadeur bij Impact Houten. “We merken dat het soms nog lastig is om duurzaamheid in de praktijk te brengen, het is nog erg pionieren en niet alles is vanaf het begin duidelijk. Het is heel prettig om andere ondernemers te ontmoeten die ook bezig zijn met verduurzamen. Zo kun je van elkaar leren.”



6. Remco Dupuis- Goodfuture

Goodfuture levert duurzame en circulaire bedrijfskleding en zamelt oude bedrijfskleding in om terug te brengen in de cirkel. “Ik heb verschillende documentaires gezien over de textielsector en hoe vervuילend die is. Hier en daar werd al het een en ander gedaan om dit tegen te gaan, maar ik vroeg mij af, hoe zit dit met bedrijfskleding? Bedrijfskleding belandt vaak in de verbrandingsoven, omdat er een logo op staat waardoor het niet hergebruikt mag worden op de traditionele manieren. Toen kwam het idee om hier een stroom voor op te starten”.

“Het kan niet anders dan dat we grondstoffen hergebruiken. We moeten actief inzetten op een circulaire economie, voordat grondstoffen op zijn of niet meer te betalen zijn. Bedrijven die dit nu omarmen, doen zaken met elkaar. Je ziet dat bedrijven aan elkaar worden

“Voor velen is dit een volgende stap in het verduurzamen. Het is laaghangend fruit, heel zichtbaar. Kleding is je dagelijkse visitekaartje, daarmee kan je duurzaamheid uitdragen. Het werkt echt als bewustwording, naar partners en medewerkers. Dit helpt om het personeel mee te krijgen in de richting van duurzaamheid. Er start een cirkel, waarbij men oude kleding moet inleveren, en de nieuwe kan ophalen.”

Binnen het netwerk van Impact Houten is Goodfuture onder de aandacht gebracht tijdens de bijeenkomst(en). Het balletje is zo meer gaan rollen. “We zijn in gesprek met verschillende bedrijven in Houten, waaronder De Rooy Transport en Inventum”.

Ook Remco heeft zich aangesloten als ambassadeur van Impact Houten. “We zijn blij als er circulaire initiatieven ontstaan. Voor ons is het aansluiten bij dit netwerk ook een methode om op een bepaalde manier bij bedrijven onder de aandacht te komen. De bedrijven die aanhaken hebben een bepaalde intentie, aansluiten bij een duurzaamheidskring. Wil informatie brengen en we hopen dat er bedrijven in zitten die willen meedoen. Daarnaast zie ik het ook als wederzijds dienstverlening, waarbij wij weer producten of diensten van andere bedrijven kunnen gebruiken”.



Bijlage 3: convenant Impact Houten

Convenant

Ambassadeurs van !MPACT Houten verklaren te werken aan duurzaamheid in Houtense samenleving tot en met 2025

De Houtense samenleving kent een aantal specifieke vraagstukken waarvan de oplossing brede betrokkenheid vraagt van inwoners, overheid, maatschappelijke organisaties en bedrijven. Bedrijven zijn bereid en in staat actief aan deze oplossingen bij te dragen en zelfs het voortouw te nemen. Via dit convenant verklaren de ondertekenaars aan deze doelen te zullen werken in elk geval tot en met 2025.

Bewustwording van de verantwoordelijkheid van hun impact op de lokale omgeving is bij een groeiende groep Houtense bedrijven (inclusief bedrijven uit de kleine kernen en in het buitengebied) aanwezig. Ook is er steeds meer besef dat de bedrijfsvoering in de toekomst andere, vernieuwende oplossingen vraagt, die aansluiten op de lokale omstandigheden. Met succes zijn in dit verband projecten gestart en is betrokkenheid gecreëerd en geïnitieerd door het bedrijfsleven. Denk hierbij aan het realiseren van lokale grote zonnedaken, energie besparen, elektrisch vervoer, energieopslag, circulair maken van afval, elektrisch transport, uitdragen van lokale voorbeeld-initiatieven en verbinden van organisaties, bijvoorbeeld met lokale coöperaties.

Bij de keuze van inzet en prioritering van de middelen in dit kader dienen de volgende zaken te worden meegenomen voor de ondernemers die bij deze activiteiten betrokken zijn of worden:

- hoe verhoogt dit de waarde voor hun klanten op de beste manier, en welke acties dragen het meeste bij?
- hoe ondersteunen de activiteiten hun strategie en doelstellingen?
- hoe worden kosten en opbrengsten zo gunstig mogelijk beïnvloed?

Via aansluiting bij ondernemingsdoelen en vanwege hun maatschappelijke verantwoordelijkheid kunnen ondernemers hun mogelijkheden inzetten om de maatschappelijke vraagstukken te helpen oplossen.

De maatschappelijke vraagstukken zijn in een context te plaatsen van de SDGs (Sustainable Development Goals) zoals die door de VN zijn opgesteld. Deze tot 2030 geldende 17 doelen zijn:



De volgende Houtense vraagstukken passen als volgt in deze doelen structuur:

- Gezinnen met een klein inkomen ondersteunen en versterken (ad 1)
- Kinderen die zonder ontbijt naar school gaan van gezonde voeding voorzien (ad 2)
- Ongezond levende inwoners naar gezond gedrag begeleiden (ad 3)
- Duurzaamheid in de school curricula doorvoeren (ad 4)
- Verbinding van scholieren (Houtens en Wellant) via stages met het lokale bedrijfsleven (ad 4)
- Versterken en versnellen van de lokale duurzame energietransitie op daken en via reductie energieverbruik (ad 7 en 13)
- Inwoners met kleine beurs mee laten doen met de energietransitie (ad 7)
- Inwoners zonder werk (waarvan sommigen met afstand tot de arbeidsmarkt) weer aan het werk helpen (ad 8)
- ZZP'ers ondersteunen in de ontwikkeling naar ondernemerschap (ad 8)
- Bereikbaarheid van kantoren, zorgcentra en winkels verbeteren (ad 9)
- Optimaliseren van de lokale goederen stromen, via minder kilometers en schoner vervoer (ad 11)
- Circulair maken van bedrijfsafval (ad 12)
- Bedrijfspannen omvormen naar woningen (ad 12)
- Elektrisch vervoer en energieopslag stimuleren en faciliteren (ad 13)
- Klimaatmaatregelen en adaptatie gericht op water en groen (ad 13)
- Beter samenwerkende organisaties (ad 17)

Het creëren van oplossingen voor deze vraagstukken vraagt samenwerking tussen meerdere partijen en dient over een langere termijn te worden gerealiseerd.

Partijen en projecten in Houten waarmee samenwerking nodig en mogelijk is om aan deze vraagstukken te werken zijn onder meer:

- De Voedselbank
- Basisscholen en Middelbare scholen
- Project Healthy Houten
- Cooperatie Opgewekt Houten
- Cooperatie Duurzaam Eiland
- Project Zon op Grote Daken
- Platform Maatschappelijk Ondernemen
- Project Last Mile
- Project Meet and Match
- Project Houten on Stage
- Project Groene Hub en Stadsdistributie
- Werk in Houten
- Ambassadeurs van !MPACT Houten en andere betrokken bedrijven
- Van Houten & Co
- Gemeente Houten
- Ondernemend Houten (IKH, OKK, Winkeliersverenigingen) en haar leden
- Economisch Platform Houten
- Energietafel Houten
- Duurzaamheidsfonds Houten

Door met deze partijen (en nog meer partijen) samen te werken aan de oplossingen wordt de kans op succes groter. Bovendien kan ook provinciaal en landelijk en op EU niveau ondersteuning (via kennisuitwisseling en subsidies) worden gezocht voor het concreet werken aan deze projecten die bijdragen aan SDG's.

Bedrijven spelen nu al een rol in het oplossen van deze vraagstukken en zijn via Ondernemend Houten en !MPACT Houten in staat en bereid deze rol te versterken.

Daarnaast kan (en zal) de agenda van genoemde vraagstukken wijzigen omdat vraagstukken worden opgelost en andere nieuwe vraagstukken ontstaan.

Hieronder genoemde bedrijven en organisaties zullen in elk geval in de periode tot en met 2025 zich inzetten om zich te verbinden aan minimaal één van bovengenoemde lokale vraagstukken om deze trachten op te lossen. Daarnaast (of mede daardoor) verbindt men zich hiermee aan het werken aan minimaal drie van de 17 SDG's zoals te zien in bovenstaande figuur.

Zij zullen hun keuzes expliciet maken en uitdragen om daarmee ook anderen te inspireren.

Tijdens ambassadeursbijeenkomsten wordt de voortgang hierin geagendeerd, zodat men elkaar kan ondersteunen, motiveren en stimuleren.

De ondertekenaars:

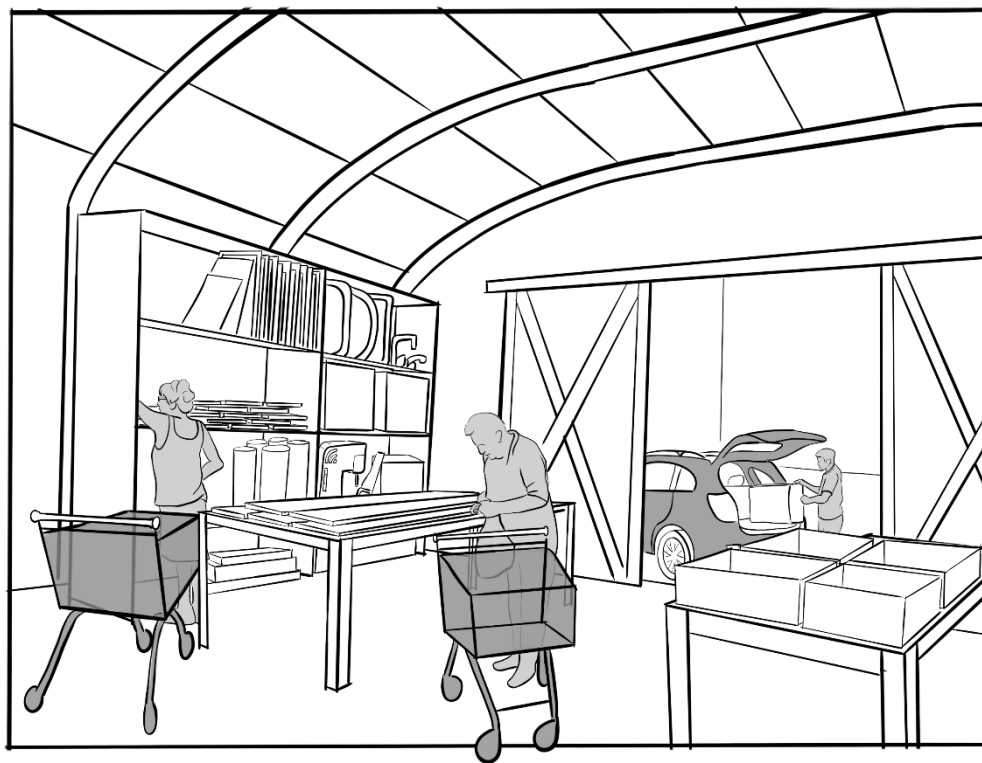
Stichting Ondernemend Houten

Stichting !mpact Houten

Platform Maatschappelijk Ondernemen

De 30 ambassadeurs

Bouwkringloop Houten



December 2020

Industrial Design Engineering

University of Twente

Bouwkringloop Houten

Designing a system to prevent the incineration of reusable construction materials tailored to Houtens' image, opportunities and requisites.

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Bachelor Thesis Assignment

Industrial Design Engineering

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Gemeente Houten

Beleid Duurzaamheid

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Summary

Houten is a city with 50.000 residents located very close to Utrecht. Its municipality advocates sustainability and has several existing measures to aid this cause. The employees of the Waste Station Houten however, noticed that a big step towards a more sustainable city can be taken in regard of preventing waste from being incinerated.

The aim of this project is to design a system fit to Houtens' municipality, local organisations and residents, which will prevent this waste from being unnecessarily transported, processed or incinerated. Because Houten has a strong local character, residents appreciate local ventures and collaborations. In addition to that the designed system or organisation would benefit greatly from adding a social aspect to the process. This means including employees with poor job-prospects.

The first step of the process is analysing the three factors which lead to the information needed to create the aforementioned system. The first is a stakeholder analysis where local organisations such as the Waste Station Houten, the closely located thrift store *Noppes* and waste companies active in Houten, *Beelen* and *SUEZ*, are contacted to determine their interest, offers and inclusion. Also involved are the *Houtense Werktafel* for the appliance of future employees and the *Krachtfabriek Houten* which has experience in working with disabled people in wood-workshops and ateliers. The second factor is a background analysis backing the claim of using the construction waste delivered at the Waste Station for this system. The reuse of construction waste such as wood, bricks, tiles and flooring will lessen the environmental impact of producing new materials and the CO₂ released if they were burned. The third factor researches existing solutions such as *Bouwkringloop Vianen*, *KLUS Amersfoort* and *Buurman Utrecht*. These organisations all reuse construction materials delivered to them and aim to resell them to their local residents. The design of these systems, however, include many different aspects. *Bouwkringloop Vianen* has a very close co-operation to the thrift store Vianen and has the advantage of blurring the lines between product and material. *KLUS Amersfoort* uses multiple delivery points and a pick-up service to increase the ease of the customer. *Buurman Utrecht* has added a woodshop to its venture, repairing materials, upcycling products and giving workshops to residents.

The three analyses result in one list of requirements and give many examples as to the design of what will henceforth be called a *Retourette*; a place where construction materials can be delivered by residents and where these materials will be resold to new owners. The many aspects that can be added to this such as the aforementioned

woodshop, website or delivery-service are discussed in a co-design session with some involved stakeholders; the Municipality of Houten, Waste Station Houten, *SUEZ* and *de Krachtfabriek Houten*. The results of this meeting are later discussed with those that could not attend; *Noppes*, *Beelen Next* and *de Houtense Werktafel*. The design is presented as a basic system that is located at the Municipality Yard and works in close relation with the Waste Station and *Noppes*. In the initial period it accepts building materials, applies quality checks and ensures a neat and proper store where the materials will be sold to residents of Houten. Future developments that fit to Houtens' identity would be the addition of an online educational platform on sustainability or a web shop. Furthermore does the inclusion of a woodshop enable three different development-options. The first is an open woodshop where employees upcycle products in clear view of the customers. The second is a woodshop where residents can follow workshops. The third is the possibility for residents to hire a workspace at the Retourette and/or tools for a couple of hours.

A Service Blueprint and Experience Map depict this basic design and the possible developments that could follow after a trial-period.

In the concept development the remaining requirements such as conformity to local laws and regulations, the visual layout and the convincing reward of collecting stamps were researched and implemented in the design. The design that resulted from these developments is depicted in seven storyboards which were used to visualise the design to the residents. The residents of Houten were then asked to evaluate the presented design and the feedback received from them is included in the system.

The final design is a system located in an soon to be empty hall on the Municipality Yard where residents will be asked to deliver their construction waste separately from the waste station and the thrift store. In the Retourette the materials will be checked on quality and origin and priced by an experienced employee. The social employees manning the store will place the materials in a sorted manner and sell them to other residents. Although the use of stamps is not needed, several temporary discount offers might stimulate residents to visit more often.

The developments mentioned above are added as a recommendation with the disclaimer that further research is needed during the trial period to establish which of the options are most beneficial to the Retourette Houten.

With the implementation of a Retourette as the design presented in this report the Municipality of Houten will take a big step in the direction of a circular economy tailored entirely to the image and identity of Houten.

Glossary

DIY, Do it Yourself: The method of building, modifying, or repairing things without the direct aid of experts or professionals

Energy: Recovering materials as fuel. Generating energy as fuel.

Incineration: (burning) Wastes are removed by incineration.

Municipality of Houten: Governing body of Houten, organisation (not the district)

Landfill: Wastes are dumped at disposal sites.

Recycle: Process materials to obtain the same (high grade) or lower (low grade) quality

Reduce: Increasing efficiency in product manufacture or use by consuming fewer natural resources and materials

Refurbish: Restore an old product and bring it up to date

Remanufacture: Use parts of discarded product in a new product with the same function

Repair: Repair and maintenance of defective products so it can be used with its original function

Repurpose: Use discarded product or its parts in a new product with a different function

Retourette: Place where used materials are collected and resold, recycleshop

Retourette®: Company that collects used materials

Re-use: Re-use by another consumer of discarded product which is still in good condition and fulfils its original function

Thrift store: Store where used products are collected for others to reuse

Upcycle: Upgrade an existing product to a new function or look

Woodshop/Wood-workshop: Studio, Atelier, place where crafts are performed

Workshop: Class, receiving instruction and explanation, learning a new skill

1. Introduction

In support of the development of Houten, its municipality is researching possible ways to close the materialistic loop, connecting the end of a products or materials life back to the start. Sustainability seems to be a core value held by the community and among other projects, the municipality is designing systems to reduce, reuse and recycle the waste delivered at the Waste Station Houten. This project focuses on the materials such as bricks, flooring or wood which are often burned or used as landfill, but can be easily reused or recycled. A few other municipalities have designed solutions to a similar problem or situation and the results are commonly called a Retourette: A store resembling a thrift store, where second-hand construction tools, products and materials are sold. This Retourette Houten, however, has to be designed specifically for the stakeholders, residents and Municipality of Houten.

‘The urgency and need for a transition to a circular economy comes from a combination of circumstances, (translated)’ says SER (Sociaal-Economische Raad) in their consulting essay *Werken aan een circulaire economie* (2016), after which they state the increasing demand on resources as the most important reason. Not only has the world population increased, the amount of materials used had also been staggeringly exponential; an 8-fold increase over the last century (Krausmann et al., 2009). The second reason is nature's inability to keep up, causing climate change and a degrade in biodiversity. SER says the lack of raw materials could even cause political challenges and tensions with most of Europe importing 90 percent of their critical materials. According to A.J. de Ron in *Duurzame Productie* (2006) the reuse of materials will not only relieve these aforementioned strains on resources, they will also prevent the pollution created in the process of breaking waste down. Furthermore, reuse can allow for a cheaper and more efficient collection of materials.

The reusing or recycling of these materials however, contains more values than just sustainability. It is a co-operation between local organisations, companies and people. Among other subjects, this project has a major impact on the social economy as well. According to J. Straatman in *De Bouwkringloop* (2020) ‘To successfully initiate a Retourette, vision and a direction from an external party is needed to show initiative and keep relations between public and private companies tightly together’ (translated), which is why this project was offered to an external designer.

1.1 Research Questions

The main goal of this project is to design a system, tailored to Houten, its municipality and its residents, which will prevent reusable building materials from being burned or processed as waste. This is mostly aimed at materials currently being collected at the waste station, but could also apply to the waste bins at Houtens' homes or the trash in public spaces.

A Retourette is generally a place where residents can deliver their used materials and see the way they are reused, or even be able to reuse these materials themselves. There is a company that registered the name Retourette[®] (see glossary page 6) and therefore the main question does not contain the term. However, for purposes of ease, the system will be described with the term Retourette for the continuity of this report.

The first research question focusses on the resources of the municipality of Houten. A budget has to be established containing not only money but also time, people and space. The first sub-question is: *What are Houtens' resources regarding the development of a Retourette?*

The stakeholder with the biggest influence on the success of the system is the user, the residents of Houten. Information needs to be collected on the current behaviour of the user, their preferences, knowledge and interests. The second sub-question is: *What is needed for the residents to make use of the Retourette?*

Linked to researching if the amount of users of the Retourette would be sufficient, is conducting a research about the amount of materials. The municipality of Houten suspects that a large amount of reusable materials is burned, but the specifics are unknown. The third research-question is: *What materials would be suited best for reuse and are handed in at the waste station in sufficient amounts?*

The fourth research question is meant to obtain a wide variety of information of the possibilities on the subject of a Retourette without specifying any purpose or direction. The question is: *What are the elements of a Retourette.*

Lastly, this bulk of information needs to be narrowed down. While keeping an eye on what it all means in the perspective of Houten, the different solutions will be analysed on what we can learn from their experiences. The fifth research question: *How do these elements apply to Houten*, takes the experiences from similar projects and fits them to Houtens' demands. In this context, 'Houten' has been narrowed down to the municipality and local organisations.

1.2 Approach

First, the feasibility of developing a Retourette in Houten was analysed and evaluated. A literature-research was performed to confirm the waste-estimations and the most sustainable way of reducing waste. The stakeholders were examined by researching published reports and initiate face-to-face conversations. The same was done with the competitor-research, asking after their experiences, goals and results. The opinion, vision and goals of the residents were evaluated through a questionnaire, spread among a diverse group of residents. After drawing conclusions from these three analyses, Design Requirements could be established to help shape the design of the system.

To ensure the right amount of involvement of the stake-holding organisations on the designing process and a smooth cooperation between them, a co-design session was held. The concept iterations produced by this session were evaluated, again by the involved residents, and eventually shaped into infographics visualising the service and experience of the Retourette Houten.

