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RENOVA

SERVICE BOOK

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Project made during the Final Synthesis Studio class as part of the MSc. Product Service System Design in Politecnico di Milano.

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SUMMARY

01

OVERVIEW

RENOVA, PRODUCT SALVAGE SERVICE

Construction waste is the number one contributor of solid waste in the world, (Osmani, 2011) it fills our local landfills and wastes our precious natural resources. The biggest cause of private construction waste comes from the renovations that we do to our homes and businesses. (Osmani, 2011) The good news is that everyone has the power to help combat construction waste.

This project aims to reduce the waste generated on home and businesses renovations by salvaging products and connecting them to future users. In this context, products make reference to all general fixtures, including the ones of kitchens, bathroom and lighting, as well as parquet flooring and engineered wood flooring.

This innovative project was developed for the Brazilian market, by turning challenges into a service called Renova.

The methodology followed aims to bring together the best of design, businesses and technology to provide a meaningful and ready-for-market service.

Over the course of this challenge, we explored the market, studied our users, created concepts, prototyped the most promising ones, tested with users and built a viable business plan and a development roadmap.

After following a four month design process, Renova service is a fully developed concept.

This paper presents the research, development and final prototypes of the service with detailed explanations: what is the service, how it works, the offering and actors as well as the business model canvas and touchpoints involved.

Enclosed with this document, there is a business plan in a detailed Excel file which explains all financial projections up to three years after the launch, in both the currency of Brazil (reais) and Euros, as it is where the service is presented.

Overall, Renova is a second hand platform for the resale of deconstructed products that can be used for the construction of homes and businesses. It is an easy, efficient way to buy and sell pre-installed construction products.

With Renova, the buildings of today reconfigure the buildings of yesterday to honor the environment of tomorrow.

02.
RESEARCH

02.A

DESK RESEARCH

CIRCULAR ECONOMY AND SUSTAINABILITY ON THE BUILT ENVIRONMENT: BRAZIL

The research done for this project explores how a circular economy approach can address construction waste, which is a systemic challenge in the built environment sector.

Our built environment continues to utilize the linear 'take-make-waste' model in which resources are taken from the ground, used and then disposed of as waste. This approach makes the built environment one of the world's largest consumers of global raw materials and largest sources of waste and negative environmental externalities such as increased air, water, and soil pollution (World Economic Forum & Beck, 2016).

Deconstruction presents a valuable alternative to traditional demolition and involves the disassembly of buildings to recover the maximum amount of reusable materials. Additionally, salvaging valuable materials within buildings allows them to be reused.

This research presents some of the key challenges and opportunities associated with product salvage in the construction sector and highlights existing solutions and key insights that will enable greater reuse in the future.

MAIN TOPIC:

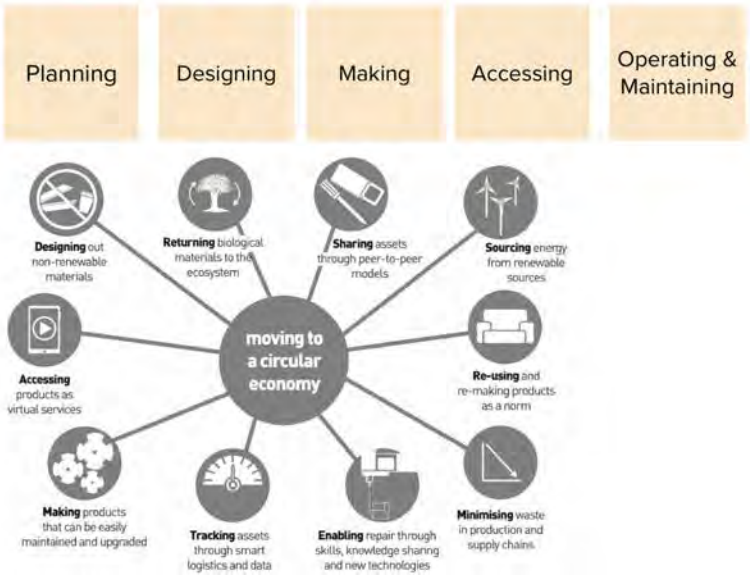
CIRCULAR ECONOMY & SUSTAINABILITY

PRINCIPLES

Circular economy principles	
Prevention	Re-use
Share	Refurbishment/ remanufacture
Life extension	Open-loop recycling

BENEFITS

A more circular economy will benefit:	
Economy	Improving productivity, opening up new markets and improving resilience
Environment	Cutting waste and carbon emissions and reducing reliance on scarce resources;
Communities	More, lower cost options to access the goods we need with opportunities for social enterprise.