In the last phase of this project a design proposal is extensively described, including a layout for the Retourette and a discussion concerning some further needed research or recommendations.

Overall, the project took approximately thirteen weeks.



Image 2, Taken from (adjusted); *prettig wonen voor iedereen*, Gemeente Houten (2020), (https://www.houten.nl/fileadmin/user_upload/Burgers/Wonen_en_leefomgeving/Ruimtelijke_koers/Brochure_Prettig_wonen_voor_iedereen.pdf); Dijkstra, J., (2019), *In Houten op het Rond*, No Author, (z.d.) Pixabay; Opa en Oma, (z.d.), (<https://www.opanoma.nl/grootouders-steunpilaar-gezin/16263/>); Gezinsbond, (z.d.), *Ouder met jonge kinderen*, (<https://www.gezinsbond.be/oudermetjongekinderen/>); Aken, (z.d.), *Mamaliefde*, (<https://www.mamaliefde.nl/goedkope-uitjes-activiteiten-met-kinderen-budget-dagje-weg/>)

Image 2 visualizes the associative ambiance and mood present in the city of Houten. It includes depictures used in the vision for 2040 and therefore represent the way Houten wants to be seen in the future as well.

2.2 Stakeholder Introduction

The Waste Station Houten (Gemeente Houten, retrieved sept. 2020, De Milieustraat) and the thrift store *Noppes* (Noppes, retrieved sept. 2020) are located next to each other to maximise customer-ease. The municipality of Houten (Gemeente Houten, retrieved sept. 2020) has a small office and yard, both meant for the management of public spaces, in between the waste station and the thrift store. At the Waste Station materials such as wood, paper, glass, greenery and rubble are collected in bulk. It also has several containers for smaller items such as batteries, chemical trash, lamps and textile. *Suez* and *Beelen* are both companies that collect the trash from the waste station and bring it to the new destinations which is why they are included as stakeholders. Thrift store *De Ecokring* is located on the other side of Houten, just outside of the provincial road and might have a role equal to *Noppes*. *De Krachtfabriek* (De krachtfabriek, retrieved sept. 2020) offers a space to anyone willing to contribute and share their knowledge and skills. *De Houtense Werktafel* is an organisation that helps applicants find a job that fits their knowledge and interest. The inclusion of these two stakeholders is mainly for the social context and because they have experience in accompanying people in job-related contexts and wood-workshops.

The Municipality of Houten is the client in this project, initiating the design of a Retourette in Houten. It is also in charge of the Waste Station and the building thrift store *Noppes* resides in.

There are more companies and organisations in Houten who can be included during this project, but the six mentioned above will form a solid base. Other companies could also be included in future developments after the trial-period of the design.

See the icons and descriptions below for the manner of contact. See Appendix B for the notes taken during calls or visit and the email correspondence.



Information from website



Contact through e-mail



Contact through (video)call



Questionnaire

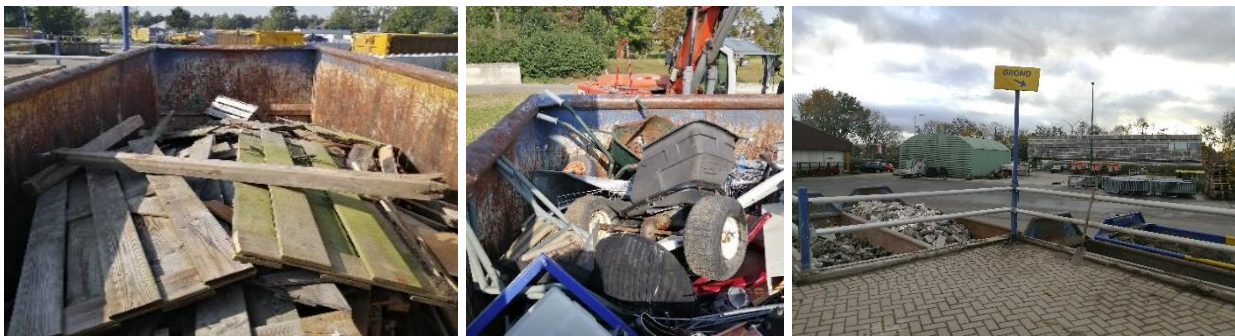


Visited location



2.2.1 Waste Station Houten

The Waste Station collects numerous different waste-streams with different companies and recycle- or process-applications for many of them. The ones that are without a fitting sustainable solution are simultaneously also the three biggest streams at the waste station; wood & treated timber (together 1.886.140 kg) see image 3a, rubble (2.187.900 kg) and domestic trash (1.647.400), (Gemeente Houten, waste-amounts 2019, see Appendix A). Metal has a recycling use, but looking in the container, a lot of reusable materials and product could be found, such as bikes and wheelbarrows, see image 3b. The Waste Station Houten is closely located to the thrift store *Noppes*, see image 3c, and they share various inputs.



Images 3a-c, Waste Station Houten



2.2.2 SUEZ

SUEZ is one of the waste-companies in collaboration with the Municipality of Houten. Their focus lies mostly on collecting the private-bins from the residents of Houten and company trash, not the waste station. Their company however, is very keen on sustainability and they might be interested in cooperating in this project. *SUEZ* collects waste and distributes it to the right recycling-facility such as wood-clumps for pallets, or landfill for road construction. Particularly companies offer a large amount of waste, much of which can be more effectively recycled or reused than they currently are. Although sustainability is the ultimate ambition according to *SUEZ*, they currently practise few projects on the subject of reuse of materials and products. *SUEZ*'s main goal is the closing of chains to ensure a circular economy in which waste is no longer considered the end of a life-type.

SUEZ is also in discussion with the Municipality of Houten to design a new lay-out of the waste station, the design of the *Retourette* might be included in this plan so further discussions are necessary.



2.2.3 Beelen Afval

Beelen Afval is a company that handles various types of waste for a number of municipalities. It also handles company waste and is involved in demolition projects. The department *Beelen Next* is an innovative branch that develops sustainable projects looping the waste stemming from one project to the material of another. In this system *Beelen Next* partakes in demolition-projects, simultaneously scouting for construction companies in need of certain parts and delivering these materials from the demolition to them for reuse. They do not sell to private projects, they only handle in bulk. *Beelen Next* aims towards circularity, digitalisation and a societal impact. They also initiated the *Next-use Houtwerkplaats* (for more information; see Competitor Analysis page 31). A co-operation could be established where the *Retourette* exchanges materials that won't fit in the shop for materials *Beelen Next* retrieves from local demolitions.



2.2.4 Construction Companies

Construction companies of Houten could be an added advantage to the *Retourette* as it will ensure a steady flow of materials. However, the circular way of working is fairly new in the construction industry and many companies are not yet developed further than separating and recycling their materials. From the five Houten-based construction companies contacted for this project, only construction company *Van Rijn* answered a couple of questions (see Appendix B.1 for the email-exchange) clearly stating that no reuse is carried out. In contrast to other sources saying construction companies have a massive amount of excess or wasted materials, *van Rijn* says only products such as doors are ever left over, however, these will then be unfit for usage. Materials such as wood are all put to good use, even as stove wood.



2.2.5 De Houtense Werktafel

With a team of seven coaches, *De Houtense Werktafel* accompanies 700 residents of Houten towards a stable job. Most of these residents are under alimony of the municipality of Houten because of bodily disfunctions, mental disorders or a combination of both. *De Houtense Werktafel* offers them local payed jobs, volunteerwork, work experience or daytime activities. This is often accompanied by training in the Dutch language, employee-skills or a specific education. The *Retourette* would be a perfect fit. There are certain demands for integrating this social aspect, however, these can only be established once the design for the *Retourette* has been determined.



2.2.6 Noppes Houten

Noppes is an external thrift company with many stores one of which is the rented building in Houten. The store makes it a mission to keep a positive balance between the environment, reusing products, humans, helping those who have trouble finding employment, and output, not aiming for profit. *Noppes* calls itself an educational-work organisation which allows for students and immigrants to gather working experience. The store mainly gathers their products from private hand-ins, but occasionally deals with companies. A brief look at the current offers in store shows that the *Noppes* does resell certain materials such as flooring, sinks, tires, pallets and paint, see images 4a-e. Apart from the building, build from used materials and with a sustainable mind-set, *Noppes Houten* does not partake in any recycling or upcycling (see glossary page 6). The branch in Zaandam is performing an upcycling-pilot (for more information, see page 30), if proven successful, *Noppes Houten* is aiming to include an upcycling-workshop in their shop as well. The thrift store *Noppes Houten* and the Waste Station Houten are in close collaboration on multiple aspects. The waste station has a container destined for *Noppes* on their yard and *Noppes* in turn takes to the recycling of mattresses, iron and clothes for the Waste Station.



Images 4a-e 'Construction materials' sold at Noppes



2.2.7 Municipality of Houten

The municipality of Houten is governed by the Mayor and four Alderman. The council is seated by nine different parties; *GroenLinks* (5 seats), *D66* (3), *PvdA* (2), *VVD* (4), *CDA* (5), *Christenunie* (2), *Inwonerspartij Toekomst Houten* (5), *SGP voor Houten* (2) and *Houten Anders* (1). If the design proposal is to be presented for approval, it has to appeal to the different political orientations. However, according to T. Baas in *Politiek heeft steeds meer oog voor milieu* (2017) the political parties are no longer socially accepted without including sustainability in their profile. Therefore, a deeper search into the differences in sustainable goals is needed, selecting the parties that would not be willing to approve and finance the design without additional persuading elements fitted to their orientation (B. Joosse, 2019, Europese Verkiezingen).

Concluding from this analysis, *GroenLinks*, *D66* and *ChristenUnie* would approve of the design based off the fact all three parties support the development of a circular economy, advocating the importance of reusing materials. *CDA* also has a big chance of approving, seeing as they do aim for reuse, and preventing waste-streams is still in the early stages. *PvdA* and *VVD* will both need a nudge from another direction. *PvdA* might be persuaded by the jobs (or job-experience) the design will create, especially for those unfit for regular employment. *PvdA* also aims to provide as many facilities as possible to the residents of Houten to satisfy their needs. *VVD* and *SGP voor Houten* both appeal to local initiatives and cooperation. *Inwonerspartij Toekomst Houten* and *Houten Anders* might both be persuaded if proven that Houtens' residents approve or even desire a *Retourette*. However, many parties might only accept the proposal if the financial plan is sound and does not require a too big investment or grant.



2.2.8 Residents of Houten

Taking a look back at the research questions, the second question was related to the residents of Houten, asking; *What is needed for the residents to make use of the Retourette?*. The most effective way to reach a random and widespread range of residents is to draw up an online questionnaire. To ensure the questionnaire reaches only residents of Houten, the closed Facebook-group *Houten*⁵ was used to publish the link, this group only allows residents to be a member. The Facebook-group was chosen because it portrays residents of Houten active as a community with all ages and parts of Houten.

⁵ <https://www.facebook.com/groups/GemeenteHouten>

The questionnaire eventually aims to the question whether residents would make use of a Retourette, but first starts very open to ensure the responses will not be too narrow. Beginning with helping the environment, following with the reuse- and recycle-behaviour of the residents to the use of building-materials and finishing with enthusiasm to the idea of a Retourette in Houten. See Appendix C for all questionnaire questions.

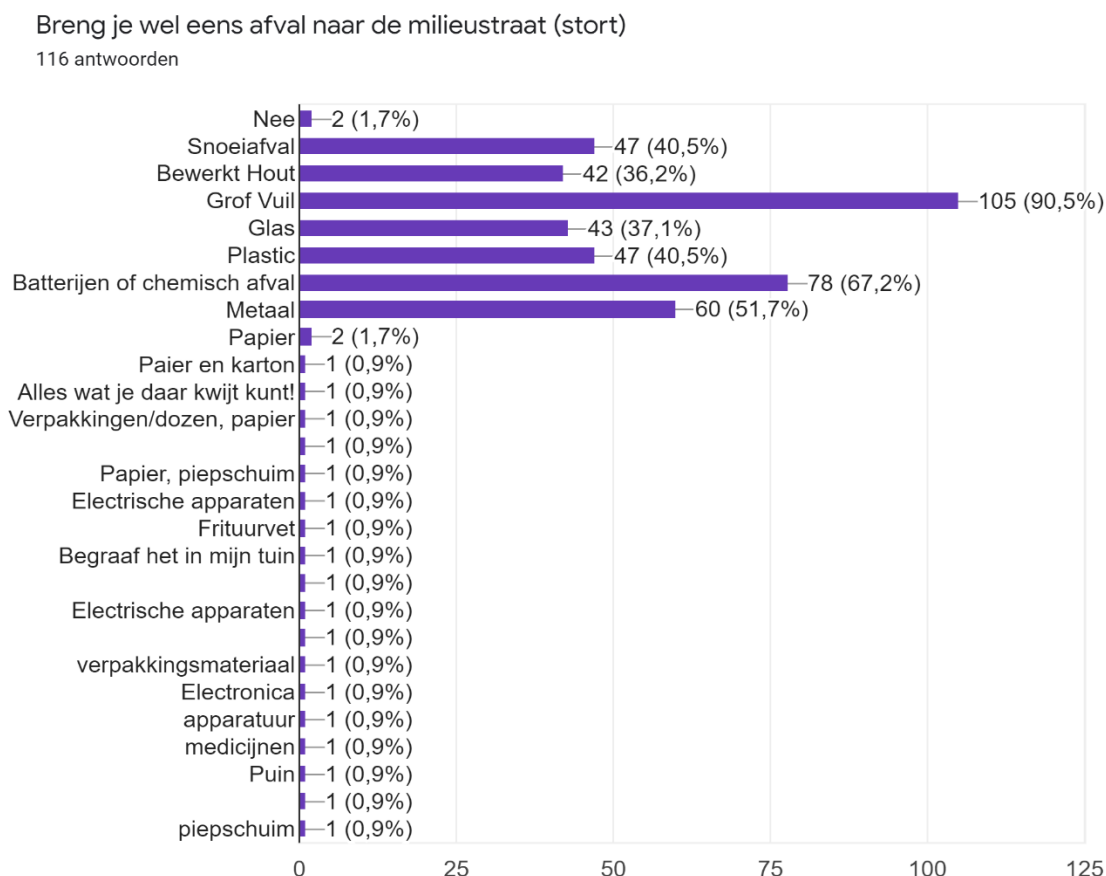


Figure 1, Waste Delivered by Residents

After two weeks the questionnaire rated a total of 115 replies and was closed off. Almost 80% of the respondents thinks the Municipality of Houten is already offering enough options to residents considering the environment. If the Retourette proves to be a major positive influence in other factors, extending or improving an existing accommodation would be enough for residents. When talking about reusing products in general 12% admits to never buying used products in any way. This means that at least 88% is open to buying used products and possibly even materials. 95% of the respondents offer products, with the Thrift store as the most used option followed by *Marktplaats* and *Facebook*. Similarly, 98% of the respondents bring waste to the Waste Station Houten with 90% who bring bulky waste, 51% who bring metal and 36% who bring wood (not mutually exclusive), see figure 1.

On to the second section; Building Materials, 50% of the respondents regularly has left-over building materials with 42% delivering these materials to the Waste Station, 29% saves the materials for a later time and 24% hands it down, either through *Marktplaats* or friends/family. When offered the option of a delivery spot where the materials would be reused, 90% would make use of it, see figure 2. A demand is made multiple times that the distance should not be too far or even adding a pick-up service.

Zou je ze op een aparte plek inleveren als ze daar hergebruikt zouden worden (beter voor het milieu)

108 antwoorden

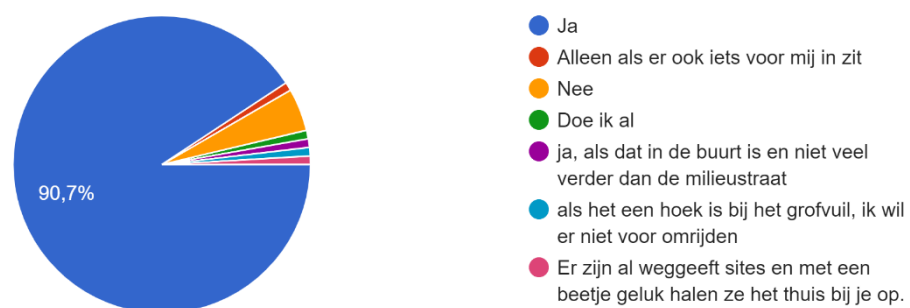


Figure 2, Bringing materials to the Retourette

Currently 25% says to never need building materials. The other 75% are divided in 87% buying from the store and 12% buying used materials. When offered the option of a Retourette, 34% of the respondents would not make use of the offered materials, see figure 3 on the next page. Among the conditions for buying the materials were good quality, clean materials, cheap prices, and background information (brand, origin). Only 11% demands the materials still be wrapped or packed.

Zou je producten kopen die van hergebruikte materialen zijn gemaakt? (bijvoorbeeld kussens van oude stof, bijenhotel van sloophout)

116 antwoorden

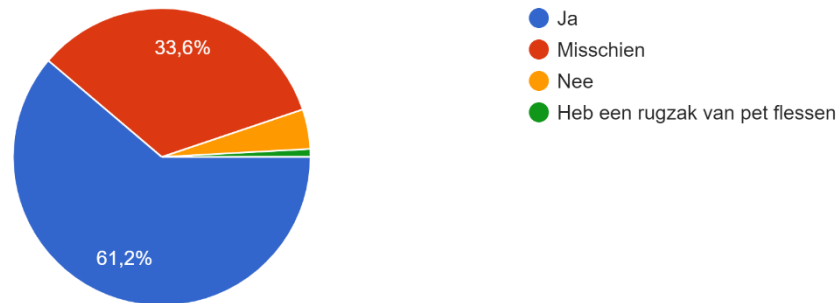


Figure 3, Buying materials at the Retourette

The last question, asking whether the respondents would buy upcycled products, at least 34% says depending on the product and quality, 62% says yes, see figure 4 below.

In conclusion, most residents can be convinced to bring their construction material-waste to the Retourette. As the probationary location is very close to the waste station, even the condition of distance and ease is met. To sell the building materials directly could be a struggle with 75% that need materials from time to time and 60% who are willing to buy used materials. The option and upgrade to upcycle products however could be the nudge that the residents will need with only 4% saying they would definitely not buy them.

Zou je die ook bij een kringloop halen als dat kon?

107 antwoorden



Figure 4, Buying upcycled products

2.3 Power and Interest

A power/interest map visualizes the influence or impact a stakeholder might have in the process of designing. It gives the designer insight in the relation that should be maintained during the project. Stakeholders with both high power and interest are labelled as 'manage closely' meaning they should be involved in many checkpoints and their opinion weight heavily while making decisions, see Figure 5.

The stakeholders involved are first and foremost the Municipality of Houten, with both a high power and a high interest. Second are the residents of Houten, they have a very important role when talking about the interest (as they will be the primary users of the Retourette and their materials are needed to make it work) but the amount of power/influence they have depends entirely on the amount of inclusivity that will be given to them. For this particular project, the users will be placed just in the 'manage closely' box because they are one of the most important stakeholders and will be able to influence this project to a certain degree.

Then come the stakeholders that start on a lower rank but will play a bigger role in the project later on as the design develops, such as *SUEZ*, the company handling the waste delivered at the waste-station, with an average interest and influence, the (independent) thrift stores with a similar goal and set-up to the Retourette, and *De Houtense Werktafel* for which the demands depend on the design of the Retourette. Lastly *De Krachtfabriek*, with a low interest and a low power, and other municipalities (with a Retourette or similar system/project such as Amersfoort and Rotterdam), with low power and low interest but giving us the chance to learn from their experiences.



Figure 5, Power/Interest-map stakeholders Houten

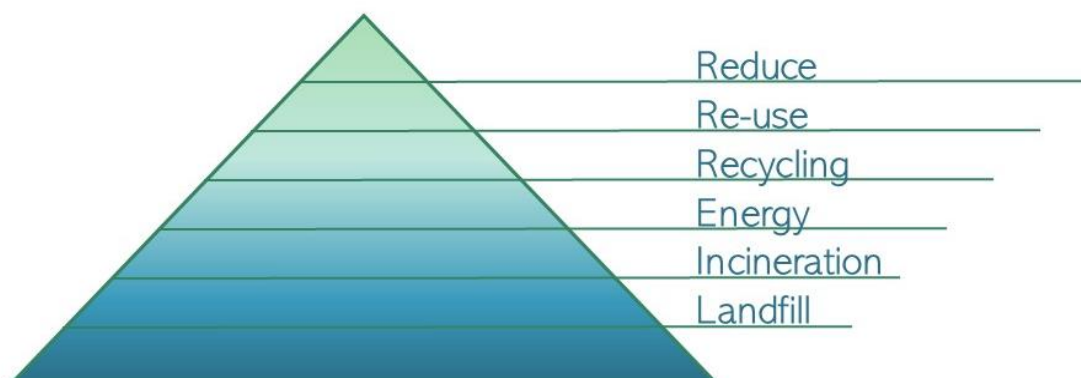
3. Waste Analysis

As mentioned in the purpose of this study the project focusses on the reduction of waste produced by residents of Houten being delivered at the waste station and incinerated or used as landfill. However, there are multiple ways to achieve this, all with their own benefits and reasoning. Is one better than the other? The third sub-question focusses on the type of waste being the most suitable for reduction, hinting in the direction of building materials from the clients' experience. Is there substantial proof that building materials are suitable for waste-reduction?

3.1 Waste hierarchy

The waste hierarchy was created by Ad Lansink in 1979 (Recycling.com, retrieved sept. 2020, afvalhiërarchy) and depicts the six most usual way of dealing with waste, see image 5. The top three levels reduce (also prevent, avoid), reuse, recycle are generally aimed at as they are considered the best options concerning the waste-strains on the environment. Then at the very bottom of the pyramid are energy, incineration and landfilling. See Glossary on page 6 for extensive definitions of each term.

Reducing is the most desirable level of the hierarchy because it 'can save [you] money, conserve energy and resources and reduce air, soil and water pollution.' (CalRecycle, retrieved sept. 2020, Construction & Demolishing Debris Recycling). However, reducing the materials handed in at the waste station is too big a scope of this project, therefore the aim will be reuse or recycle.



. Image 5, Waste Hierarchy, Ladder of Lansink

3.2 Reuse and Recycle

The ladder of Lansink expresses the hierarchical status of waste affairs. The *Reuse Development Organisation* (retrieved sept. 2020, Benefits of Reuse) states: 'It is best to reduce first, reuse as a second option, then to resort to recycling.' A lot of materials collected at the Waste Station Houten have their recycling destination mapped out. The *Reuse Development organisation* states three different sectors in which reusing is beneficial, even more so than recycling: the environment, the community and the economy. Looking at the environmental benefits, in comparison to recycling, reusing causes reduction in solid waste, and therefore greenhouse gas emission, requires fewer resources, less energy and less labour. It also reduces air, water and land-pollution and the need for new natural resources. Reusing materials benefits the community in a way that the disadvantaged can get the materials they need, providing food, clothing, building materials and equipment for lower prices. Also, many reuse-facilities engage in job-training programs for the handicapped or disabled. Lastly, the economic advantage expresses itself in offering products at a lower prices, therefore lessening the burden on the economy. According to *Elemental Green* (retrieved sept. 2020, how to find reclaimed home building materials) 'reclaimed materials can be 50% to 70% cheaper than their new counterparts.' (take in mind this is focussed on building materials).

However, not all materials are better suited for reuse. According to W.Y. Ng and C.K. Chau in *New life of the building materials- recycle, reuse and recovery* (2015), Reusing is most beneficial when dealing with a high aluminium content. When demolishing a building with high percentages of concrete, recycling has the highest energy saving potential (take in mind this article focusses on energy use). F.C. Rio, D. Grau and W.K. Chong state in their study *Reusing exterior wall framing systems* (2019) that a reusable material with high embodied energy is only as beneficial as a single-use alternative with low embodied energy after aggressive reuse (reusing more than 70%).

Although reusing building materials is a recent come-up in the Netherlands, countries as for instance Britain have been doing it for years now. According to J. Colbert in *Improve your home on the cheap* (2019) this is caused by the richer and older history of Brittain: 'There's a history behind the item, whether it's antique flooring or architecture. Old items have and authenticity to them. They're unique, not cookie cutter, because they were hand-made.' Furthermore were they able to add new buildings without replacing older ones because of more space, thus ensuring a larger number of antique buildings, features and materials.

3.3 Building Materials

‘The building industry is responsible for 35% of all solid waste in Europe and more than a third of greenhouse gas emissions.’ State C. de Wolf, E. Hoxha and C. Fivet in their case study *Comparison of environmental assessment methods* (2020) after which they state that applying a circular economy to the this sector is very much needed.

According to *Level*, self-claimed authorisation on sustainable building (Level, retrieved sept. 2020, Reuse and Recycling), materials that can be recycled from construction sites include: Steel, concrete, aluminium, plastics, paper and cardboard, timber, topsoil and paint. From demolition sites components that can readily reused are: Stairs, timber, thermal insulation, carpet and tiles, plumbing fixtures, electrical fittings, doors and windows, clay and concrete roof tiles, PVC, metal spouting, linings and finishings. From all the materials used in building a home, 85% can be reused or recycled, says *Elemental Green* (retrieved sept. 2020, how to find reclaimed home building materials). Sadly, most of these materials are currently incinerated or processed as landfills.

For the purpose of this project, the materials chosen to be reused are construction materials. The paragraph Waste Station Houten (page 13, Appendix A) concluded that materials such as wood, tiles and brick are delivered to the Waste Station in substantial amounts and this paragraph has shown the positive impact the reuse of these materials can have.

4. Competitor Analysis

The reduction, reuse and recycling of materials and products has been in fashion for several years and existing solution need to be analysed for successful elements. Firstly a brief look is taken at the reuse and recycle of other materials, then targeted towards reusing materials in a broad sense and narrowed down to stores that reuse construction materials specifically.

4.1 Other materials, reuse and recycle

The environmental impact of the textile industry has long been known. ‘Clothing accounts for between 2% and 10% of the environmental impact of EU consumption’ states N. Sajn in her briefing *Environmental impact of the textile and clothing industry* (2019). Currently, only 1% of used clothes are recycled into new clothes. According to G. Sandin and G.M. Peters in *Environmental impact of textile reuse and recycling* (2018) However, recycling will only be beneficial in the environmental impact if the production process avoided by reusing and recycling is not relatively clean, or if the environmental impact of distribution exceeds the benefit. After collecting, determining the type of fiber, preprocessing and redistribution, the carpet fibers can be reused as new carpets, auto parts or parking stops (CalRecycle, retrieved sept. 2020, Construction & Demolishing Debris Recycling). A well-known process is glass, which can be recycled with almost 0% of quality loss. However, this only counts for bottles or jars. The same goes for paper; 75% of used paper and cardboard is collected and recycled as new paper (Renewi, retrieved sept. 2020, Afval en Grondstoffen). Because of sorting systems at home, both organic waste and plastic are separated at almost full capability and recycled, organic waste repurposed as compost and plastic can be sorted into 14 different types and recycled into new plastic products (Renewi, retrieved sept. 2020, Afval en Grondstoffen). Also metal can be recycled or even reused, some without quality loss, depending on the type (Bouwen met staal, retrieved sept. 2020, Duurzaam).

See the icons and descriptions below for the manner of contact. See Appendix B for the notes taken during calls or visit and the email correspondence.



Information from website



Located in Houten



Information from (video)call



Not located in Houten



Visited location



4.1.1 Retourette®

Retourette® (see glossary on page 6) has ten different in-shop collection points throughout the Netherlands. They collect up to twenty different types of waste, neatly separated and even more detailed than the Waste Station Houten. Some examples are; toys, books, bottles, batteries, paper plastic, cartridges or lightbulbs. Rotterdam has a standalone shop which also accepts bigger products and waste materials. All materials are transported to a distribution-centre and from there on to different recycle-factories. All *Retourettes*® hire people with social or physical disabilities to help customers and fill the carts/containers. Customer satisfaction leads from supporting charity by delivering waste (15% of the yield) and the ease of the locations of the in-shop drop-off points. One drawback is that the shops only accept small products and waste, (*Retourette*®, retrieved sept. 2020). Even though 88.830 kilos have been donated since 2015, the turnover is not as expected. The turnover of one *Retourette* is not enough to open a second shop and even the first shop might be forced to close as the municipality of Rotterdam is no longer willing to invest (Susanne de Bruin, 2019, *Afvalwinkel Retourette*® *bij het grofvuil gezet*).

4.2 Reusing Construction Materials



4.2.1 Krachtfabriek Houten

De Krachtfabriek is a social workplace for people willing to put in effort. It was founded during the previous crisis in 2008 to support residents without a job. *De Krachtfabriek* provides materials, space and even an audience for those with a trade or hobby, giving them a platform to get back up their feet. It also offers daytime activities for the disabled or evening activities to keep the youth off the streets. The building itself contains enough space for social gathering and fun activities, a studio for sewing, sculpturing or painting, a metal workplace where bikes are fixed or lawnmowers are tinkered with, an electrical room filled with computer parts and a wood-workshop. The organisation is based 100% on volunteers who provide technical tips or guidance with the tools. The materials and tools are also received as donations. Several years prior, *De Krachtfabriek* had the similar idea to set up a *Retourette* in Houten. After initial enthusiasm from the municipality, the project was dropped when laws and regulations regarding waste-streams made the project too difficult. Not only can knowledge be gained from the kind and inclusive energy filling *De Krachtfabriek*, it also shows that when providing enough space and materials, people are willing and able to create beautiful new things. During the design-process of this project, *De Krachtfabriek* will be included for their knowledge of open workspaces, volunteers, workshop-guidance, and, if proven advantageous, the organisation will collaborate in the design.



4.2.2 TSN & WIJ3.0

TSN is a company with a logistics expertise located in Houten. Recently they contacted the municipality with a business plan for reusing materials produced in their processes. Because of the similarity with the *Retourette*, *TSN* was invited for an meeting. Their plan is to design a social workplace where people from *WIJ3.0* upcycle the *TSN* waste-materials such a wrapping-plastic, carton and pallets with the goal to create a zero-waste company.

TSN was also very interested to hear about the *Retourette* and proposed a co-operation once both projects have been completely designed and even initiated, where materials could be exchanged, offering employees two locations or a co-joined selling point.

WIJ3.0 is a social organisation much like *De Houtense Werktafel* where people with lower job prospects are assigned to projects or employees. They plan to start with 10 to 15 people for the *TSN* workspace but emphasis the importance of administrating clear guidelines and employing an attendant with previous experience in a woodshop and preferably with the type of employees.



4.2.3 Veel in Hout

Veel in Hout Heemskerk is similar to the *Krachtfabriek* in the way that it offers day-activities/a job for members of the *Hartekamp Groep*; physically or mentally disabled people (*Hartekamp Groep*, retrieved sept. 2020). *Veel in Hout* contacts companies for any remnant wooden pallets they might have and with these create new products such as lawnchairs, toys, bookcases or decorations, see image 6. The employees work as an order-based system for 80% of the time and get 20% time for their own projects and creativity. Twice a year *Veel in Hout* organises a market where remaining products are sold (*Appendix B.2, Transcript Veel in Hout*).



(Buiten) accessoires (27)



(Buiten) meubels (22)

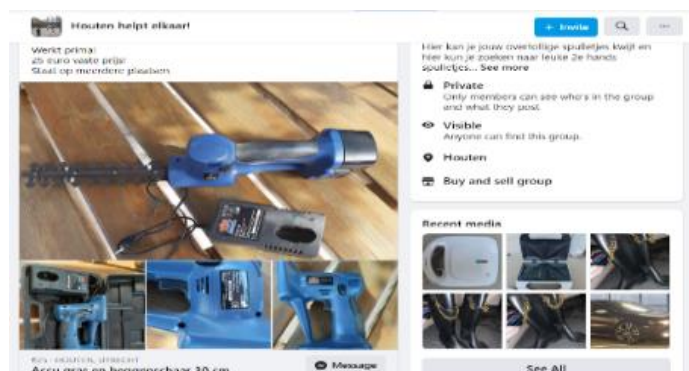


Image 6, screenprint veelinhout.nl (2020), Products Veel in Hout; Image 7, screenprint facebook.nl/houtenhelpt, selling tools



4.2.4 Craiglist/Marktplaats

Platforms offering used products for a small price or for free have been around for a long time in multitude and variety. Think of the international *Craiglist* (products, materials, real estate or services) or *Vinted* (clothing), the dutch *Marktplaats* (furniture, clothes, vehicles, services or livestock) or even Houtens' facebook-group *Houten Helpt* (Books, toys and clothes). Logically dependant on the offering parties, materials are also offered on *Craiglist* and *Marktplaats*, both by private and corporate accounts. Facebook-group *Houten Helpt* can also be used offering tools or gear, see image 7 on the previous page. However, until sold, the seller is responsible for the storage of the products and from the buyers point of view, some materials might not be offered locally, reducing buying-ease.

4.3 Construction Stores



4.3.1 KLUS Bouwkringloop Amersfoort-Leusden

The *Bouwkringloop KLUS* is part of the Amersfoort-Leusden thrift store cooperation, but is only located in Amersfoort. It originates from a pilot from the company *Bouwkringloop*. The store receives materials from both companies and private donators (see image 8) and offers day-time activities or reintegration as employee positions. Delivered goods are examined for quality, sell-ability and whether the materials can be of use in a project. To improve the ease of offering parties, *KLUS* has two deliver-points, both in Amersfoort, and offers pick-up services (KLUS, retrieved sept. 2020, kringloopcentrum Amersfoort-Leusden). The initial costs of the organisation were covered by the municipality (Straatman, J., (2020) De Bouwkringloop) and the collaboration with the waste station was a later development. *ROVA*, the collector of household waste in Amersfoort also collaborates by delivering useable materials to *KLUS*.

Among their products: Doors, windows, beams, bricks, tiles, plants, faucets, roofing tiles, tools and laminate

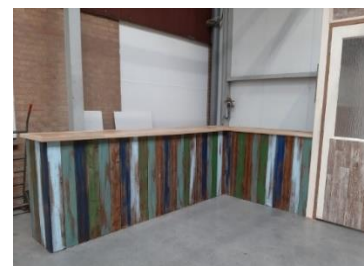


Image 8, KLUS-Container at Waste Station, Van Wijnen (2020); Images 9a-b, De Loods, Jos Franken (2020),



4.3.2 Bouwkringloop De Loods

De Loods is a private company, founded by Jos Franken and opened its doors in December of 2019. It collaborates with the construction companies and residents in and around Milsbeek, who deliver used building products and materials on appointment (T. Dohmen, 2019, *De Loods*). Jos, his assisting team of volunteers and employees unfit for regular labour collect these materials, clean them up and even upcycle some materials (creatively and on order) before selling them again (*Bouwkringloop de Loods*, retrieved sept. 2020). Jos Franken does this separately from any thrift store, municipality or waste station similar to *Veel in Hout* and *De Krachtfabriek*, see images 9a-b on the previous page. However, *De Loods* occasionally does buy new products or materials to supplement their assortment and therefore sets itself apart from others, see Appendix B.2. From the website (*Bouwkringloop de Loods*, retrieved sept. 2020) the goal of *Bouwkringloop de Loods* can be surmised as reducing the waste-stream of building materials by creating a circular economy, and helping those unfit for regular labour. Among their products: window frames, boards, beams, tiles, laminate, and sanitary.



4.3.3 Bouwkringloop Vianen

The *Kringloop Vianen* is a private organisation established in 2017. The *Bouwkringloop* was added in December 2019 and relies solely on the products of private contribution (*Bouwkringloop Vianen*, retrieved sept. 2020). However, the incoming flow has reduced ever since the opening and Manager T. van Putten is trying to collaborate with the municipality (waste station) and possibly construction companies to be able to level the incoming supply with the outgoing demands. Combined as the *Bouwkringloop* and the thrift store are, the *Bouwkringloop* also includes gardening-tools and electrical products. Something unique about the *Bouwkringloop Vianen* is that it is located close to the *Praxis* (a commercial construction chain-store), enabling extra profits when customers first take a peak at the offers of the *Bouwkringloop* before visiting the construction store. The *Praxis* was notified of this development but does not see the *Bouwkringloop* as a serious competitor. T. van Putten mentioned multiple times how hard it was to determine the layout of the store as the incoming products are never stable or similar, see Appendix B.3. This also complicates any advertisement as the offers are never regular. The *Bouwkringloop Vianen* does not include a workshop nor do they partake in upcycling the building products/materials. The cause for this is the complications in laws and regulations when opening a workshop. According to T. van Putten, flooring (tiles and laminate and such) are often sold very quickly. Sanitary however, sells much slower.

Among their products: Tools, Sinks, Faucets, Roofing tiles, Laminate, Screws, Nails, Tiles, Window-Frames, Doors and Wood, see images 10a-c.



Images 10a-c, Materials Bouwkringloop Vianen

4.3.4 Bouwkringloop de ARM

The thrift store *De ARM* is a social non-profit organisation that focusses on Human&Environment. They do this by means of offering employment to those who are in problematic situations and by advocating the reuse of products to lessen the demand for depletable resources. Thrift store *De ARM* has been present in Utrecht for almost 35 years and has had ample opportunities for expansions and additional locations and projects. Materials for the *Bouwkringloop* are collected from private donations from the residents of Utrecht and *de Arm* has a trailer parked at the Waste Station Lunetten. *Bouwmarkt De ARM* also offers pick-up service. Behind the scene of the thrift store are multiple studio's where broken products are repaired before being sold in the store.

In 2017, thrift store *De ARM* piloted a collaboration with *Emmaus* (another thrift-store branch) and *HKU* (Academy of Arts Utrecht) to upcycle unused materials delivered at the thrift store (Jaarverslag (2017) Stichting Kringloopcentrum Utrecht de A.R.M.). In the current woodshop, *Emmaus* is still involved and *WIJ3.0* (organisation focussed on re-integration and jobcoaching) was added to the collaboration. The project gives people with low job prospects a chance to be involved in an organisation. Furniture is upcycled from products delivered at the thrift store and are build on order. The employees hope to be able to showcase some upcycled products in the thrift store in the future, showing customers their creations and advertise for more orders, see Appendix B.3 for the visit-notes.

Among their products: Sanitary, ironware, wood, car-parts, doors, windows and decoration and doorknobs.



4.3.5 Noppes Zaandam

In Zaandam, the *Noppes* thrift store branch has taken to upcycling using the product they receive from customers (R. Massaut, 2020, *Blingbling hobbelpaard*). In collaboration with *Leviaan*, a company who tends to vulnerable people both in living and in labour, the thrift store has opened up a workshop (Leviaan, retrieved sept. 2020). The volunteers switch between fixing broken products and being creative in making new artistic objects, see image 11, depicting Suzanne and her baseball-lamp.



Image 11, Upcycling, Fielmich (2020); Images 12a-b, Wood-shop Buurman, taken from Openbare Werkplaats, Buurman Utrecht, 2020, (<https://www.buurmanutrecht.com/werkplaats>),

4.4 Hybrids – stores with an online platform



4.4.1 Buurman Utrecht

Buurman Utrecht is located at *Het Hof van Cartesius*, a circulair-build, green workspace for around forty entrepreneurs (Het hof van Cartesius, retrieved oct. 2020). The main goal of the organisation is stated as aiding the reduction in CO₂-emission and the need for raw materials. *Buurman Utrecht* collects materials from the Waste Station and construction companies with their contacts, among which *Beelen Next* (see *Beelen Afval* page 14 and the description on the next page) and the Thrift Store Group *Rattaplan*. It supports a wood-studio where workbenches are for hire, daily workshops are offered and products are build on order. The studio is constantly overseen by an experienced worker and allows customers to hire a bench for an amount of time, additionally offering them tools and equipment, see images 12a-b above. Materials can be brought or bought but are not freely available. The workshops are offered every day and can even be reserved as a company or group activity. Furthermore, *Buurman Utrecht* sells build-boxes, selecting material and an instruction from which customers can build their own furniture (much like *Ikea*).

One of the differences between *Buurman Utrecht* and for instance *De Loods* is that *Buurman Utrecht* also offers their products in an online catalogue, enabling customers to order the materials online and have them delivered (Buurman Utrecht, retrieved oct. 2020). *Buurman Utrecht* also takes part in what they call 'Material Scouting' where they keep in contact with projects and organisations to be able to deliver materials fit to current projects. Among these contacts is *Gebruikte Bouwmaterialen.com*, see the next page for their description.

Among their products: Screws, table legs, doors, electrical wires, tools, glass, wood, metal, windows, sanitary, tiles, lighting and flooring.

4.4.2 Beelen Next, Next-use Houtwerkplaats Amsterdam

Beelen Next is a department in the *Beelen Afval* organisation that focusses on innovations with a particular emphasis on sustainability. According to them, circularity is the norm and inclusivity is self-evident (Beelen Next, retrieved oct. 2020). The main goals of the organisation are circularity, digitization and social impact. *Beelen Next* has an online shop where they sell used building materials retrieved from deconstruction sites. In december 2019 *Beelen Next* opened a wood-studio on their circular buildhub; *Next-use Houtwerkplaats Amsterdam*, enabling the creation of new products from used materials (Cirkelstad, 2019, Beelen Next). This studio offers eight to ten learning positions to people with poor employment prospects. The products created in this studio are sold through *Pontmeyer Services* and the *Beelen Next* online webshop along with the raw materials collected (Beelen Next, retrieved oct. 2020, Next-use Hout). *Beelen Next* also participates in the directly connecting of organisations that offer materials and those that need them for projects.