FOCUS AREA:

CONSTRUCTION SUSTAINABILITY

Residential Renovation

An average house demolished can create up to 42 tonnes of waste

It is estimated that 25 - 40 percent of the national solid waste stream is building-related waste.

One simple early decision that dramatically reduces waste is designing with material sizes in mind. If you have a ceiling height that does not match the plasterboard sheet, you end up with a tiny little strip that has to be cut out of a full sheet. In the case of bricks, not matching the ceiling height is even more wasteful.

Table 8
SUMMARY OF ESTIMATED BUILDING-RELATED C&D DEBRIS GENERATION, 1996*
(Roadway, Bridge, and Land Clearing Debris not included)
(Thousand Tons)

Source	Residential		Nonresidential		Totals	
	Thou tons	Percent	Thou tons	Percent	Thou tons	Perc
Construction	6,560	11	4,270	6	10,830	
Renovation	31,900	55	28,000	36	59,900	4
Demolition	19,700	34	45,100	58	64,800	4
Totals	58,160	100	77,370	100	135,530	10
Percent	43		57		100	

* C&D debris managed on-site should, in theory, be deducted from generation. Quantities managed on-site are unknown.

Opportunities for construction to become circular

Lighter weight construction, meaning fewer tonnes of primary materials used.

Extending the lifetime of buildings so there will be less demolition, and less demand for new construction.

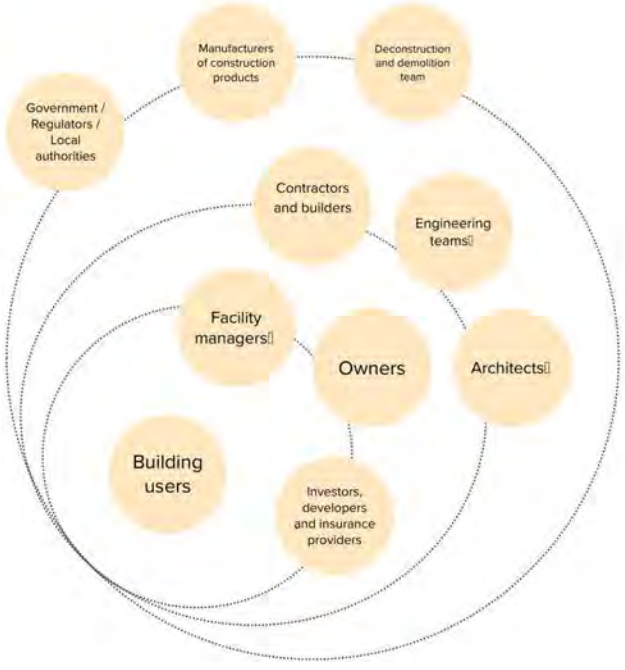
Design products for disassembly and reuse to make sure that products can be 'mined' from the urban environment and reused.

The use of more renewable materials such as wood and other biobased alternatives.

More and higher value reuse and recycling, including reuse across sectors.

Denmark, which recycles 86% of its construction waste, has made it mandatory for all government buildings to undergo selective demolition and sorting of construction waste

Stakeholders



Facts

The construction and demolition is sometimes more than 50% of the total municipal solid waste.

Construction activities consume 32% of the world's resources including 12% of water and up to 40% of energy.