Among their products: Fire prevention, electrical items, wood, kitchen, furniture, plating material, sanitary, tiles, bricks and lighting.

4.5 Online Construction Platforms

4.5.1 Gebruikte Bouwmaterialen.com

Gebruikte Bouwmaterialen.com is a website which offers used building materials to both corporate and private customers. As mentioned before, *Buurman Utrecht* does material scouting for *Gebruikte Bouwmaterialen.com* and they both participate in closing the waste circle by connecting material-offering and -seeking parties. Furthermore does *Gebruikte Bouwmaterialen.com* cooperate with deconstruction companies to supply their online store. Companies that offer materials need to be registered in order to warrant the quality of the products, adding the benefit of knowing their origin as a buyer. The main goal of the company is reducing the CO2 emissions released at the destruction of old materials and the creation of new materials. They name the benefit for all parties, stating the lack of incineration-costs for the offering companies and the low materials-costs for the buying participants. As the order can be placed online, payment is also virtual and the materials can be delivered.

Among their products: Wood, sheets and panels, windows, door, ironwares, roofing, sanitary, heating systems, lighting, stairs, garden and furniture.

4.5.2 Insert, Boot Groep

Very similar to *Gebruikte Bouwmaterialen.com*, *Insert* is an online platform where used building materials and products are offered for sale. However it is different in the way that it only provides the platform where companies can offer their products to buyers, much like *Marktplaats*. Although *Insert* is open to both companies and residents offering or buying materials, it does demand sellers to get a license, ensuring quality-products and providing the customers with security and information. To solve one of the issues that might arise when using *Marktplaats*, *Insert* offers members the possibility of storing products posted on the website in a central HUB. The organisation can also be contacted directly when a specific material is required and much like *Gebruikte Bouwmaterialen.com*, *Insert* will do a material-search, connecting the offering and the requesting parties.

Insert is part of *Buro Boot*, an innovative engineering firm with Circular Building amongst their main topics.

Among their products: Concrete and masonry, ironware, stairs, sanitary, radiators, ventilation, elevator installations, greenery, substructures, doors and window(-frames).

5. Research Conclusions

After the previous three chapters, conclusions can be drawn from the separate analyses and translated into Design Requirements.

5.1 Conclusion

Construction Materials

The reuse of materials is often more rewarding regarding the reduction of waste, and therefore CO₂ emission, than it is to recycle the materials. The reduction of waste in the construction sector will especially be rewarding since it is responsible for 35% of solid waste in Europe. Taking a page from *Bouwkringloop Vianen*, the incoming materials from residents is enough for the trial period as Houten has twice as many residents while the available hall is not bigger than the one in Vianen. The analysis of the Waste Station Houten and the questionnaire responses show that building materials such as wood, metal and bricks are indeed a big enough waste-stream to focus on.

Co-operations

KLUS, *Bouwkringloop Vianen* and *Buurman Utrecht* all (aim to) work with the waste stations in their own vicinity to ensure a steadier incoming flow of materials.

The *Bouwkringloop Vianen* and *De Arm Utrecht* show that the collaboration with a thrift store adds to the success of a Retourette. *Noppes Zaandam* even displays a perfect case of upcycling with products which fits the reusing-image and could compel the residents to be involved with the Retourette according to the questionnaire. The analysis of *Noppes Houten* concludes that a cooperation would be welcome and very beneficial to both the thrift store and the Retourette.

According to various sources, construction companies often have remaining materials after building and deconstruction companies could take out various materials/products before destruction. However, the construction company *Van Rijn*, which was contacted directly with the concept of this project, contradicts this statement, saying the redundant products could not be reused and the materials already have purposes. The inclusion of these companies could be an addition to the Retourette after the initial period is proven successful and the Retourette is viewed as an asset in stead of an investment by the construction companies. Construction companies will not be included in the duration of this design proposal.

Delivery/Location

As seen effectively used in both *Retourette*[®] and *Bouwkringloop KLUS* the possibility of multiple delivery points increase the ease and comfort of the users. Also, the proposition of a delivery or pick-up service is very pleasant to the residents

Resident Inclusion

Veel in Hout and *Buurman Utrecht* both show the success of including the residents in more activities other than appointing them the role of buyers. *Veel in Hout* by their biannual market which can be very easily incorporated in the including-culture of Houten. And *Buurman Utrecht* with their offered workshops and bench-rentals possibilities. The inclusion of a wood-workshop does add numerous rules and regulations, complicating the organisation. However, the success of adding upcycling to a *Retourette* is proven by *De Loods*, *Noppes Zaandam* and *Buurman Utrecht*.

Employees

Veel in hout, *de Krachtfabriek*, *Noppes Zaandam* and *Beelen Next-use Hout* have much experience working with less probable or able people in wood-studios. As this is a requirement of the project, their knowledge can be used to make the correct guidelines.

Online Presence

Virtual Platforms such as *Craigslist* and *Marktplaats*, both known for their low-budget identity, pose the problem of direct sales mostly by the long-term involvement of the seller, storage and uncertainty of integrity. *Insert* however solves the problem by offering a storage-HUB to member and requiring a license to sell, ensuring the buying users have sufficient information about their items. These websites do add the benefit of earning money on the sales of the materials but make the interaction distant and exclude any social aspect.

Storage

Organisations such as *De Loods* and *Buurman Utrecht* stress the importance of having enough physical space, either for storage or to realize the interaction like the workshops *Buurman Utrecht* offers.

Political Approval

The element of reducing waste-incineration and the closing of the economical circle could be enough to convince an alderman to propose the *Retourette Design* to the council. However, some parties might need additional positive aspects to accept the proposal.

5.2 Functions

Taking a look back at the main goal, the Retourette can be given a couple of Functions that state the purpose of the concept clear and concise.

1. The Retourette has to prevent waste coming from the residents of Houten from being incinerated/used as landfill.
2. The Retourette has to identify as a local initiative, stemming from collaborations between companies from Houten and giving a sense of belonging to the residents.
3. The Retourette has to be attractive to the residents/users to both offer or buy materials.
4. The Retourette has to have a social depth to the organisation.

These functions are the very basis of the design and can be used to evaluate the success of the project.

5.3 Design Requirements

Although the conclusion mentions many possibilities regarding the design of a Retourette, the practised elements and their achievements, some analysed aspects have to be set in stone if the Retourette Houten is to be a success. Both the conclusions of the three research-subjects and the functions mentioned above are used to compile a list of requirements to which the final design must suffice.

5.3.1 Requirements Retourette:

1. The Retourette must be accepted by the Municipality Council of Houten.
 - a. The Retourette has to conform to local laws, regulations and requirements.
 - b. The Retourette has to secure personal information of customers (privacy).
2. The Retourette has to focus on construction materials, such as stone, iron and wood delivered at the Waste Station Houten.
 - a. The Retourette has to reduce the amount of waste by reusing materials/products.
 - b. The incoming flow has to be attuned to the outgoing flow of materials/products.
 - c. The Retourette has to have sufficient space for storage, repairs and unforeseen developments.

- d. The employees of the Waste Station have to be educated on the concept of the Retourette, enabling them to introduce and assist customers.
3. The Retourette has to accommodate the cooperation between various organisations involved in Houten.
4. The Retourette has to be inclusive to the residents of Houten.
 - a. The Retourette has to be located close to the thrift store or waste station.
 - b. The Retourette has to have rigorous quality checks of the delivered materials/products.
 - c. The Retourette has to give sufficient information on the offered materials/products.
5. The Retourette has to be able to accommodate employees with poor job prospects or disabilities.
 - a. The Retourette has to employ people with appropriate skills and knowledge of materials and tools.

5.3.2 Desired additions Retourette:

1. The inclusion of construction companies, deconstruction companies and company waste
2. The addition of multiple delivery points, delivery service and pick-up service
3. The addition of Upcycling to the Retourette repertoire
4. The addition of online stock-information
5. The addition of rewarding residents for delivering materials
6. The development to a sustainable/circular-plaza with the waste station and the thrift store

6. Concept Generation

With the Design Requirements in the previous chapter in mind, several design can be iterated. To ensure the inclusivity of the stakeholders a co-design session was initiated with the organisations of Houten.

6.1 Concept Generation

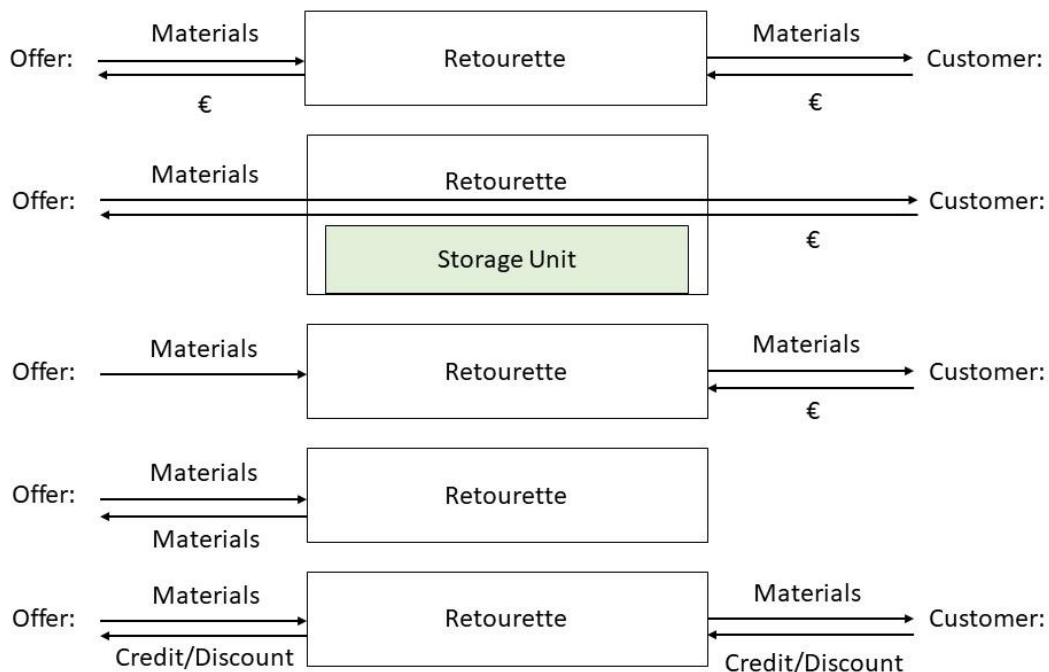


Image 13, Concept Generation

Although all analysed similar projects have very similar foundational systems, there are several concepts to evaluate regardless of additional aspects, see image 13. In this image, five different concepts have been systematically visualized, all of which start with the resident offering materials to the Retourette on the left side and the customer 'buying' materials on the right.

The first option portrays the Retourette as a regular store, making profit by buying materials and reselling them to another party. However, the municipality is not allowed to initiate profit-based organisations.

The second assumes a position similar to that of the previously mentioned *Insert*, see page 32, where the Retourette merely plays the role of a linking party and the materials are sold directly from the offering party to the customer. The Retourette would be a place where these materials are stored while on the market. Although some space is available for storage, the system would not be focussed only on Houten and compete with big organisations such as *Marktplaats* or *Facebook*.

In the third option, the Retourette receives the materials as donations from the residents. It then sells these materials to customers. This option is the most used among existing projects such as *Bouwkringloop Vianen*, *Bouwkringloop de Arm*, *De Loods* and *Buurman Utrecht*. Furthermore is this third option the existing foundation of thrift store *Noppes*.

The fourth is an exchange of materials where the offering party immediately gets to select a new material. This system is the most flawed of the five; it is based entirely on residents wanting/needing new materials every time they deliver (refuted by the questionnaire; incoming materials do not equal outgoing) and it will be hard to compare the worth of different materials to each other.

The last option is giving residents delivering materials a coupon or credit which they can exchange for other materials later on. This circumvents the main problem of the previous concept because residents can select new materials when they need them. However, it does require residents first deliver materials before they can 'buy' them which limits the success of the store.

The third concept is the one which is most seen among similar projects and the one that will fit Houten the best. The last concept can be added as an addition, for instance in collecting credit or coupons, but the system of collecting donated materials and reselling them will be chosen for the design presented in this project.

6.2 Co-Design Session

6.2.1 Preparations

As can be seen from the power/interest map, page 20, many of the involved stakeholders have some extend of power and influence on this project. Furthermore has it become clear that multiple stakeholders will have to collaborate in order for the final design to be successful. To ensure a smooth, equal collaboration and not a top-down organisation (see images 14 and 15), stakeholders will have to be equally involved during the design process as well. Organising a Collaborative Brainstorm will allow the stakeholders to define their own contributions and find the overlapping topics with other companies involved.

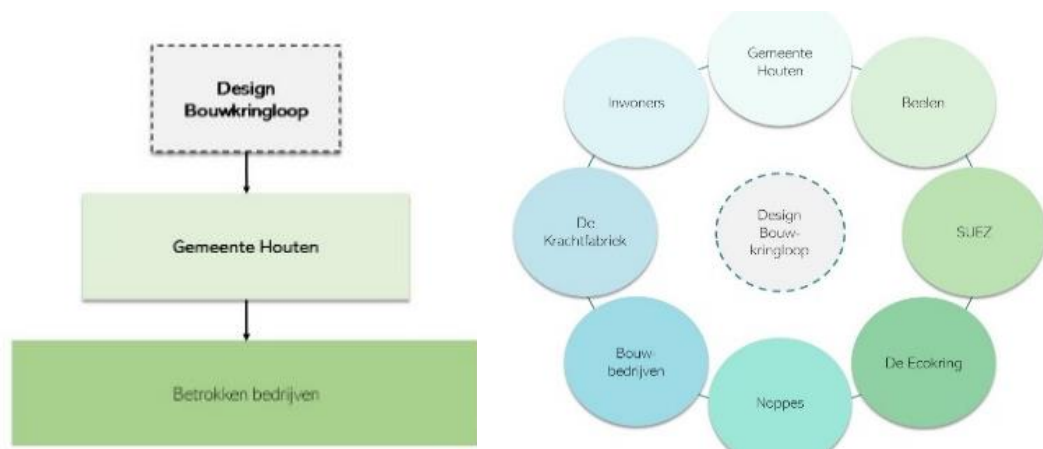


Image 14, Top-Down Design; Image 15, Co-Design

Due to Covid-19, the organisation of this meeting was complicated and compromises had to be made. All laws and regulations of the time were correctly abided and the meeting was held as an online conference-call.

Invited to the session are:

- A policy-associate sustainability Municipality of Houten
- An associate policy implementation waste Municipality of Houten
- A key accountmanager governance SUEZ
 - o Additional invitee, policy advisor governments SUEZ
- A company manager Krachtfabriek
 - o Additional invitee, associate sustainability Krachtfabriek
- An associate permit-authorisation Municipality of Houten

All invitee have been contacted individually during the stakeholder analysis, have been informed on the purpose of the study and have professed an interest to be involved in the design process.

As the meeting was held through online video-contact, all attendees were informed on the topic of the discussion beforehand, as well as the agenda of the meeting.

Agenda:

Approximate timetable:

- Opening the Meeting	15
- Introductions	10
- Image Expression	15
- Mindmapping	15
- Block Building	20
- Barriers & Bridges	20
- Conclusion	5
- Retrospect	15
- Closing the Meeting	5

The four exercises are meant to 'warm' the attendants up and get the discussion going. The exercises are a build-up towards the goal of the discussion; two/three concepts of a Retourette fit for Houten. A time-table is given to provide structure to the meeting. The exercises should, however, not be strictly abided if this would mean an interruption of the discussion. See Appendix D for an explanation to each exercise on the agenda; Image Expression, Mindmapping, Block Building and Barriers & Bridges.

The goal of the exercise Image Expression is to get a clear general understanding of the different views on this project. It visualises which view is most important to the respective organisations and might aid in the teaming of companies with the same views. The goal of the second exercise, Mindmapping, is to visualise the different aspects the companies expect (or might not expect) to see in the Retourette. It will also highlight possible overlapping interest or offers and the spaces/roles that still need to be filled. The third exercise shows the many possible compositions a Retourette could have and allows each organisation to express their preference or the design they expect to be most successful. If many designs are similar, it demonstrates the organisations have a similar state of mind and the solution is near. If however, many companies show different conclusions, more discussion is needed to come to an agreement. The last exercise is meant to allow the participants to express any ideas they have gained during the discussion and to connect the different collaboration-options between the companies. It is the exercise where the organisations might discuss what they would need from others or what they might offer to the Retourette.

6.2.2 Co-Design Evaluation

The co-design session went very much as expected, the introductions went well, all stakeholders stated their interest and purpose, only one person (thrift store *Noppes*) could not attend at the last minute. The small exercises gave structure to the meeting and were less chaotic than anticipated, especially the mindmap raised a lot of critical and important questions. Overall enthusiasm set a friendly tone and many different directions were suggested and discussed from pricing to employment and from upcycling to an online platform. During the conclusion the facilitator gave a summary of the meeting and a small reflection took place. The minutes of the co-design session can be found in Appendix E.

6.2.3 Questions that were raised during the session:

- a. What is the distinction between the Waste Station, the thrift store *Noppes* and the Retourette? Establish a clear cooperation, where does it start and where does it end?
- b. How is the price of the materials determined? How can the residents be rewarded for delivering materials to the Retourette? Is it possible to include a system of coupons or stamps? Can a cooperation with construction stores be included?
- c. Who will work in the workshop once it is included? How will people keep involved? If the products are resold in the thrift store, won't the price be higher than people might expect from a thrift store?
- d. If an online presence is created, will the organisation stay local? Won't it lose the involvement and inclusion of local organisations and residents?

6.2.4 Co-Design Result

The Retourette will start with a close cooperation between the Waste Station Houten and the thrift store *Noppes* to take the first step in the direction of a future sustainability/circular-plaza. There will be a clear distinction between the materials and products each organisation accepts to lessen the displace and exchange of materials between them. This does demand an extensive education among the employees who will have to steer the customers to the right organisation. The Retourette will be employing several experienced managers and attendants complemented with people with poor job prospects who man the floor, proposed and attended by *De Houtense Werktafel*.

After the initial trial-period (after proven successful) the delivered materials can be analysed for development among which a wood-shop. There are many possibilities for this, among other things educational experiences for the employees, renting the shop to residents (workshops and company outings) or inviting artists and offering them a studio. This will depend on the experiences gathered in the first period. However, the involved companies all agreed that showing these workshop activities to the residents that are delivering their materials to the Retourette increases curiosity, interest and involvement. The possibility of these developments have to be included from the start to obtain the right permits.

Once the presence of this sustainable-plaza is established not only as delivery-point but also as a place of education, social gatherings and participation, an online-presence can be created. Whether this is shared with the Waste Station and *Noppes* depends on how well the cooperation goes in the initial period. For the Retourette however, this includes offering the stock online and giving updates or tips on 'DIY's'⁶ with reused materials.

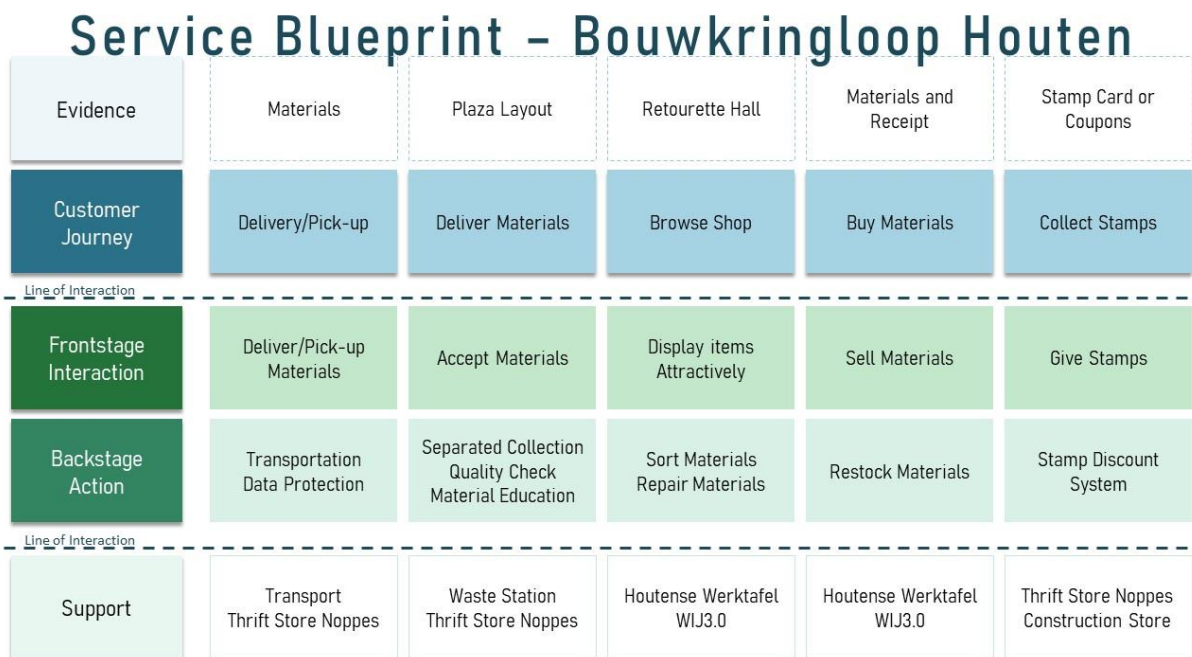
⁶ 'Do it yourself' the method of building, modifying, or repairing things without the direct aid of experts or professionals

6.3 Service Blueprint

A Service Blueprint displays the actions of the customer, the organisation and any added support in the background during their journey or interaction. It shows the actions needed to make the system work, with all supporting actions being visualized too.

Once the service blueprint of Retourette Houten is established, it showcases which actions are supported by which organisations and determine the internal relations needed.

Below the tool is used to visualize the Retourette Houten, see maps 1 and 2. The first image presents the initial shape of the organisation and the second presents the several options for development.



Map 1, Service Blueprint Retourette Houten

Service Blueprint – Possible Development

Plaza Layout	Product and Receipt	Retourette Hall	Materials and Receipt	Website	Website
Open Woodshop	Buy Products	Hire Workbench	Workshop	View Website	Buy Online
<i>Line of Interaction</i>					
Work in Woodshop Upcycling Create Art	Sell Product	Aid Customer	Give Workshop		Deliver Materials Post Materials
Receive Permit	Restock Products	Clean Woodshop Maintain Tools	Prepare workshop & Materials	Manage platform Education	Manage platform Picture and describe materials
<i>Line of Interaction</i>					
Houtense Werktafel WIJ3.0	Thrift Store	Houtense Werktafel WIJ3.0		Waste Station Thrift Store Noppes	Marktplaats Facebook

Map 2, Service Blueprint Possible Development

See Appendix F for an extensive explanation on how to read this tool. In short, the blue row depicts the customer journey and acts as the guideline through the map. The Customer Journey starts at home with the pick-up service (included is the delivery as the service-system is generally the same), then onto delivering materials at the Waste Station, being directed to the Retourette, browsing in the shop and eventually buying materials. The collection of stamps is the last step, very close to the buying of the materials. In the columns below these journey-steps the front- and backstage actions are described. Lastly added to that are the Evidence in the top-row and the Support (supporting companies) in the bottom-row.

In the development of the Retourette, map 2, the journey-steps provide the same guidance in blue. However, this map does not represent a journey in total but optional steps that can be added to the journey in the previous map, map 1. Here the options of including a workshop are described in three possible ways and the inclusion of a website are added in two possible ways. A notable column is the second one, which would be carried out by the thrift store but should, as an important step after an open workshop, be added to the Blueprint.

6.4 Experience Map

An Experience Map displays the actions, thoughts and emotions of the customer during their journey or interaction with the design, in this case the organisation. It shows how the customer might feel while interacting with the system and provides insight and opportunities for improvement or evaluation.

The visualized experience will enable residents of Houten to evaluate the journey and therefore the proposed design. The points of attention are matters that have to be considered when managing the Retourette in relation to the experience customers might have and are therefore incorporated in the wishes and requirements previously stated.

Below the tool is used to visualize the Retourette Houten, the first image presenting the initial shape of the organisation and the second presenting the several options for development, see maps 3 and 4.

Experience Map – Bouwkringloop Houten

Name: Mark Age: 32	Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Retourette sign. He decides to visit the store, starts browsing and finds some materials to his liking. After Mark buys the materials, the store employee hands him some stamps.				
Customer Journey	Delivery/Pick-up	Deliver Materials	Browse Shop	Buy Materials	Collect Stamps
Customer Goal	Gain information	Deliver materials to waste station	Determine material types and offers	Get Materials	Order new Materials
Customer Motivation	Ease/Neccesity	Responsible	Curiosity	Rational Motivation	Economize
Customer Thoughts	How can i donate without a car?	What is this new organisation?	What materials types do they offer?	I'll use this material in my project	Can I save money on my next purchase?
Points of Attention	Ensure privacy and safety, regarding info and payment. Transport smartly.	Educate employees of the waste station. Emphasise gains of reusing materials	Be clear but consise in what you offer.	Enthoustiasm! Reliable Employees.	Set achievable goals. Intrigue Customers. Make it Fun.

Map 3, Experience Map Retourette Houten

Experience Map – Possible Development

Name: Mark Age: 32	Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Retourette sign. He decides to visit the store, starts browsing and finds some materials to his liking. After Mark buys the materials, the store employee hands him some stamps.				
Open Woodshop	Sell Materials	Hire Workbench	Workshop	View Website	Buy Online
	Get Product	Work on their project	Learn new skill	Get informed	Order new Materials
Involvement	Emotional Motivation	Limited Space/Tools	Enthousiasm	Curiosity	Ease
What is going on in here?	This product is nice!	I have too little space/tools at home	Can they teach me new tricks?	What is this Retourette?	How can i get the materials home?
Ensure proper knowledge in employees. Who will work here?	Educate employees of the thrift store. Think about price differences and determination.	Offer extensive tool-collection. Ensure proper knowledge in employees.	Ensure proper knowledge in employees. Offer new things.	Educational parts on the website.	Ensure privacy and safety, regarding info and payment. Transport smartly.

Map 4, Experience Map Possible Development

See Appendix F for an extensive explanation on how to read this tool, it is generally the same as the Service Blueprint in the previous paragraph. The very first column shows the subjects of each row. The upper-most square gives a brief summary of the visualized customer, the persona. The second vertical square denotes the customer journey, it is this row which explains the steps in the process and indicates how this map should be read, similar to the Service Blueprint. The third, fourth and fifth squares denote some customer experiences through goals, motivations and thought. The last square indicates the points of attention the Retourette has to adhere to when catering to these customer-steps.

7. Design Development

During the Co-design Session several questions were raised such as the distinction between the Waste Station, Noppes and the Retourette, the collection of stamps and the quality check. Also, the Municipality asked for a visual plan of the Retourette. In this chapter, the design is developed to a completed system

7.1 Acceptance Division

If the Retourette, Waste Station Houten and thrift store *Noppes* are to co-operate in close vicinity, the acceptance division of materials, waste and products needs to be established.

Retourette:	Building Materials – lumber, tools, doors, light fixtures, paint, plumbing supplies, architectural pieces, fencing, roofing, flooring, tiles
	Tools – drills, screwdrivers, saws, nails, screws, fixtures (Reuse Development Organisation, retrieved nov. 2020)
Waste Station:	Waste – batteries, cooking oil, glass, garden waste, hard plastics, paper, carton, metal, paint, textiles, soil (gemeente houten, retrieved nov. 2020, afval milieustraat)
Noppes:	Furniture – tables, chairs, wardrobes, cases, beds, chests, lamp-stands
	Products – books, decorations, vases, tableware, dishes, electronics, office supplies
	Textiles – sheets, clothing (Noppes Kringloopwinkel, retrieved nov. 2020 and kringloop.nl, retrieved nov. 2020)

Take in mind that this will be applicable during the initial period, without the addition of a wood-workshop. Adding a woodshop to the Retourette would mean wooden products such as tables, chests or chairs can also be used in the Retourette. A new co-operation between the thrift store and the Retourette would then need to be established.

7.2 Employee guidance

Houtense Werktafel will give a description once the design is presented. They will also match employees to the Retourette that are interested in and compatible to the system.

7.3 Material Quality Check

When performing a quality check on materials, it is important to generally account for the following things, according to *Level* (LEVEL, retrieved nov. 2020, material use):

- a. Material type
- b. Acceptable and unacceptable level of contamination
- c. Acceptable and unacceptable level of damage
- d. Quantity
- e. Transportation Requirements
- f. Required documentation (including waste tracking forms)
- g. Sorting and handling required

Level then lists several materials requirements for a quality check:

Things to check for concrete

- a. Types of concrete and rubble accepted.
- b. Size of concrete pieces.
- c. Acceptable levels of bricks and tiles.
- d. Acceptable amount of contamination from materials such as glass, metal, soil.

Things to check for metal

- a. Types of metal accepted.
- b. Contamination tolerances from materials such as plastics and leftover product in containers.

Things to check for timber

- a. Types of timber acceptable (for example, treated, native, untreated).
- b. Minimum and maximum sizes of board and lengths of timber.
- c. Minimum and maximum quantities.
- d. Contamination tolerances from materials such as nails, paint, concrete.
- e. Any pre-processing requirements such as sorting or grading.
- f. How timber is to be received (for example, loose, stacked in containers or on pallets).

For tools, fixtures and parts it is necessary to check their ability to function, wear, and origin/brand.

7.4 Price Determination

The price determination can be tricky when it comes to used products and materials. During the initial design of the Retourette the recommendation of pricing is based on the experiences of the *Bouwkringloop Vianen*, see Appendix B.3. *Vianen* hired an employee previously active in the construction industry and former employee of construction store *Praxis*. Generally they use the rule of 25% of the original price of the product. Factors that come into play are brand, quality and amount.

The recommendation in this project is establishing a financial plan for the Retourette, taking into account the amount of materials delivered and sold and basing the price off this financial structure. An additional evaluation can be held among customers, asking for their opinion on the pricing.

The pricing of any additional development such as the workshops and upcycled products will have to be established after the initial trial period. The workshops will have to be based on the amount of materials used and cover the salary of the employees assisting in the workshop. Upcycling the products using employees from *De Houtense Werktafel* can lead to fairly low pricing and a co-operation with the thrift store *Noppes*. Offering the upcycling to artists however, will lead to steeper pricing and an incompatibility with what customers might expect from a thrift store. The pricing of hiring a workbench can be compared to existing systems offering the renting of tools or even a workbench (systems such as *Buurman Utrecht*).

7.5 Stamps and Coupons

One of the important aspect while working with discounts is anchoring. According to an essay by Arthabodhi (arthabodhi, retrieved nov. 2020, discount) anchoring is ‘when an individual relies heavily on an initial piece of information while making decisions’. When giving a discount, the original price is the anchor. It might therefore be beneficial to the Retourette to give prices of well-known brands and their materials when bought in a construction store. This immediately sheds the low prices of the Retourette in a positive light.

There are different types of discount-offers. This particular research focusses on the kind where customers are rewarded for delivering or buying products by giving a discount on a future purchase. According sticker.nl (sticker.nl, retrieved nov. 2020, spaaracties) does the collection of stamps or stickers ensure customer loyalty; the customers are more likely to shop at the Retourette again. They also state that discount-projects involving the collection of something are more likely to be successful. However, the goal of the collection must be clear and do-able.

7.6 Visual Plan Retourette

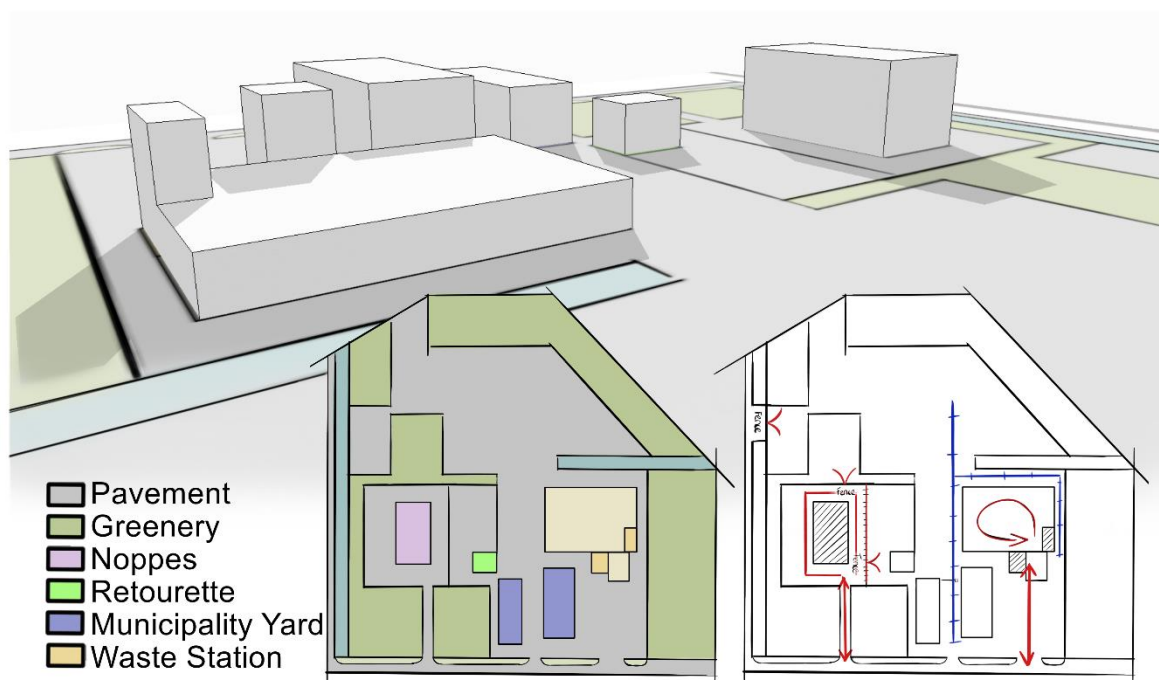


Image 16, Current layout

At the Municipality yard, one of the halls will be available for this project in the near future. It is currently used as a storage-unit. This building lays wedged between the thrift store on the left, the Waste Station on the right and the office building of the yard at the bottom, see image 16, the legend and coloured 2D layout. The 3D visualisation gives an approximation to size and spacing, the white 2D layout bottom right notes details such as gates, public routes (red) and the routes of heavy municipality machinery (blue). The ideal situation would allow residents to drive past all facilities in one round, see image 17. However, as the blue cross indicates, there is no passage for cars on that side of the waste station. There is only one entrance, leading to a situation like image 18. The cross in this image indicates that in the current situation, the resident cars would intersect the route of several Municipality issued construction vehicles. Until these vehicles can be arranged differently, the advice for a visual layout of the Retourette would be image 19, where the Retourette can be reached from the thrift store entrance and the Waste Station uses its current, separate entrance. To ensure no civilian vehicle will access the yard-terrain, the Retourette should be enclosed with fences. The indicated area in green will provide an enclosed space which could be used for parking or storage of the Retourette Houten, see image 19.

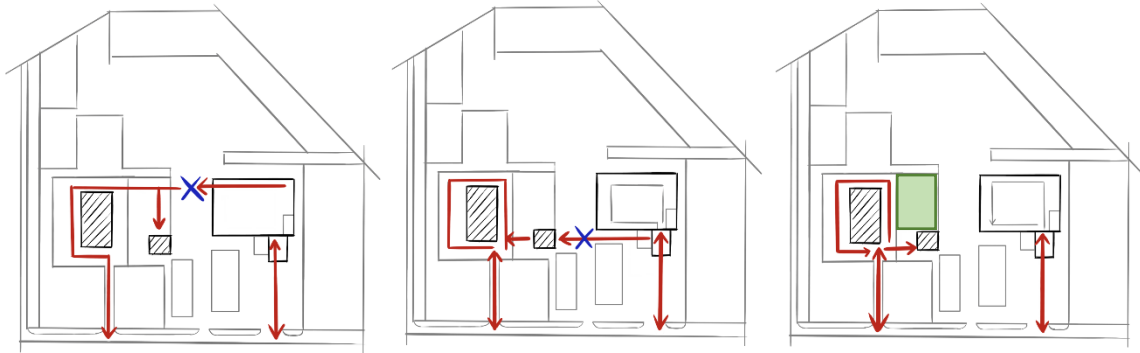


Image 17, Concept 1; Image 18, Concept 2; Image 19, Concept 3

There is a second project which ensures the designated Retourette hall will be emptied. However, this project might also interfere with the placement of this hall on the yard. As the exact plans of the project are as of now unknown, the visual layout of the Retourette will be based on the current situation.

7.7 Spatial Plan

With the location of the Retourette established as the available hall at the Municipality Yard the necessary permits need to be checked. The development of the location of the Retourette is included in the Spatial Plan *Kruisboog en Weteringhoek*⁷. The destinations *Social* and *Mixed* are both appointed to the location.

Social portrays organisations aimed at the public interactions fulfilling functions of the residents of Houten. Mixed designates retail with the constraint of collecting and selling used goods. This includes the reparation of these aforementioned goods. Subordinate to the retail is catering services, courtyards, common property, parking and watercourses.

Because the Retourette in the initial design is very similar to Noppes, the destination would be fitting to the Spatial Plan. However, if the inclusion of a wood-workshop is decided upon, it is wise to acquire the necessary permits at the initial proposition of the project.



Image 20, Storyboard 1

⁷ <https://www.ruimtelijkeplannen.nl/viewer/view> , De Brug 11 Houten

7.8 Design Evaluation

From the different experiences depicted in the customer journey map, seven storyboards were created, see Storyboard one in image 20 on the previous page. See Appendix G for all seven storyboards. These feature almost all possible ways residents could hear about the Retourette, could deliver or buy materials and could be included in a wood-workshop or online platform following the basic system established during the co-design session.

7.8.1 Storyboards

The first, second and fourth stories depict the design created during the co-design session and established as the initial set-up of the Retourette. The seventh story is an alternative to the fourth and created to test the opinion of the residents by depicting a container available at the waste station. It is not the current design but a very obvious feature which needs to be evaluated.

The third, fifth and sixth stories contain the three possible developments which the Retourette can undergo after an initial trial-period.

The second and sixth stories both contain an online platform from which residents can educate themselves on the topic of a Retourette and/or order materials.

With the help of these storyboards, a user-evaluation was created. Because these evaluations could not be performed in person, the stories were needed to present the current design to the residents. Each story depicts an aspect mentioned in the earlier evaluation or a new topic discussed with the companies during the co-design session. See Appendix H for the complete questionnaire.

7.8.2 Evaluation Result

The first questionnaire had 115 responses. 18 of those stated an interest in a follow-up questionnaire. Those 18 received this questionnaire. 8 responded.

The first question of the questionnaire concerns the location of the Retourette; 87,5% of the respondents totally agree with the closeness of the Retourette to the waste station and thrift store. A later question phrases the question as the Retourette being an effort and the responses (50% total agreement, 50% moderate agreement) are still positive to the current planned location. Reasons for this are the worth of reusing waste to such a little extra distance or effort and the diminishment of the distance when using a car.

However, when presented with the question from yet another perspective, 37% answered that they preferred a Retourette-container at the waste station and 50% claimed neutrality, only 12,5% disagreed.

Regarding the collection of stamps the opinions are mixed, see figure 6, however, the majority is positive or neutral and the stamps could therefore be a fruitful addition.

3. Het kunnen sparen van kortingen voor bijvoorbeeld producten uit de kringloopwinkel werkt stimulerend om iets te kopen of te brengen bij de Bouwkringloop.
8 antwoorden

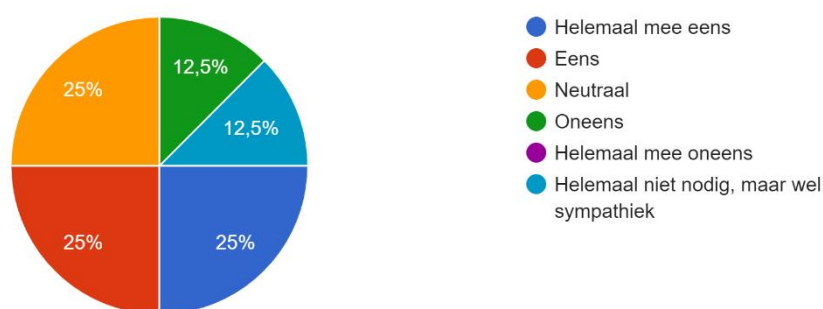


Figure 6, Collecting stamps

That user's ease is a huge stimulant is visualized clearly in the questions regarding delivery and a webshop. The results point to a larger interest if the Retourette were to offer a pick-up delivery service with some neutral responses whereas the possibility of a webshop emerges with (total) agreement.

The repairs and quality checks added to the design of the Retourette gave a major improvement to the original questionnaire in terms of buying used products. Both questions got a result of 75% totally agreeing and 25% moderately agreeing.