Over 75% of what the construction industry generates as waste has residual value

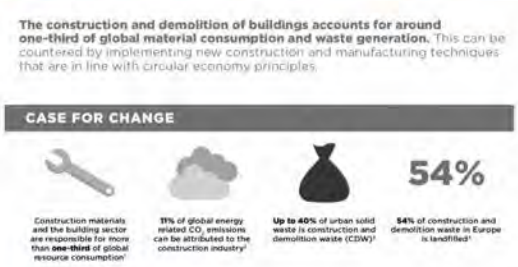
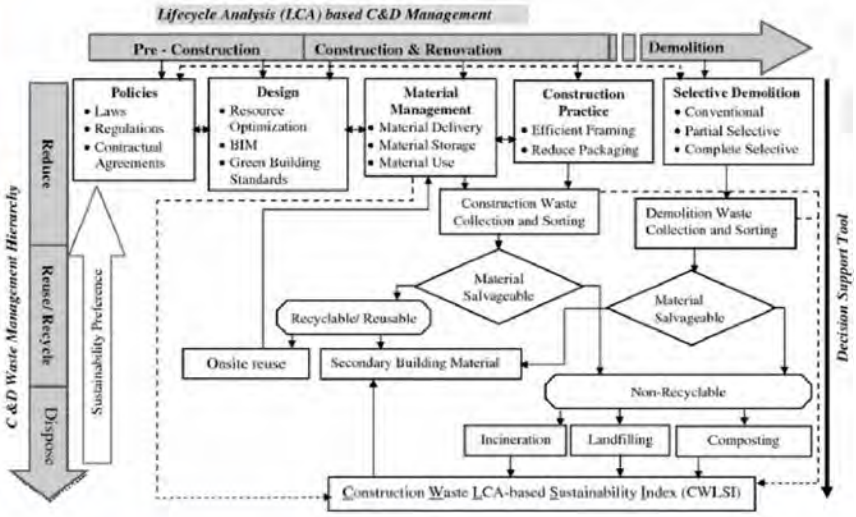


Table 1 C&D waste type and its recycling/reuse potential

C&D waste	Recycle/reuse potential	Biodegradable potential	Potential for landfilling	Potential for incineration
Concrete	Recycled aggregate for road base, and for concrete	No	Yes	No
Steel	Recyclable to steel	No	No	No
Brick and block	Backfill, recycled aggregate	No	Yes	No
Insulation	Insulate attic or as sound proofing on interior walls	No	No	Yes
Glass	Fiber glass as pozzolans in cement	No	Yes	No
Ceramic	Possibly recyclable as filling material as a coarse aggregate for concrete	No	Yes	No
Aluminium	Recyclable to aluminium	No	No	No
Plastic	Recyclable to any form	Some can be biodegradable	No	Yes
Paint	Reusable as paint/concrete admixture	Some can be biodegradable	No	Yes
Wood	Recyclable to veneer board/paper pulp	Yes	Yes	Yes
Gypsum board	Recyclable to new board, crushed wall as clay and silt mixture and can be composed	Yes	No	No
Card board	Composting, fire kindling, paper production	Yes	Yes	Yes
Asbestos	No	No	If properly sealed	No

Conceptual framework for lifecycle-based integrated C&D waste management system:



Phases in which waste is generated

PROJECT PLANNING	DEMOLITION	PLACEMENT OF PLASTER	CONSTRUCTION	LAMPS	HIDROSANITARIES INSTALLATIONS
INSTALLATION OF COATINGS & STONES	PAINTING	CURTAINS	WOODWORK	FURNITURE	ELECTRICAL INSTALLATIONS

Known ways to manage construction waste

Recycling	Reuse	Trash	Incineration	Downcycling

SUBTOPIC:

CONSTRUCTION WASTE

Governments Role

- **European demolition permits**
  - Each governments have local info
  - NGOs for different areas and material specialities
- **Europeans "Green Deal" Program**
  - 70 % waste recovery target by 2020
- **Charging for waste**
  - waste taxes
  - collection fees
- **Networking between municipalities**
- **Legistlations**

Contractor & Builder

- **Reducing construction waste**
  - Planning and purchasing of materials at the beginning of the project
  - Where does material come from to begin with
  - unsustainable materials
  - Construction or design errors
  - Alignment between contractors, engineers, and clients
  - Cost of material storage vs purchasing new
  - Last minute changes
- **Deconstruction**
  - building with reconstructable materials
  - sustainable reconstruction
- **Demolishing**
  - BAUCYCLE

Sorting out the raw materials from demolition waste

- *3rd Party Trash & Recycling Organizations*
  - *End Consumer, Private Construction*
- Local Recycling
  - Connecting extra materials with people who actually need them
- Sorting construction waste
  - Leaving what is already there when possible
- By camera, microelements
- Specific sorting
- using the construction and demolishing waste for building new

CONTEXT:

CONSTRUCTION WASTE IN BRAZIL

Civil construction is an area of great importance in Brazilian industry, with a strong indication of economic growth (IPEA, 2012).

However, like so many others, it causes environmental impacts, mainly by the generation of waste. According to Spadotto et al. (2011), “civil construction is responsible for several impacts, to the area and its surroundings where the work is installed, caused by its activities directly or indirectly ”, which means that civil construction does not only cause environmental impacts, but also social and economic impacts.