13. Zou u een opgewaardeerd product/meubel/kunstobject kopen? (zie de afbeelding voor een voorbeeld)
8 antwoorden

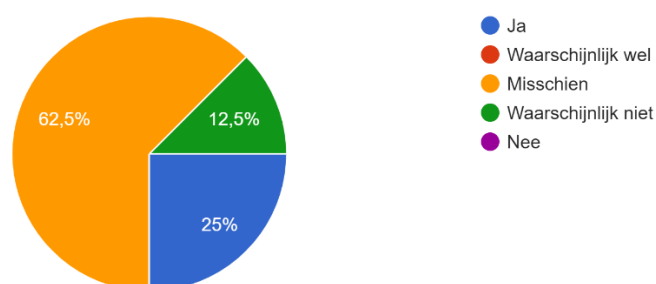


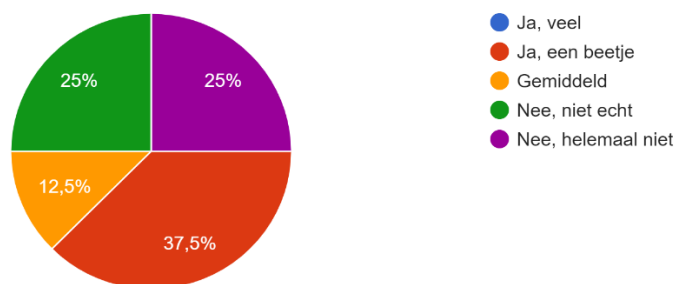
Figure 7, Buying an upcycled product

The addition of a social workplace when presented in a general question was welcomed with 87,5% agreement. Buying upcycled products is still regarded with uncertainty, see figure 7 on the previous page; too many variables such as product, quality and price are present. The products would however spark enough interest to take a look for 50% certainly and 37,5% when already in the thrift store.

The questions regarding experience with wood and workshops at the Retourette are answered in a divided manner, see figures 8 and 9.

14. Heeft u ervaring met het werken met hout?

8 antwoorden



15. Zou u een workshop bij de Bouwkringloop interessant vinden?

8 antwoorden

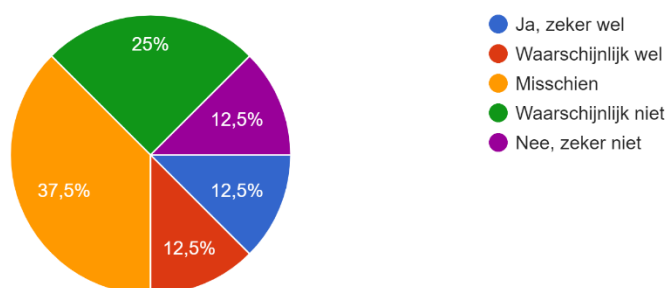


Figure 8, Experience wood-work; Figure 9; Workshop Retourette

And although the question regarding the availability of space and tools shows that mostly the resident do have access, the answers to the question whether they would hire a workbench is answered; 25% definitely, 37,5% yes, 37,5% maybe.

Almost all respondents see potential in this plan, mostly on the aspects of sustainability and reuse. 75% would definitely deliver materials to the Retourette, 25% says probably. 37,5% would definitely buy materials from the Retourette, 37,5% says probably and 25% says maybe. The respondents think this project has a positive impact on the environment as it prevents materials from being burned. In addition to this it is valuable to the residents of Houten as it spreads awareness and enables them to buy materials at a lower price. Some even mention the social role this project could play for Houten.

In conclusion, the location of the Retourette when available from both the thrift store and the Waste Station is sufficiently close enough to attend to the ease of the customer. It is advisable to add a pick-up/delivery service as it accustoms to those without a car or other factors. If the Retourette were to be unavailable from the Waste Station, the inclusion of a separate container at the Waste Station is preferable, same as the current *Noppes* container. The collection of stamps could be a nice addition but are not a bare necessity to convince the users. Regarding the future developments; a webshop would be a solid addition, certainly when the delivery-system is in place. An open woodshop would spark enough interest in the upcycled products to at least take a look. Convincing the customer of buying these products would then be entirely up to the quality, price and necessity of the product. The hired workbenches are also greeted with enthusiasm, in contradiction to the workshops of which, as of yet, the respondents are unconvinced. In total, when correct measurements are taken to include the residents in this project, interest and enthusiasm can be created among them and the Retourette will be a success in their opinion.

8. Final Design

This chapter contains a final and extensive description of the Retourette Houten.

Construction Materials

The Retourette Houten will collect construction-materials delivered by the residents of Houten and resell the materials to customers. It will collect materials such as wood, tiles, bricks, paint and construction tools. Between the delivering and reselling, the Retourette performs a quality check of the materials. The addition of a container at the Waste Station might be beneficial if the incoming flow of materials is deemed unstable or too low. See image 21 for the basic system of the collection and reselling of materials.

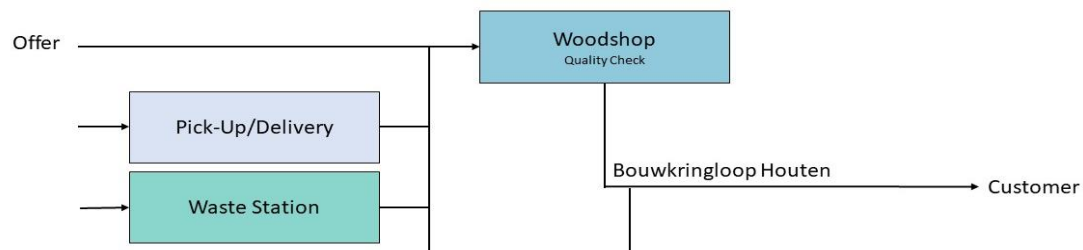


Image 21, Basic System Retourette Houten

Co-operations

The location of the Retourette on the Municipality Yard designates a close co-operation with both the Waste Station Houten and the thrift store *Noppes*. In the initial design this will mainly rest upon a clear division of material-collection and if needed, material-exchange. Furthermore will the initial success of the Retourette depend on the instructions, enthusiasm and education of the employees of both the Waste Station and *Noppes* as they speak to their current customers. The Retourette is accessible from the entrance of the thrift store, see image 22 on the next page. A co-operation with *De Houtense Werktafel* will revolve around the social aspect of the Retourette as they will apply employees to the Retourette. The waste companies *Beelen* and *SUEZ* will be included in this project on the aspect of waste transportation and delivery. Their knowledge will be used in the quality checks of the materials and *Beelen Next* can be of help in the delivering of materials from demolition-sites. The companies *TSN* and *De Krachtfabriek Houten* will be involved in a way of similar projects which might be of some assistance to each other but can only be related in the happening of those

situations. For instance the inclusion of residents through recurring activities might be performed with all three companies as to educate and display sustainable projects.



Image 22, Retourette Houten on the right, with *Noppes* on the left

Resident Inclusion

The main motivation of the users of the Retourette would be helping the environment, lessening the need for new material production and the lower price of materials. Because of this, the employee-recommendations of both the Waste Station and *Noppes* are very valuable to this project; the ‘story’ has to be told. Additional to the consistent functions of the Retourette, resident-inclusion activities should be performed such as markets and discounts.

Employees

As mentioned in the co-operations, *De Houtense Werktafel* will aid in the inclusion of people with poor job prospects or disabilities. Guidance with experience working with these employees is needed, with the additional demand that there should be employees with construction-experience.

Political Approval

The Municipality of Houten desires to be a circular city in 2025. The system presented in this chapter improves the aspects treasured in these plans such as sustainability, circular economy among which social inclusion can work as a connecting force, making sustainability interesting and fun. As most political parties in Houten claim an interest in sustainability, a few focussed especially on circularity or waste, this project should speak to their aims.

9. Concluding Chapter

By co-operating with the stakeholding companies and organisations this design could be established with existing resources. Discussing a design that does not yet exist was very difficult but the many visions presented during the process of this design helped putting the collaborative system together. The first analysis of the stakeholders was of great importance because every aspect of the project was already present in their organisation; the employees, the location, the materials and the enthusiasm. The second analysis backed the claim and direction of using construction materials. Apart from the initial suspicion that these are delivered to the Waste Station in substantial amount to be reused, this analysis taught a lot about recycling, reuse and CO2 emission during the processing of waste. It showed that the processing of construction materials has a large impact on the environment and that reusing them could lessen this result. Having never heard of a Retourette before, the competitor analysis was all completely new information. In the end it depicted less of a competition and more of a vast array of optional aspects for the Retourette Houten as most of the companies have a local focus.

The requirement-list established after these analyses served as a check-list to the design later on. A completely new experience was a long-distance co-design session. The stakeholders were massively accommodating and created a solid base for the design together. Because of the creation of the power-interest map it was clear which stakeholders were the most important and that all of them had to be included in the process. This session led to a decisive design depicted in a service blueprint and a customer journey map, from which the specific types of co-operations could be read. The maps were very surprising and peculiar because the customer is both at the offering and receiving end of the system.

In conclusion, it is important to keep a clear red thread during the whole process and to keep involving the most important stakeholders throughout. This design is not only created by the designer, but by the stakeholders and users of the Retourette Houten. It will be a valuable addition to Houten, its municipality, its residents and its organisations. The entire design is set-up from local co-operations, something that is valued in a small-town such as Houten, and will heighten the education and awareness of sustainability among residents. Furthermore will the collection and reuse of old materials lighten Houtens' footprint and contribute in the development towards a circular economy. The social aspect of involving less prosperous employees is an addition that makes this project a pioneer in Houten and aids its cause of being inclusive to all.

10. Discussion and Recommendation

Financial Aspect

One of the major doubts in this project is the financial aspect. The commitment of the co-operating organisations and residents has been established. However, because of the hardships (size of city, amount of waste-stations available, amount of residents) in comparing the Retourette Houten to the similar solutions such as *Bouwkringloop de Loods* or *Buurman Utrecht* a strict financial expectation could not be established within the scope of this project. Furthermore does the municipality of Houten work with several policies within which this project could account. The straightforward choice would be the Sustainability Policy but appliances could also be directed towards reimbursement on the social aspect of offering jobs. The recommendation would be to engage in discussions on which policy would be best before presenting the proposal to the Municipality Council.

Construction Stakeholders

The second factor which has not been researched to its full extend during the process of this project are existing construction stakeholders. After several initial attempts to contact construction companies, this direction proved unfruitful without a working system in place which visualises the importance the reuse of construction companies. However, due to the explained decision to exclude construction companies from the design presented in this report, the construction stores have also not been taken into account. It might be a too shallow assumption that these two company direction are similar in way of working with reuse and recycling but the extensive contact and amount of research that would have gone into involving construction stores seemed too vast for the established timeframe of the project. Also, *Bouwkringloop Vianen* has shown that co-existence with construction stores (in their case *Praxis*) can be achieved without hardship. There could be a positive development in involving the stores but for now there are no assumed negative sides to not involving the stores.

Contact

What stood out during the design process was the effort it took to contact the residents of Houten. It might have provided more extensive information and evaluation if the design could have been discussed in person among a group of residents similar to the co-design session with the stakeholding organisations. However, due to Covid-19 this

could not be responsibly arranged and contact had to be digital. The first resident questionnaire had little more than a 100 responses but the second questionnaire was much more detailed and it took a lot of effort to contact the residents directly. It caused a flaw in this project in a way that the research is not representative to the amount of residents Houten has.

Location

As mentioned in the paragraph Visual Plan Retourette (see page 50) the availability and final location of the storage-unit at the Municipality yard depends on another project. However, this project might also cause the available unit to be located elsewhere. The management of the Waste Station and the Municipality Yard were co-operating less extensively than expected, which caused some confusion on the exact plans of this other project. It might be possible to locate the available hall on the Municipality yard still, but another entrance would have to be used, forfeiting the designed visual layout presented in this project. Take also in mind the possible new layout SUEZ is offering the Municipality of Houten, see page 13. The inclusion of the Retourette in these plans could offer more options as to the visual layout.

Future Developments

Overall, this project presents a lot of development options which are recommended to be researched and confirmed after the initial months of the basic design of the Retourette and are therefore not soundly designable without a trial period. The report has, however, expressed these precarious assumptions throughout and gives different directions for many situations and provides a broad guideline for development.

Future developments regarding a webshop might include an online stock where residents can scout for materials they might need without making a trip to the store, or even an online shop, where materials can be bought online and delivered to the residents' home. Furthermore, the close collection of the thrift store, the Retourette and the Waste Station has the potential to develop into a community where residents can be included and educated on the subject of reuse and recycling. A supporting website giving information on all three organisations, might aid this awareness and education.

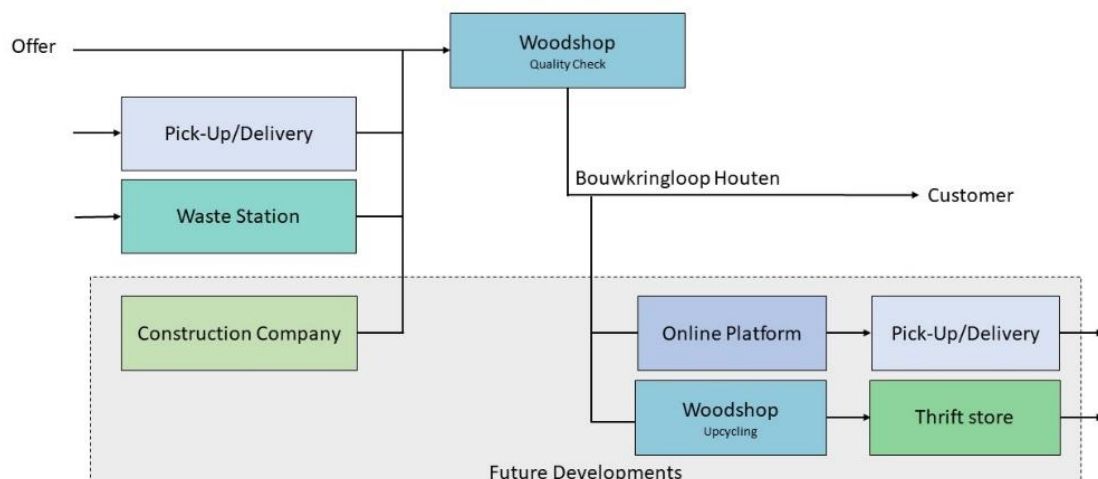
The addition of a wood-workshop can be diverted into three options. The first of having an open-woodshop where residents delivering the materials get an impression of the bustling activities performed on site. The visible manner in which the materials are used and reused was welcomed among the residents responding to the questionnaire. The upcycled products made by the employees of the Retourette are cautiously accepted when being sold either in the Retourette or the thrift store *Noppes*. The success of

selling those products would depend on the quality, type and price of the products. The second option of providing workshops for work-teams or separate entries has a lesser chance of succeeding. The available space of the Retourette is not very big and larger groups can not be attended to. However, this option also depends on the price and type of workshop and the involved co-operations (local entrepreneurs or artists). The third option of using wood-workshop space is renting out tools and workspaces, which could also be realised in combination with the first or the second option. According to the responses of the questionnaire the residents are generally positive about this third option. However, it does require extensive regulation and guidance being present in the woodshop. All three options could be implemented successfully into the Retourette and although the preference does point to the first option of an open workspace and upcycled products, research will have to be conducted after the initial months of the current design. The research should include material types delivered to the Retourette, employees, communication with *Noppes* and specific regulations for woodshops.

One point of attention is the Spatial Plan, which would require additional permits when choosing one of three development-options. It is recommended to attain these permits beforehand and the development-options should therefore be included in the presentation of this final design to the Municipality Council.

Employees

The exact requirements of the needed work-environment for employees (both the tangible environment and the management/guidance needed) will follow after the presentation of this current design and are therefore outside the scope of this project. The design of this project will be presented to the coaches at the *Houtense Werktafel* from which they can establish the requirements. This will cause further discussions and collaborations with *De Houtense Werktafel* before the Retourette presented in this report can be executed.



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Appendix

Appendix A. Waste Amounts 2019, Municipality of Houten

Afvalstof	Deelstroom	Totaal
Asbest		11.800
Autobanden		16.750
Batterijen		4.495
Dakafval		29.880
Frituurvet		23.310
Gips		177.460
Grond		1.023.060
Harde kunststoffen		143.620
Hout B		1.624.620
Hout C		261.520
Kadavers		908
KCA		83.575
Kringloopgoederen		257.515
Matrassen		33.110
PMD huis aan huis opgehaald		1.327.390
Luiers		97.821
Oud ijzer		397.380
Puin		2.187.900
Snoeiafval grof		1.308.500
WEB		383.467
Totaal afvalsch. station		9.394.081

Glas huis aan huis opgehaald		1.079.295
Glas milieustraat		0
Vlakglas		51.390
Totaal glas		1.130.685

Papier milieustraat		493.600
Papier huis aan huis opgehaald		2.221.400
Totaal papier		2.715.000

Textiel huis aan huis opgehaald		229.750
		0
Totaal textiel		229.750

AVU	GFT	5.054.580
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AVU	restafval milieustraat	1.647.400
AVU	grof vuil route	274.100
AVU	restafval ondergronds	1.063.940
AVU	restafval klike	4.676.720
Totaal AVU	restafval	7.662.160

Appendix B. Stakeholder Contact

B.1 Email-Exchange

Aan: de krachtfabriek, 8 September 2020, 11:39

1. Wat kunt u me vertellen over de Krachtfabriek?
2. Wat is het doel/de visie van de organisatie?
3. Met wie werkt u samen/wat is de verbondenheid met de gemeente?
4. Zou u interesse hebben betrokken te zijn bij dit project en hoe ziet u dat voor zich?

Zo ja

5. Wie kan ik in de toekomst uitnodigen voor meer vragen en een eventuele brainstorm-sessie?
-

–

Aan: Megan van Mook, 9 September 2020, 09:38

Wat top dat de gemeente Houten aan de slag gaat met (onderzoek gaat doen naar) de de bouwkringloop.

Ongeveer 7 jaar geleden hebben we onder de naam retourette hetzelfde plan geopperd bij de gemeente, maar om verschillende redenen, kon dat toen niet opgepakt worden.

De KrachtFabriek is een broedplaats voor werkwillenden. Iedereen die zijn talent, kennis en kunde wil inzetten om anderen te helpen of bij te dragen aan initiatieven, is welkom bij De KrachtFabriek.

Dat betekent dat in de praktijk dat werkzoekenden, ZZP-ers, gepensioneerden en arbeidsongeschikten zich aanmelden om deel te nemen en ipv thuis achter de geraniums te zitten, nu weer een leuke zinvolle dagen hebben, waar mogelijk weer betaald werk of opdrachten uit rollen.

In de ontmoeting tussen al deze mensen ontstaan allerlei maatschappelijke, duurzame en soms commerciële initiatieven.

Om een echt goed beeld te krijgen kan je het beste een langskomen.

De missie van de krachtfabriek is het versnellen van persoonlijke en maatschappelijke ontwikkeling door ruimte te bieden aan werkwillenden om in hun kracht te komen. We doen dat obv een aantal kernwaarden: gelijkwaardigheid, vertrouwen, openheid, verantwoordelijkheid en bijdragen.

Deelnemers (inspirators) van de krachtfabriek hebben op verschillende vlakken samengewerkt met de gemeente. Vaak gaat dat op opdracht basis. Ik ben zelf nu nog betrokken bij het CoSie project en

heb projecten gedaan op het gebied van duurzame mobiliteit. We zijn ook betrokken geweest bij de Houtense Werktafel, de mantelzorgmarkt, onderzoek naar platform voor inwonerinitiatieven, ..

Leuk om te weten: het recyclen en upcyclen van spullen heeft bij ons veel aandacht. In het overdekte winkelcentrum hebben we een (pop-up) winkel waar vooral producten worden aangeboden die zijn gemaakt van afvalstromen.

Ik vind het leuk om betrokken te zijn bij de opzet van de retourette, maar ben beperkt in mijn tijd. Voor een brainstorm ben ik altijd te porren. Verder zou ik binnen De KrachtFabriek moeten uitvragen wie zin en tijd heeft om mee te denken en mee te doen. We zijn een coöperatie en hebben geen mensen in dienst. Het valt of staat dus met de bereidwilligheid van mensen om hieraan bij te dragen.

Aan: Bouwbedrijf van Rijn, 22-09-2020

Zou u als toevoeging tot het onderzoek de onderstaande vragen voor mij willen beantwoorden?

1. Wat doet uw bedrijf met afval?
 2. Met welke bedrijven/organisaties/partijen bent u daarin in samenwerking?
 3. Zijn er wel eens overige onderdelen/materialen (denk aan deuren, planken, tegels, enz.), zo ja, wat gebeurt daarmee?
 4. Doet u binnen het bedrijf aan hergebruik of recyclen?
 5. Heeft u interesse in het hergebruiken/Recyclen van uw bouwmaterialen,
 6. Hoe zou u een eventuele samenwerking met de bouwkringloop vormgeven?
 7. Heeft u interesse betrokken te blijven bij dit project en bij te dragen tijdens een brainstorm-sessie met de andere betrokken partijen?
-

Aan: Megan van Mook, 23-09-2020

1. Wordt gescheiden afgevoerd door afvalverwerker
2. Weverwijk Schoonrewoerd
3. Deuren hebben we nog wel eens over maar zijn meestal niet geschikt voor hergebruik, tegels bewaren we, voor de rest wordt al het hout gebruikt tot aal kachelhout toe
4. Hergebruik wordt niet gedaan, recycling gaat via onze afvalverwerker
5. nee
6. Zie daar teveel energie ingaan tov wat het oplevert
7. Nee dank je

Succes met je onderzoek

Met vriendelijke groet,
BOUWBEDRIJF VAN RIJN HOUTEN BV

B.2 Transcript

Veel in hout, Annet, 08-09-2020, 11:39, 4:41

Veel in Hout is onderdeel van de Hartekamp groep en zorgt voor dagbestedingen voor mensen met beperkingen. Zij werken alleen met pallet-hout wat zij ontvangen van bedrijven. Zij maken artikelen zoals meubels, decoraties en cadeaus. Veel in Hout heeft zelf contact opgenomen met de bedrijven en werken verder niet samen met de gemeente of milieustraat. Onverwachte dingen die zij tegenkomen hangen af van de gebruikers van de werkplaats. Sommigen hebben andere accommodatie nodig. Twee keer per jaar houden zij een markt waar ze overige producten verkopen.

Bouwkringloop de Loods, Jos, 14-09-2020, 15:18, 4:47

De Loods is particulier opgericht door Jos Franken. Het idee komt van KLUS Amerfoort. Hij werkt niet samen met de gemeente maar krijg de materialen van particulieren en van bouwbedrijven. Af en toe koopt de Loods nieuwe producten om het aanbod aan te vullen. De loods repareert de materialen als dat nodig is maar doet niet aan upcyclen. Opslag ruimte is belangrijk, er is al snel te weinig.

B.3 Visit Notes

Bouwkringloop Vianen

Paar bedrijven, met gemeente voor meer, bedrijven veel in opslag. Amersfoort te weinig toevoer. Bouwmarkt in de buurt, Wim gewerkt bij Praxis, sorteren, materiaal-kennis. Inrichting lastig, je weet niet wat je binnenkrijgt. Plavuizen/laminaat goed, sanitair verkoopt minder goed. Geen reparaties → Verf, tin, reparaties zijn wetten strenger.

Waste Station Houten

Hout, verf, tegels, doe het zelf. Opletten van bedrijven geen afval

Noppes Houten

Extra samenwerking, ijzer, matrassen Milieustraat.. Schoolstages, Leer-werk bedrijf, werkervaring. Scheiding maken acceptabele goederen.

Buurman Utrecht

Aanhanger bij Milieustraat. Workshops, bedrijfuitjes, Meeste inkomen van workshops. Meer ruimte nodig, opslag. Opdrachten, geen eigen projecten

De ARM Utrecht

Materialen komen binnen van inwoners van Utrecht, aanhanger bij de milieustraat. De kringloopwinkel geeft kansen aan mensen met afstand tot de arbeidsmarkt. Ontstaan als initiatief om jongeren van de straat te halen en activiteiten te organiseren. Meerdere werkplaatsen waar meubels worden gerepareerd en soms zelf verbeterd. In de upcycle werkplaats samenwerking met Emmaus en WIJ3.0, Initiatief van upcycle kunstenaar Leeuwarden. Maken producten van niet-verkoopbare meubels uit kringloop. Nog vrij vroeg in het project, uitbreiden naar de kringloopwinkel, producten showcasen, op bestelling

B.4 Video-call notes

SUEZ

Waardeketens sluiten, schakels met elkaar verbinden. Inzamelaar en doorgeven naar iemand die daar iets mee kan, kringloop van afval naar grondstof. SUEZ werkt met grote containers. Bewerkelijkheid en hoeveelheden, Als een bedrijf iets weggooit misschien te grote hoeveelheden. Apart segment voor bouw- en sloopafval, navragen of er ideeën rondlopen. SUEZ is bezig met een propositie voor de inrichting van de milieustraat, meer een cirkel, minder een eindpunt

Beelen Next

Circulaire bouwhub, zij doen aan ontmantelen, 300 projecten per jaar. Sociale-werkplek. Verkopen niet aan particulieren, te veel volume. Wanneer het project in houten is, die container naar houten brengen. Aanleveren van hout wat wij niet in de schappen kwijt kunnen

TSN & Wij3.0

Al het restmateriaal een nieuw doel, Plastic, karton, restafval. Afstand tot de arbeidsmarkt, 10/15 mensen mee starten. We kunnen elkaar ondersteunen, we zitten elkaar niet in de weg, meedenken, meekijken, products wat wij splitsen naar hun werkplaats, materialen uitwisselen. Als er een andere organisatie iets betekent in de verkoop, welkom

Houtense Wertafel

Team van 7 werkcoachen, ongeveer 700 klanten met een groot deel een uitkering, Kan betaald, vrijwillig of arbeidsmatig dagbesteding. Grote afstand tot de arbeidsmarkt: grote groep, de anderen wat kleiner, 270 mensen die niet direct kunnen bemiddelen naar een betaalde baan, stap ertussen, Taalvaardigheden, werknemersvaardigheden, wellicht een opleiding. 130 mensen die een structurele mentale of fysieke beperking hebben → dagbesteding, werkervaring of betaald werk → een kwart is aan het werk, een kwart wordt klaargestoomd, een kwart doet aan werkbesteding en een kwart doet een opleidingsachtig. Nieuwegein was voorheen de reïntegratielocaties, nu hebben ze een lokaal werkteam, die koppelingen worden steeds meer gemaakt en dat is ook nodig, houten moet nog op gang komen. Werkervaring opdoen is de grootste gemene deler, eventueel koppelen aan een vorm van opleiding, Belangrijke profielen waarop zij kunnen selecteren, Aansluiten bij wat zij te bieden hebben, mensen die willen leren of ervaring op willen doen

Appendix C. Questionnaire Questions

Sectie 1, Hergebruik

Beste Houtenaren,

Als afstudeerproject bij de University of Twente doe ik een onderzoek naar het hergebruik en recyclen van afval dat wordt ingeleverd bij de Milieustraat Houten. Zelf geboren en getogen in Houten is dit project erg belangrijk voor mij en ik vraag u daarom deze korte vragenlijst in te vullen over het hergebruiken van afval.

Mocht u betrokken willen blijven bij het verdere verloop van het project, geef dan uw email-adres op aan het eind van de vragenlijst. Persoonlijke gegevens worden geheel volgens AVG-wetgeving behandeld en niet voor andere doeleinden gebruikt of gedeeld.

Deze enquête wordt uitgevoerd als onderzoek van een stage-project bij de Gemeente Houten.

Wanneer je 'nee' hebt beantwoord kan je de vervolgvraag leeg laten.

* verplicht antwoord

Vind je het milieu belangrijk?*

Ja

Nee

Anders...

Onderneem je actie om beter te zijn voor het milieu? *Meerdere antwoorden zijn mogelijk*

Nee

Afval scheiden thuis

Korter douchen

Minder vliegen

Duurzame producten kopen (geen wegwerp producten)

Groene energie gebruiken

Geen eten weggoaien

Duurzamer reizen (ov/fiets/elektrische auto)

Anders...

Vindt je dat de Gemeente Houten genoeg doet je daarin te faciliteren en ondersteunen?

Ja

Nee

Anders...

Koop je wel eens gebruikte spullen, zo ja, waar? (kleding, meubels, enz.)* *Meerdere antwoorden zijn mogelijk*

Nee

Kringloopwinkel

Marktplaats

Vinted

- Houten Helpt (facebook)
- Vrienden/Familie
- Anders...

Biedt je wel eens gebruikte spullen aan, zo ja, waar?* *Meerdere antwoorden zijn mogelijk*

- Nee
- Kringloopwinkel
- Marktplaats
- Vinted
- Houten Helpt (facebook)
- Vrienden/Familie
- Anders...

Breng je wel eens afval naar de milieustraat (gemeentewerf), zo ja, welke?* *Meerdere antwoorden zijn mogelijk*

- Nee
- Snoeiafval
- Bewerkt Hout
- Grof vuil
- Glas
- Plastic
- Batterijen of chemisch afval
- Metaal
- Anders...

Sectie 2, Bouwmaterialen

Deze enquête wordt uitgevoerd als onderzoek van een stage-project bij de Gemeente Houten.

Wanneer je 'nee' hebt beantwoord kan je de vervolgvraag leeg laten.

Heb je wel eens (bouw)materialen over? (badkamer/keuken tegels, hout, gereedschap, oude/kapotte meubels)*

- Ja
- Af en toe
- Nee
- Anders...

Wat doe je met die spullen en/of materialen?

Als je (bouw)materialen (badkamer/keuken tegels, hout, gereedschap, oude/kapotte meubels) over had, zou je deze op een aparte plek inleveren als ze daar hergebruikt zouden worden? (beter voor het milieu)

Ja

Alleen als ik er iets voor terug krijg

Nee

Anders...

Heb je wel eens (bouw)materialen (badkamer/keuken tegels, hout, gereedschap, oude/kapotte meubels) nodig?*

Vaak

Af en toe

Nooit

Anders...

Waar haal je die (bouw)materialen?

Zou je die tweedehands aanschaffen als dat kon (bijvoorbeeld bij de kringloop)?

Ja

Misschien

Nee

Anders....

Welke eisen zou je stellen aan tweedehands (bouw)materialen?* *Meerdere antwoorden zijn mogelijk*

Kwaliteit/staat moet goed zijn

Nieuw/in verpakking

Informatie over hoeveelheid/merk/type

Anders...

Zou je producten kopen die van hergebruikte materialen zijn gemaakt?* (kussens van oude stof, meubels van sloophout)

Ja

Misschien

Nee

Anders...

Zou u eventueel betrokken willen zijn bij een vervolgonderzoek van dit project? Laat dan uw email-adres achter. De gegevens blijven binnen de betrokkenen van het onderzoek en worden niet gedeeld. Het opgeven van persoonlijke gegevens is geheel vrijblijvend, sla deze vraag over als u er niet comfortabel mee bent.

Appendix D. Co-Design Exercises

Image Expression



Goal: Get a clear understanding of the different views on this project. Visualise companies views. Help companies couple up with the same view.

Time: 15

Materials: Pictures, screenshare, pen, paper

Explanation: The organisations will be shown twelve pictures, divided in four rows. These images all represent elements that might be included or could be found in a Retourette. The four rows each have a different ambiance, thrift store, sustainable, waste station, woodshop. The organisations will be asked to explain which row currently represents their view on the Retourette.

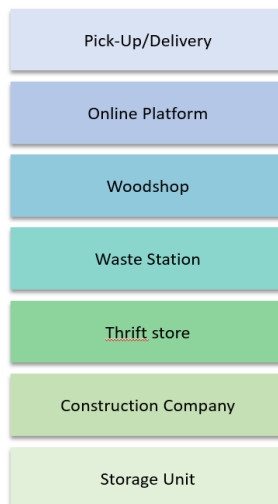
Mindmapping

Goal: Visualise the different aspects of the Retourette according to companies. Highlight overlapping or 'empty' areas.

Time: 15

Materials: Screenshare, online canvas

Explanation: The organisations will be asked to name different terms that come to mind when thinking about a Retourette. The facilitator will write the terms down and the mind map is shown to the attendees through screenshare. After the mindmap is created, the organisations are encouraged to talk about the different depicted aspects and their own role in the mind map.



Block Building

Goal: Allow organisations to express a preference in the composition of a Retourette. Show similar views or differences.

Time: 20

Materials: Block-images, screenshare, pen, paper, camera

Explanation: An explanation will be given that there are many variations in the compositions of the different existing 'Retourettes'. These variations will be represented as 'blocks'. An example will be given of an existing 'Retourette' and their visualisation as a blockscheme. The attendees will then be asked to draw their preferred scheme for the Retourette Houten, keeping the previous exercises, discussions and views of other companies in mind, but drawing it as their organisation would prefer it. Afterwards, the attendees are asked to explain their reasoning and how they would

estimate the success or reality of their scheme.

Barriers & Bridges

Goal: Organisation can express any collaborating opportunities. Discuss what they need or can offer.

Time: 20

Materials: Screenshare

Explanation: The mind map will again be shown on screen. The attendees are asked where they see possible collaborations and what they would need from other companies to make that reality. This round is more of a discussion between the organisations and an opportunity for them to exchange demands or offers.

Appendix E. Co-Design Sessie Notulen

Openen van de vergadering

Hallo en welkom, bedankt voor aanwezigheid

Introducties

Megan interesse om het hergebruik van materialen te stimuleren passend maken bij identiteit bedrijven van houten.

Rieneke gem houten beleidsmedewerker duurzaamheid rol van gemeente divers, verantwoordelijkheid voor duurzaamheid. Circulaire stad worden

Wil gem houten, medewerkers beleidsuitvoerder afval. Andere gem gewerkt. Leusden daar was een bouwkringloop. Belangrijk om zinvol met materialen om te gaan. Zonde om dingen weg te gooien. Nu is daar de tijd voor. Blij dat Megan dit doet

Gerdine gem houten. Vergunningverlening. Wat mag er en wat niet. Benieuwd wat de bedoeling is.

Marc overheidsdiensten Suez. Contact met gemeenten, Utrecht, Flevoland en Noord Holland. Verschillende onderwerpen. Inzameling van afvalstoffen bij huizen en gemeentelocaties, milieustraten. Inzameling en verwerking. Interesse bij Suez ambitie bij afvalstoffen management. Ketens sluiten, waarde toevoeging aan afvalstromen.

Lotte zelfde team als Marc. Kijkt voor Nederland wat zijn trends en ontwikkeling.

Wout krachtfabriek (KF) houten. Broedplaats voor werkwillenden. Zppers, vrijwilligers. Bezig geweest met retournette maar is niet gelukt. Blij dat t nu weer opgepakt wordt. Trotse Houtenaar. Producten in winkels op t rond. Nieuwe arbeidsplaatsen.

Birgitte zzper interieurontwerper. Verdiepen in duurzaamheid in vakgebied. Cradle to cradle. Mensen moesten bewuster worden. Voor ogen: upcycle fabriek. Materialen en mensen krijgen de kans om een betere versie te worden. Aangesloten bij krachtfabriek. Ook een winkel doorgroeien naar recycle warenhuis zoals in zweden, soort v en d voor upcyclen, kleding meubels computers. Willen verder met de krachtfabriek

Arie van Noppes is er niet

Axel van Beelen Next is er ook niet

Oefening: Image Expression

Vier rijen afbeeldingen, andere manier van kringloop en upcyclen. Kijk welke het beste is en geef je mening. Wat past het beste bij jouw organisatie, hoe je dit wilt aanpakken?

Nauw contact met milieustraat, dus blauw spreekt het meeste aan. Ingang milieustraat, drukte, opslag van materialen. Ook buiten. Koppelen aan kringloop warenhuis. Meeste feeling. Voor gem is het een verlengde van de milieustraat, systematisch ingedeelde aanleverpunten. Groot terrein, grote opslag. Groene loods die gebruikt kan worden voor retournette. Alle ingrediënten zijn aanwezig om er iets van te maken

Rieneke: Bovenste twee plaatjes, gem wens om het zichtbaar te maken, een verhaal te vertellen van grondstoffen. Service voor inwoners, winkel idee

Marc: suez is blauw, activiteiten in milieustraten, normaal in bulk.

Birgitte: over oranje, in zweden komen afvalstoffen aan en dan krijgen de mensen daar de keus om er wat mee te doen en de rest gaat door naar de winkel

Wout: stelt zich voor als in rood, oranje is stap daarna. Zoals een praxis, alles gesorteerd, winkelformule

Megan heeft al wat bezocht en alles komt er wel in voor, later gaan we verschillende onderdelen bekijken en alles komt erin terug.

Oefening: Mindmapping

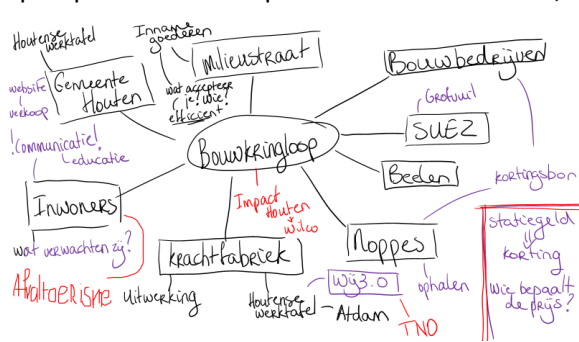
Mindmap over bouwkringloop houten. Termen en visies samenvoegen. Overlappende gebieden. Moeten er nog meer organisaties gezocht worden?

Noem termen die horen bij bouwkringloop houten

Betrokken bedrijven opschrijven: suez, noppes, krachtfabriek, milieustraat, gem houten, inwoners

Grofvuil ophaaldienst, website met informatie wat gebeurt ermee waar gaat het naartoe, online winkel. Platform zonder vuilstort, soort marktplaats, ruilhandel, materialen zonder bewerking. Gebeurt al een beetje op facebook, gezamenlijke platform heeft voordelen. Extra platform voor gemeente. Alleen voor houten of ook voor mensen daarbuiten? Risico dat meer gem daar heen komen, afvaltourisme, goedkoper, dus risico.

Prijs per stuk, abonnement? Ondernemers of huis tuin keuken klussers? Statiegeld idee, spaarpunten. Milieupas voor elk huishouden, als je iets brengt krijg je op je pas punten, die kun je



uitgeven in de winkel, cirkel is rond. Voorbeeld bij kringloopwinkel, korting op volgende aankoop. Nederlanders houden van sparen, punten en korting enzo. Sparen kan wel een poos duren als je niet vaak spullen komt brengen. Miss combi met bouwmarken, aansporen om spullen die bruikbaar zijn goed weg te brengen. Als leverancier wil je die spullen weer terug hebben als dat nog kan, cradle to cradle. Bij Ikea kan je je oude kast weer inleveren.

Impact houten, organisatie, duurzaamheid, ondernemers.

Oefening: Block Building

Uitleg van de bouwblokken

Iedereen bedenk opstelling past het beste bij houten, en bij jouw bedrijf, organisatie.

Gem heeft inzamelplicht daar hoort milieustraat bij, breng en ophaal van straat bieden ze aan. Opslag nodig om spullen op te slaan, die stap moet gemaakt worden. Online platform koppelen met kringloop om te laten zien wat er allemaal is. Daaruit een werkplaats maken voor geïnteresseerden. Mensen ervaring op laten doen, producten verkopen. Een groeimodel. Niet meteen enorm maken, maar meer laten groeien en dan uitbreiden. Opslag is alleen voor bouwkringloop, bruikbare materialen.

Aanleveren van materialen is lastig, veel stromen door elkaar halen, te vaak of te weinig ophalen, hoe kan je dat efficiënt inrichten. Voor inwoners is het verwarrend als er te veel plekken zijn waar je afval kwijt kan. Zeg duidelijk wat waar heen moet.

Ophalen bezorgen naar milieustraat, naar kringloop werkplaats milieustraat kijken wat bruikbaar is anders afvoeren en verwerken, dan naar de kringloop. Sorteren in milieustaats, intern. Kan uitgebreid worden, maar eerst beheersbaar houden.

Krachtfabriek: drie kanten aanlevering, opslag, werkplaats bouwmarkt kringloop online, dan naar klant. Repaircafe kunnen workshops doen, reparaties. Stadswerkplaats, gebruik maken van machines en gereedschap. Nu al werkplaats toevoegen, sociale gebied erbij halen.

Er moet genoeg aanvoer zijn voor werkplaatsen, dus bouwbedrijven moeten dan ook aansluiten. Maar dat kan lastig zijn, wie gaat dat ophalen. Bouwbedrijven moeten zelf circulair worden, wij moeten niet hun problemen oplossen, alleen als zij mooie producten over hebben.

Bouwbedrijven zijn nog niet enthousiast, nu nog abstract. Ze proberen al te recyclen, maar niet hergebruiken. Bouwbedrijven kunnen goeie toevoeging zijn, maar kunnen later pas erbij gehaald worden. Pas als dit systeem werkt, dan erbij betrekken.

Oefening: Barriers & Bridges

Bestemmingsplan moet nog besproken worden, werkplaats is dat mogelijk?

Wat gaat er gebeuren, past dat in bestemmingsplan, vergunning nodig. Detailhandel mag niet zomaar, ook als mensen gaan werken. Als er een mooi idee is dat niet past is het wel te regelen. Op dit moment te vroeg om te zeggen of het kan. Als het concreter is kijken wat er gedaan kan worden. Klein beginnen en uitbreiden goed opletten met vergunningen. Kan niet zeggen ja of nee.

Upcyclen, wat is de beste manier om dat aan te pakken, intern of nodig je mensen uit? Workshops, blijft dat vrij of op bestelmatig systeem? Wat is interessant en past goed?

Kan beide kanten op, standaard producten en kunstenaars? Kan allebei. Is belangrijk wat er aangeboden kan worden. Hoeveel mensen wat kunnen ze begeleiden. Wat kun je upcyclen met de materialen die je hebt. Wat is passend. Als je wat binnen krijgt met een creatief team kun je daar een standaard product van maken. Kruisbestuiving. Lastig om dat nu al in te richten. KF is op zoek naar nieuwe ruimte, kan meelopen in dit proces.