The issue of Waste from Civil Construction has been widely discussed in Brazil due to its high generation rate, representing about 51% to 70% of the urban's solid waste collected (Cardoso et al., 2014).

According to data from the ABRECON Sectorial Survey, published in November 2018, the small generator, that is, the one that makes a small renovation in your home generating 1m³ of waste per day, represents about 60% to 70% of the total mass of construction waste. In this way, the largest volume of waste ends up being generated by small works and not by large ones.

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In relation to environmental impacts, in addition to the use of the area and energy, civil construction generates solid waste, either in the construction itself, or in demolition.

These wastes are usually discarded inappropriately and generate environmental impact.

According to Silva and Fernandes (2012), the civil construction sector is one of the largest solid waste generators today, and waste originating during construction or demolition is of utmost importance in the amount that is produced in urban centres.

According to data from the Waste Diagnosis Civil Construction Solids, 31 million tons of solid waste are generated per year from the civil construction (IPEA, 2012).

COMPETITORS

iMATERIO

Stock exchange for construction materials and waste

A platform by SEDDRe (Union of Deconstruction, Pollution Control and Recycling Companies), its goal is to connect construction companies to allow, on one hand, companies to find solutions to get rid of materials or site waste without turning to final disposal and, on the other hand, for other construction companies to find material resources more easily near their sites. The targeted wastes are inert wastes and recovered materials.

Location: France
www.imaterio.fr

BACKACIA

B2B marketplace for reuse of construction materials and equipment

B2B second-hand marketplace of materials from excess orders or from methodical deconstruction. Supports impactful and profitable reuse operations and it targets professionals in the Building and Real Estate sector.

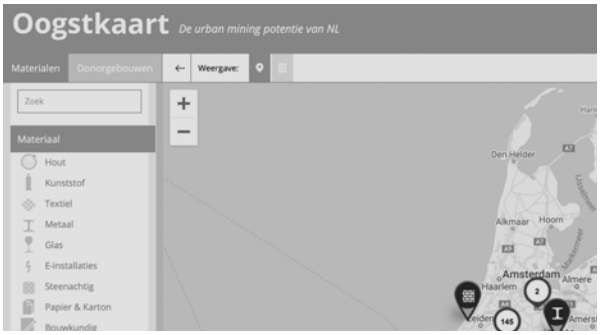
Location: France
www.backacia.com

HARVEST MAP

Maps sources of construction waste or other materials for reuse

An open-access and participatory tool to support sustainable circulation of building materials. It identifies, maps and makes available construction materials that come from demolitions, products that have reached their end-of-life, unsold inventory and stock, components recovered from demolished buildings and leftovers from industrial manufacturing. The tool presents data concerning the location of waste, its type, quantity, parameters, technical and aesthetical state, availability and potential ways of reusing.

Location: Netherlands
www.oogstkaart.nl



STARDUST

Non-profit selling used building materials + deconstruction services

NGO operating 2 reuse centers which sell used, salvaged, and surplus building materials from donations. The inventory changes daily, with prices 50-80% lower than department stores. After the donation, they provide a receipt that may be used for tax purposes. They offer deconstruction services for $250, enabling home or business owners to save an average of $1,500 on remodeling costs which include high dumpster or landfill fees. Home pick-ups are available for donations with value above $100.

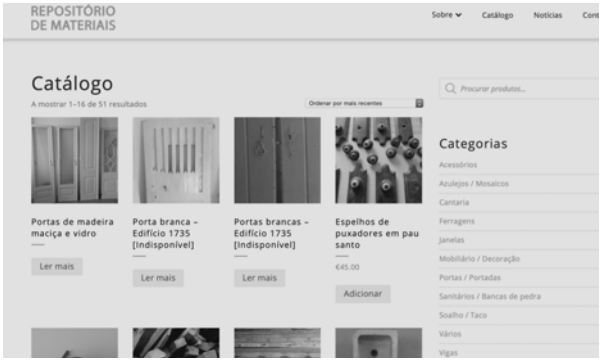
Location: USA
www.stardustbuilding.org

REPOSITORIO DE MATERIAIS

Platform that centralizes reclaimed materials and buyers

A platform for the valorisation of leftover materials and components from construction or from demolition/renovation with potential for reuse. A tool that aims to centralize the relationships between the various entities that have these materials and those looking for them. The company can store some materials, depending on the location and dimensions. It currently has a space in Porto, but for the rest of the country it offers the possibility of posting on the website.

Location: Portugal
www.repositoriodemateriais.pt

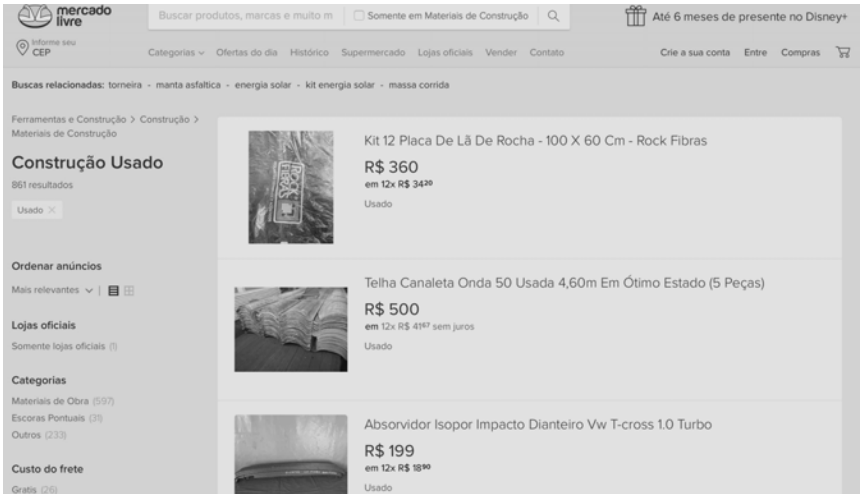


MERCADO LIVRE

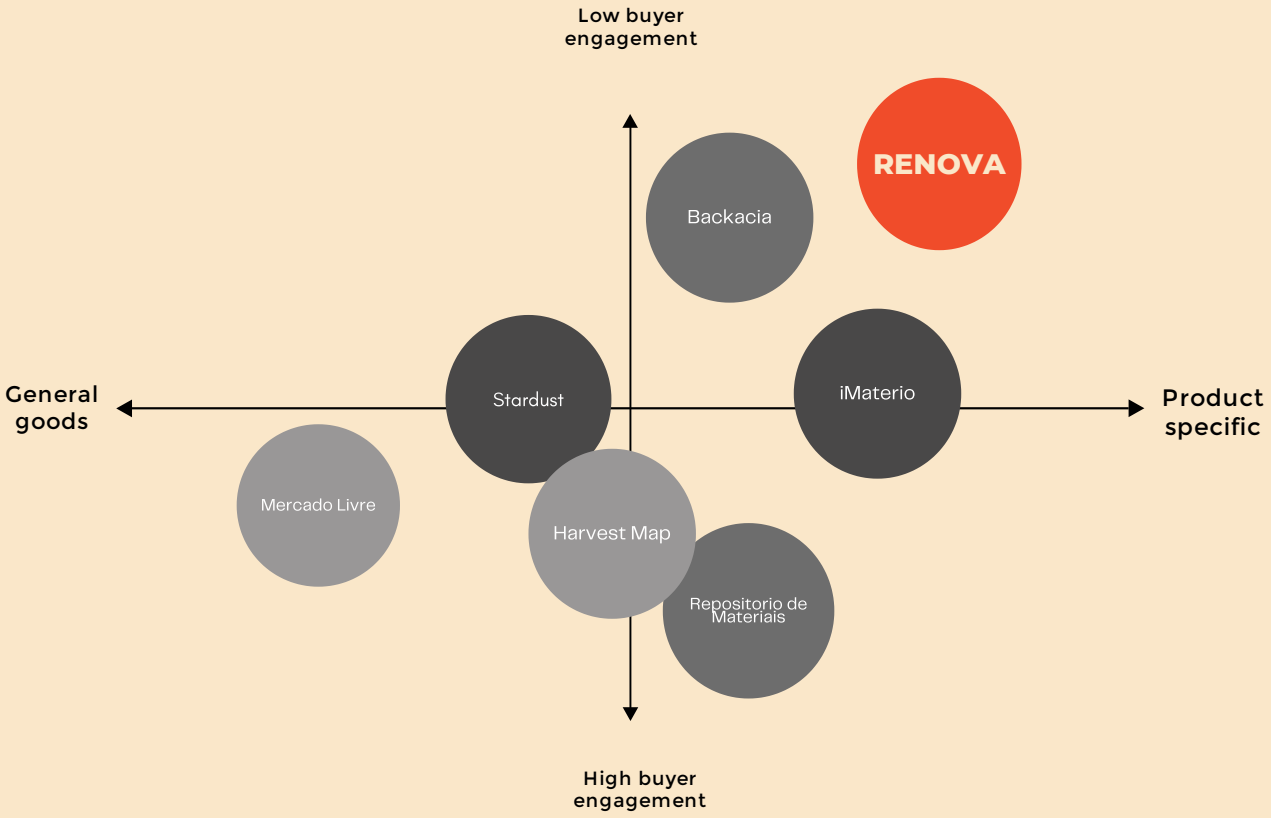
Online marketplaces for used products, including used construction materials