Noppes loopt een pilot voor upcyclen werkplaats, wordt verkocht in winkel. Als dat succesvol is gaan zij ook uitbreiden, samenwerking met bouwkringloop,

Is een goed idee, shop in kringloop voor snuffelen, werkplaats en milieustraat moet de verbinding duidelijk zijn. Productontwerpen maakt het uit hoe je iets presenteert, kringloop heeft ander publiek en lage prijzen, arbeid is duur. Mensen hebben niet in hun hoofd wat grondstoffen en arbeid kosten. Onderscheid tussen reparaties en kunst.

Wat is de beste manier om de identiteit van de bouwkringloop weer te geven? Advertenties, hergebruik goed voor milieu, wat is de identiteit hoe past het erbij maar is wel zn eigen systeem.

Dit kan een circulair centrum worden, bekendheid als "er gebeurt hier alles", werkplaats, mensen kunnen zien wat er met de materialen gebeurt. Bekendheid maken van je kunt er spullen halen is lastig. Beschouw het als een praxis. Duurzaamheidsplein in Os. Demontage hal, producten strippen. De hele cirkel.

Nieuwe indeling milieustraat, door corona. Heeft hier niks mee te maken. Totaal plaatje voor ogen, hele indeling op de schop. In het huidige proces de verwerking van afvalstromen duurzaamheid omhoog krijgen, we kijken nu naar bruikbaarheid. Mooie ambities van gem houten maar die mist in afvalstromen en duurzaamheid. Wat wordt ermee gedaan.

Platformen bestaan al, marktplaats FB enzo. Platform is niet locatie gebonden, is dat vatbaar genoeg? In strijd met bestaande organisaties.

Klein beginnen dus nog geen online platform, dat komt later pas. Miss eerst aansluiten via marktplaats of fb. Gaat dat ten koste van educatie en betrokkenheid? Jongeren zijn enthousiast die kunnen mensen aansporen

Inzamelen van verf. Dat loopt niet zo goed blijkbaar, beetje jammer. Daar kunnen ze van leren.

Conclusie

Samenwerking moet komen met milieustraat kringloop. Circulair plein. Werkplekken bieden aan mensen zonder arbeid. Klein beginnen dan uitbreiden naar online werkplaats. IJkpunt is betrokken zijn, educatie, past bij houten imago. Op de hoogte stellen van medewerkers milieustraat. Vaststellen wat wordt ingenomen. Drie punten, wegbrengen, recyclen upcyclen. KF heeft werkplaats.

Retrospect

Marc vindt t leuk om fysiek te gaan kijken bij Os (ofc) maar ja corona he. Werkbezoek als werkgroep, inspiratietour. Nu woorden, maar zien en doen is beter. Werkgroep creëren, stappen zetten, elkaar leren kennen. Nu beperkingen door corona. Werkgroep creëren is nu de volgende stap. Werkgroep, werkgroep, werkgroep.

Afsluiten van de vergadering

We zijn klaar. De gemeente neemt t over. Maar Megan is natuurlijk wel bij de opening.

Appendix F. Map-reading Explanation

The very first column shows the subjects of each row. The upper-most square gives a brief summary of the visualized customer. The second square denotes the customer journey, it is this row that explains the steps in the process and indicate how this map should be read. The third, fourth and fifth squares denote some customer experiences through goals, motivations and thought. The last square indicates the points of attention the Retourette has to adhere to when catering to these customer-steps.

Experience Map – Bouwkringloop Houten

Name: Mark Age: 32	Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.				
Customer Journey	Delivery/Pick-up	Deliver Materials	Browse	Buy Materials	Stamp
Customer Goals	Gain information	Deliver materials to waste station	Determine material types and offers	Get Materials	Order new Materials
Customer Motivation	Save/Necessity	Responsible	Curiosity	Rational Motivation	Economize
Customer Thoughts	How can I donate without a car?	What is this new organisation?	What materials types do they offer?	I'll use this material in my project	Can I save money on my next purchase?
Points of Attention	Ensure privacy and safety regarding info and payments. Transport smoothly.	Educate employees of the waste station. Emphasize gains of reusing materials.	Be clear but concise in what you offer.	Firmness and Reliable Employees.	Set achievable goals alongside Customers. Make it Fun.

The other columns should be read from the blue row, each square describing a next step in the process of visiting the Retourette. The columns then indicate the customer experiences during these steps and the attention points of the organisation.

Experience Map – Bouwkringloop Houten

Name: Mark
Age: 32

Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.

Customer Journey					
Customer Goal	Gain information	Deliver materials to waste station	Determine material types and offers	Get Materials	Order new Materials
Customer Motivation	Ease/Necessity	Responsible	Curiosity	Rational Motivation	Economize
Customer Thoughts	How can I consign without a car?	What is this new organization?	What materials types do they offer?	I'll use this material in my project	Can I save money on my next purchase?
Points of Attention	Ensure privacy and safety regarding info and payments. Transport smartly.	Educate employees of the waste station. Emphasize gains of reusing materials.	Be clear but concise in what you offer.	Environmental Reliable Employees.	Set achievable goals. Intrigue Customers. Make it Fun.

Experience Map – Bouwkringloop Houten

Name: Mark
Age: 32

Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.

Customer Journey									
Customer Goal	Gain information	Deliver materials to waste station	Determine material types and offers	Get Materials	Order new Materials				
Customer Motivation	Ease/Necessity	Responsible	Curiosity	Rational Motivation	Economize				
Customer Thoughts	How can I consign without a car?	What is this new organization?	What materials types do they offer?	I'll use this material in my project	Can I save money on my next purchase?				
Points of Attention	Ensure privacy and safety regarding info and payments. Transport smartly.	Educate employees of the waste station. Emphasize gains of reusing materials.	Be clear but concise in what you offer.	Environmental Reliable Employees.	Set achievable goals. Intrigue Customers. Make it Fun.				

The second map contains six steps that are optional during future developments. However, in contradiction to the first map, these blue steps are not a journey, but separate pieces. These pieces can be picked and added to the first map as an additional step during the journey meaning the map is extended. Although two pieces can be added together, they are all stand-alone options.

Experience Map – Bouwkringloop Houten

Name: Mark
Age: 32

Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.

Customer Journey	Delivery/Pickup	Deliver Materials	Browse	Buy Materials	Stamps
Customer Goal	Gain information	Deliver materials to waste station	Determine material types and offers	Get Materials	Order new Materials
Customer Motivation	Ease/Necessity	Responsible	Curiosity	Rational Motivation	Economize
Customer Thoughts	How can I consign without a car?	What is this new organization?	What materials types do they offer?	I'll use this material in my project	Can I save money on my next purchase?
Points of Attention	Ensure privacy and safety regarding info and payments. Transport smartly.	Educate employees of the waste station. Emphasize gains of reusing materials.	Be clear but concise in what you offer.	Environmental Reliable Employees.	Set achievable goals. Intrigue Customers. Make it Fun.

Experience Map – Bouwkringloop Houten

Name: Mark
Age: 32

Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.

Customer Journey	Delivery/Pickup	Deliver Materials	Browse	His Workshop	Buy Materials	Stamps
Customer Goal	Gain information	Deliver materials to waste station	Determine material types and offers	Work on their project	Get Materials	Order new Materials
Customer Motivation	Ease/Necessity	Responsible	Curiosity	Limited Space/Tools	Rational Motivation	Economize
Customer Thoughts	How can I consign without a car?	What is this new organization?	What materials types do they offer?	I have too little space/tools at home	I'll use this material in my project	Can I save money on my next purchase?
Points of Attention	Ensure privacy and safety regarding info and payments. Transport smartly.	Educate employees of the waste station. Emphasize gains of reusing materials.	Be clear but concise in what you offer.	Offer extensive tool collection. Ensure proper knowledge in employees.	Environmental Reliable Employees.	Set achievable goals. Intrigue Customers. Make it Fun.

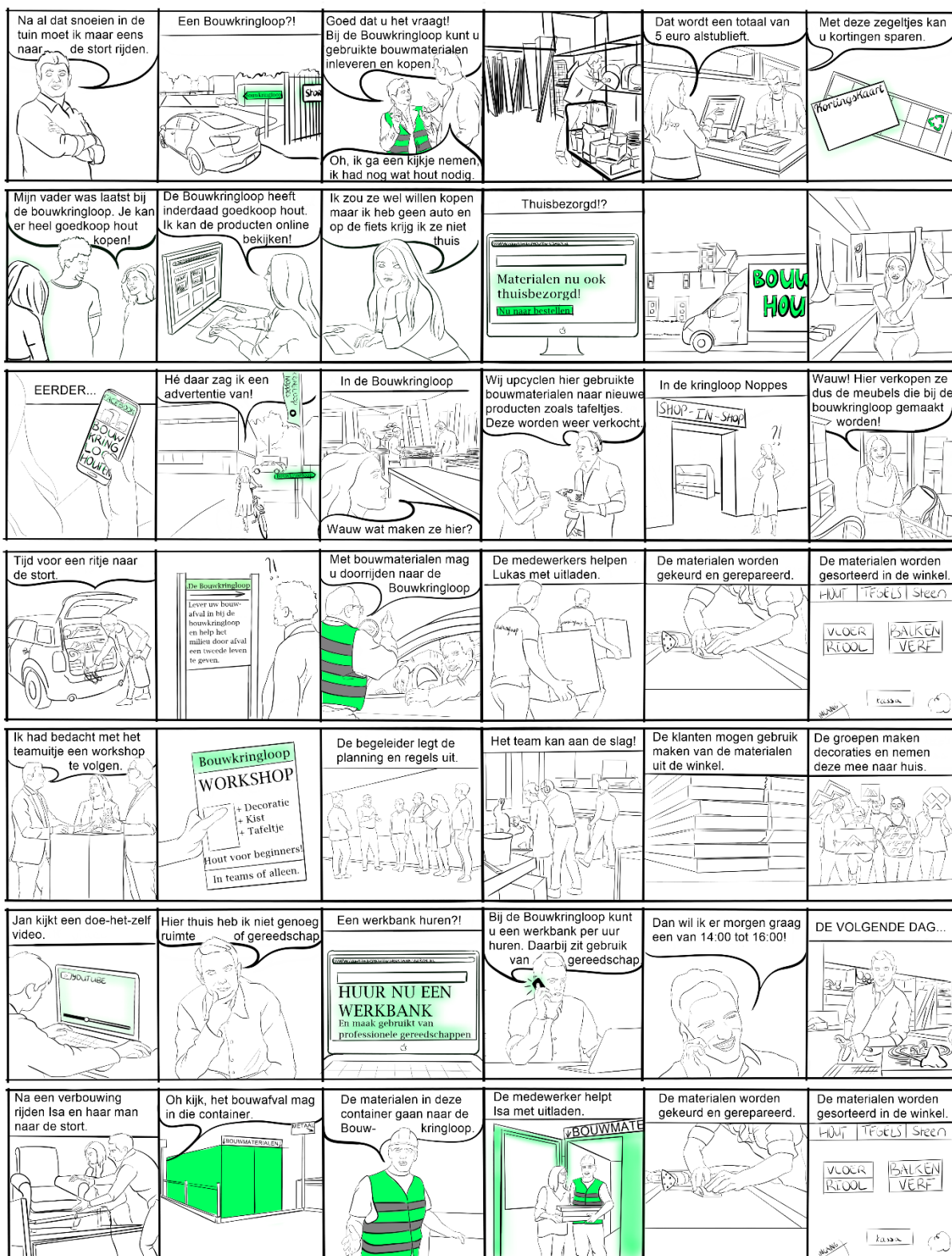
The exception on this map is the second column. It is a step that follows logically after the step 'Open Woodshop', however, it is not performed by the Retourette. The step is performed by the thrift store Noppes but as it is in close cooperation with the Retourette and because strict agreements have to be drawn up, the step is added in this experience map.

Experience Map – Possible Development

Name: Mark Age: 32		Mark often spends his free time in the garage where he touches up old furniture or make his own wooden models. As he is delivering old materials to the waste station he spots the Buurman Utrecht trailer. He scouts the online platform for information, decides to visit the store and join a workshop. Afterwards he orders more materials for his personal project.				
Discovery	Get Materials	Hire Workbench	Workshop	Online Presence	Online Shop	
	Get Product	Work on their project	Learn new skill	Get informed	Order new Materials	
Involvement	Emotional Motivation	Limited Space/Tools	Enthusiasm	Curiosity	Ease	
What is going on in here?	This product is nice	I have too little space/tools at home	Can they teach me new tricks?	What is this Sustainable Pizza?	How can I get the materials home?	
Ensure proper knowledge in employees. Who will work here?	Educate employees of the third party. Think about price differences and determine a price.	Offer extensive tool collection. Ensure proper knowledge in employees.	Ensure proper knowledge in employees. Offer new things.	Educational parts on the website.	Ensure privacy and safety regarding info and payment. Transport smartly.	

The Service Blueprint is read in the same way, it follows the steps of the customer journey in blue, with each row denoting the actions the organisation must take to support these steps.

Appendix G. Storyboards



Appendix H. Evaluation Retourette

Bouwkringloop Houten Deel2

Enkele weken geleden heeft u een google formulier ingevuld met vragen over een mogelijke bouwkringloop in Houten. Daarbij heeft u uw email-adres opgegeven om eventuele vervolgvragen te beantwoorden.

Momenteel is het ontwerp van een bouwkringloop Houten verder ontwikkeld en wordt er opnieuw gekeken naar uw mening.

Bouwkringloop Houten

Bekijk de eerste strip hieronder. Bij de vorige enquête werd aangegeven dat het aanleveren van bouwmaterialen niet meer moeite zou moeten kosten dan normaal bij de milieustraat. De bouwkringloop bevindt zich in een hal op de gemeentewerf (tussen de milieustraat en de kringloop).



Wat wil ik hier weten: of inwoners bij de bouwkringloop zouden kijken. Of inwoners nieuwsgierig zouden zijn. Of zij tweedehands materialen zouden kopen. De meest simpele verloop van de bouwkringloop weergeven en een kleine uitleg geven. Laten zien dat de bouwkringloop dicht bij de stort zit.

1. De locatie van de Bouwkringloop is dichtbij genoeg om mij te overtuigen materialen aan te leveren.
 - Meer dan genoeg
 - Voldoende
 - Niet genoeg
 - ___
2. Het zien van een 'Bouwkringloop' bord op de milieustraat is voldoende om mijn nieuwsgierigheid ernaar te wekken.
 - Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - ___
3. Het kunnen sparen van kortingen voor bijvoorbeeld producten uit de kringloopwinkel werkt stimulerend om iets te kopen of te brengen bij de Bouwkringloop.
 - Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - ___

Ophalen/Bezorgen

Bekijk de tweede strip hieronder. Het bezit van een auto is niet voor iedereen standaard. Bovendien werd in de vorige enquête aangegeven dat het aanleveren van bouwmaterialen bij de Bouwkringloop niet meer moeite zou moeten kosten dan het aanleveren van overig afval bij de milieustraat.



Wat wil ik hier weten: Of inwoners de website zouden bekijken. Of zij een webwinkel positief zouden vinden. Of zij gebruik zouden maken van ophalen/bezorgen.

4. Door het bieden van een ophaal-/bezorgservice voor bouwmaterialen zou ik sneller gebruik maken van de bouwkringloop.
 - Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - _
5. Door het bieden van een webshop voor bouwmaterialen zou ik sneller gebruik maken van de Bouwkringloop.
 - Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - _

Controle en Reparatie

Bekijk de derde strip hieronder. In de vorige enquête werd aangegeven dat de aangeboden materialen van goede kwaliteit moesten zijn. In het huidige ontwerp van de Bouwkringloop is de aanlevering van goederen bij de bouwkringloop, gescheiden van de milieustraat.



Wat wil ik hier weten: Of inwoners hun spullen bij de bouwkringloop zouden inleveren. Laten zien dat er voldoende ondersteuning zal zijn beide bij de milieustraat en de bouwkringloop. Laten zien dat de materialen gerepareerd en netjes geplaatst worden.

6. Als ik iets verder door moet rijden om mijn bouwmaterialen apart in te leveren is dat voor mij geen drempel.

- Helemaal mee eens
- Eens
- Neutraal
- Oneens
- Helemaal mee oneens

7. Wilt u uw vorige antwoord toelichten?

8. Als de bouwmaterialen aangeboden worden bij de Bouwkringloop gecontroleerd zijn op kwaliteit zou ik sneller iets kopen.
- Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - ___
9. Het netjes sorteren en presenteren van de bouwmaterialen in de Bouwkringloop draagt er aan bij dat ik iets zou kopen.
- Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens
 - ___

Milieustraat

Bekijk de vierde strip hieronder. In een eventuele samenwerking met de milieustraat is het mogelijk een container op de milieustraat te zetten zodat apart inleveren niet nodig is. Dezelfde reparaties en controles volgen dan op het materiaal.



10. Deze situatie van een container op de milieustraat heeft een grotere voorkeur dan het apart inleveren bij de Bouwkringloop.
- Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens

Opwaarderen

Bekijk de vierde strip hieronder. Bij de bouwkringloop staat sociale betrokkenheid hoog in het vaandel. Een mogelijke uitbreiding van de Bouwkringloop is het toevoegen van een sociale werkplaats waar werknemers met een afstand tot de arbeidsmarkt producten opwaarderen (nieuwe producten maken van oude onderdelen/materialen).



Wat wil ik hier weten: Of de inwoners nieuwsgierig zouden zijn en zouden kijken. Of zij zich betrokken voelen bij de werkplaats. Of zij de shop-in-shop als voordeel zien. Of zij upcyclen van waarde vinden. Of zij upcycled producten zouden kopen.



11. Het toevoegen van een (sociale) werkplaats waar met de ingeleverde materialen wordt gewerkt en geleerd heeft een toegevoegde waarde voor de Bouwkringloop. (zie de afbeelding voor een voorbeeld)
- Helemaal mee eens
 - Eens
 - Neutraal
 - Oneens
 - Helemaal mee oneens



12. Wanneer de producten die gemaakt worden in de bouwkringloop te koop zijn in de kringloopwinkel Noppes, zou u daarvoor een kijkje gaan nemen?
- Ja
 - Misschien
 - Alleen als ik al in de kringloop ben
 - Alleen als ik al op de milieustraat ben
 - Nee

__

13. Zou u een opgevalueerd product/meubel/kunstobject kopen? (zie de afbeelding voor een voorbeeld)

- Ja
- Waarschijnlijk wel
- Misschien
- Waarschijnlijk niet
- Nee
- __

Workshops

Bekijk de vijfde strip hieronder. Bij een eventuele uitbreiding is het mogelijk dat de Bouwkringloop ook workshops (hout bewerken, kunstobjecten, opwaarderen etc.) geeft waar inwoners zich alleen of met een groep als uitje voor kunnen inschrijven.



Wat wil ik hier weten: Of inwoners workshops interessant zouden vinden. Of zij workshops zouden volgen. Mogelijkheden tot uitbreiden laten zien.

14. Heeft u ervaring met het werken met hout?
- Ja, veel

- O Ja, een beetje
- O Gemiddeld
- O Nee, niet echt
- O Nee, helemaal niet
- O __

15. Zou u een workshop bij de Bouwkringloop interessant vinden?

- O Ja, zeker wel
- O Waarschijnlijk
- O Misschien
- O Waarschijnlijk niet
- O Nee, zeker niet
- O __

Werkbank huren

Bekijk de zesde strip hieronder. Bij een mogelijke uitbreiding van de Bouwkringloop is het mogelijk zelf een werkbank te huren per uur. Hierbij kan u gebruik maken van de gereedschappen en begeleiding die de bouwkringloop te bieden heeft.



Wat wil ik hier weten: Of inwoners een werkbank zouden huren. Of zij soms in deze situatie zitten. Mogelijkheid tot uitbreiden laten zien.

16. Heeft u toegang tot genoeg ruimte en gereedschappen voor eventuele projecten of reparaties die u wilt uitvoeren?

- O Ja
- O Meestal
- O Soms niet
- O Nee
- O Ik doe nooit projecten of reparaties
- O __

17. Zou u een werkbank/gereedschap huren bij de bouwkringloop als u zelf niet genoeg ruimte of gereedschap heeft?

- O Ja, zeker
- O Waarschijnlijk wel
- O Misschien
- O Waarschijnlijk niet
- O Nee, zeker niet
- O __

18. Kunt u uw antwoord toelichten?

Slot

Tot slot enkele algemene vragen.

19. Wat vindt u van de plannen en mogelijkheden die in deze vragenlijst zijn geschetst voor een bouwkringloop in Houten?
-

20. Zou u uw bouwmaterialen leveren bij de bouwkringloop?

Ja, zeker
 Waarschijnlijk wel
 Misschien
 Waarschijnlijk niet
 Nee, zeker niet
 __

21. Zou u bouwmaterialen kopen bij de bouwkringloop?

Ja, zeker
 Waarschijnlijk wel
 Misschien
 Waarschijnlijk niet
 Nee, zeker niet
 __

22. Denkt u dat de Bouwkringloop een positieve invloed kan hebben op het milieu?
-

23. Denk u dat de Bouwkringloop een positieve invloed kan hebben op de inwoners van Houten?
-