Literally named FREE MARKET, it is a “virtual mall” in which everyone can be a merchant, buyer and advertiser at the same time. It is the main marketplace in Latin America and presents more than 60 million offers in real time. The site records 9 sales and 6 thousand searches per second. Many business owners invest in the platform to win more customers, allowing consumers to purchase high quality goods in an environment of great competition, full of offers and products difficult to find elsewhere.

Location: Brazil
www.mercadolivre.com.br



PERCEPTION MAP



Horizontal axis:

General goods: wide range of products, some not construction related

Product specific: focused on products related to construction

Vertical axis:

Low buyer engagement: demands less participation/action in the buying process

High buyer engagement: demands more participation/action in the buying process

SCENARIO

BRICKS, STICKS, AND STONES

The products of yesterday's homes make way for the environment of tomorrow.

The familiar sound of the key jangles inside the lock as you twist the doorknob. The door creeks open and warm light pours over you on the entryway. You catch the scent of a home cooked meal drifting to the front stoop. Your kids hear you walking into the foyer and they come running to greet you.

This is home. This place supports life. It is the backdrop to everything that matters. It supports our family and our health. It represents our style and our values. These physical walls contain our stories. They speak of our history and outline our dreams. The worn wooden hallways host toddler tussles and cartwheel competitions. The stove unfailingly serves every holiday dinner. The balcony, the living room carpet, the crumb covered coffee table define more than just spaces. They define our lives. Each product that makes up our homes not only serve a purpose, but also has a meaning. When we renovate our homes, we are not only renovating our spaces, but our histories, and the stage that will host the stories of our future.

Thankfully, we have respected our spaces with the sincerity that they deserve. Services have continued to pop up to reuse, redistribute, recycle, and celebrate the products that host our lives. In 2020 almost 75% of building materials eventually ended up in landfill. In 2050 almost none does, because the homes of today utilize the homes of yesterday to honor the environment of tomorrow.

02.B

USER RESEARCH

OBTAINING KEY INSIGHTS

In this exploration phase, we aimed to get an intimate level of understanding of the people in the field we are working in after analyzing the market trends and benchmarking all the innovations.

We spent some time understanding the user and how the business is operated through qualitative interviews, by doing a card sorting and prioritization tests, with a brochure explaining the service as them being clients and by observing task-oriented participant actions.

This qualitative research was made during a two week period where we compiled all the opportunities, aspirations and perceptions associated with the construction waste problem, serving as valuable insights.

Among a total of 25 interviewees, we had the opportunity to have a conversation with an expert in sustainable urban development, three owners of construction companies, twelve architects, five interior designers and four homeowners who had recently renovated their homes.

INTERVIEWS

INSIGHTS

There are always logistics problems with separating on site, management of materials, and transportation

You get small amounts of several materials - materials come already mixed (wood with concrete or with nails) or raw (wires) but mostly mixed (broken tiles with cement, broken windows)

I believe it will go to the city landfill. I don't know if these companies have any kind of care or recycling programs, specifically talking about Uberlândia.

Sometimes some things could be separated but it takes too long and it costs more (more time to do it = more paid hours to construction workers = not feasible)

companies in big cities already reuse construction waste by smashing altogether and reusing at the construction itself

The type of construction is also cultural - or could have relationships also with typography etc

Waste from construction is very mixed

The topic of waste is not really approached inside architecture universities

Industrialisation of construction could be a way for less waste but it requires specialised labour and projecting, and the projects are also more expensive

even tough a bigger and stronger project might be more expensive you can save money during the execution

devaluation of the project fase - generates a lot of waste due to lack of

legislation about the waste is local and almost only when there is demolishing

Clients often ask where they can sell their old objects/materials

To change the predominant construction way you have to change the culture around it and how other types of construction are perceived

Constructions that are not very industrialised generate lots of trash

Everything gets mixed in the dumpster and the dumpster company deals with the trash according to the local regulation

Efficient building certificates consider mostly the consumption of energy and don't consider the construction

Sustainability also has to consider the carbon footprint of transporting the material - local local local

Main constructive technique = reinforced concrete combined with ceramic brick masonry = very large amount of waste

Brazil - it is still very difficult to think about the management of waste generated at the construction site

the matter only comes up with the customer when it comes to reusing some material that would go to waste. I usually don't talk about waste disposal in general.

I reuse materials within the work itself when possible, such as filling slabs

In home renovations, all waste goes to the same destinations

Specialized companies collect directly from the common dumpsters

Tools also get old and sometimes parts or even the whole tool are thrown away because they can't be used anymore

Modularity inside construction could be a strong way for generating less waste

Most common alternative is the collection using dumpsters and disposal is done directly without recycling

common challenge: engage citizens beyond the ones that already volunteer or care for sustainability

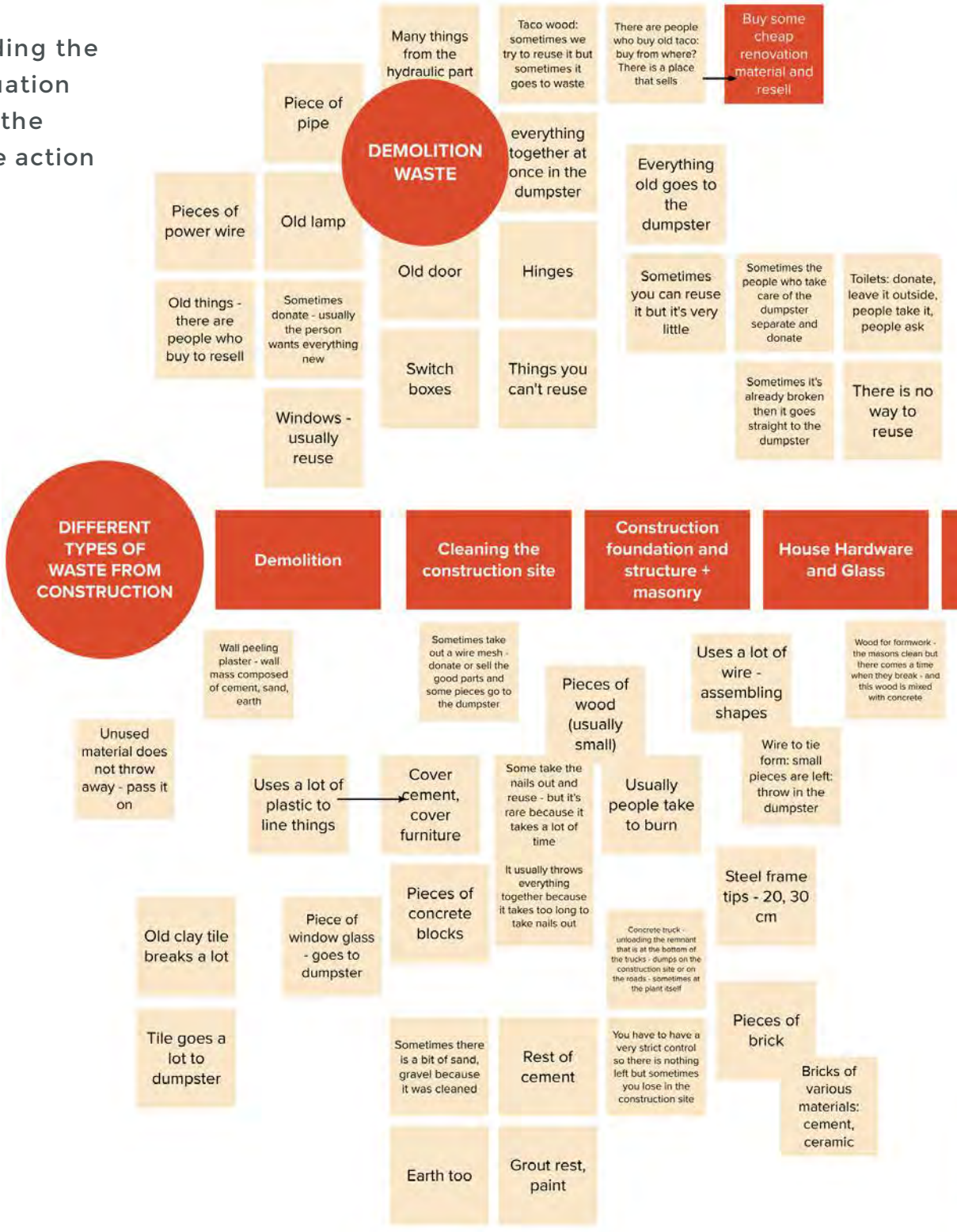
When the works are in metallic structure, the reality is different, since it is a cleaner system that generates much less garbage on the construction site.

The will for personalisation also generates lots of trash

CONTEXT

INSIGHTS

- Understanding the current situation
- Where can the service take action



With these interviews, we got a great understanding of the different types of leftover materials and products from demolitions, deconstructions and renovations.

The main points that came up in the interviews were:

- Waste from construction is mixed.
- In Brazil, everything gets mixed in the dumpster and the dumpster company deals with the trash according to the local regulation.
- Sometimes some things that are in good condition could be separated but it takes too long and it costs more (more time to do it = more paid hours to construction workers = not feasible).
- People want to sell their old objects or materials.
- Selective deconstruction allows to remove valuable materials.

> Sometimes some products could be separated but it takes too long

HOW MIGHT WE

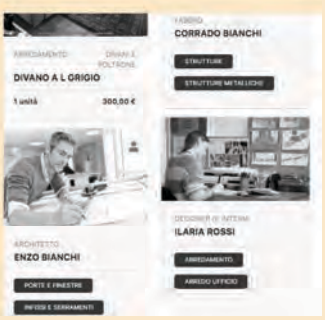
HMW?

After having identified the key areas of opportunities for the next phase, we started reframing the insights as How Might We questions to turn those challenges into design opportunities.

The selected HMW question offers the chance to be answered in a variety of ways, while keeping in mind the people we are designing for.

HMW create ways to bring civil servants, citizens and other stakeholders together to speed up sustainable solutions to the city issues?	HMW create ways to bring civil servants, citizens and other stakeholders together to give proper destination to renovation waste?	**How might we engage people that want to renovate to implement sustainable**	HMW use emotional attachment element that people have towards their objects/furnitures to facilitate sustainable renovation/waste reduction?
HMW create ways to develop the public interest on circular economy solutions for the city?	HMW help individuals to better find and utilized recycled and upcycled materials in renovation projects	HMW inspire homeowners to renovate with recycled and repurposed materials to build a more sustainable future	**HMW help homeowners to give better use to all the existing materials of their renovation?**
HMW give homeowners the resources to reduce waste in their private renovation projects	**HMW help connect individuals to their local resources for resale and refurbishment of renovation waste**	**HMW facilitate an easy and affordable renovation process for homeowners?**	**HMW help homeowners to build spaces that are meaningful and made to last so they don't have to renovate**
HMW engage new home owners to develop a connection with their living space?	HMW motivate home renovators to achieve a sentimental connection with their belongings?	HMW inspire new furniture buyers to develop an emotional connection with their stuff?	How might we engage new city citizens to develop a connection to their living spaces?
HMW support architects and interior designers to inspire their clients about waste reduction?	HMW facilitate small construction businesses to obtain cheaper materials to sell?	**HMW offer home renovators to arrange a cheaper way to personalize their homes?**	**HMW give architects and designers the resources to reduce waste in their renovation projects?**

HMW give architects and designers the resources to reduce waste in their renovation projects?



IMPACT + OPPORTUNITY

Having a properly framed How Might We question gave us the perfect space for innovative thinking.

Our biggest challenge is private construction waste comes from the renovations that we do to our homes and businesses.

The good news is that everyone has the power to help combat construction waste.

CONCEPT

Our idea evolved from a marketplace of construction materials from demolitions and renovations to a second hand platform for the resale of deconstructed products that can be used for the construction of homes and businesses.

This concept definition was developed through one week of prototyping with future users. These prototype phase is explained up next.

02.C

PROTOTYPING SESSIONS

ITERATION

We prototyped diverse iterations of the concept during the course of five days, choosing different techniques for testing according to what we wanted to provoke and learn from it

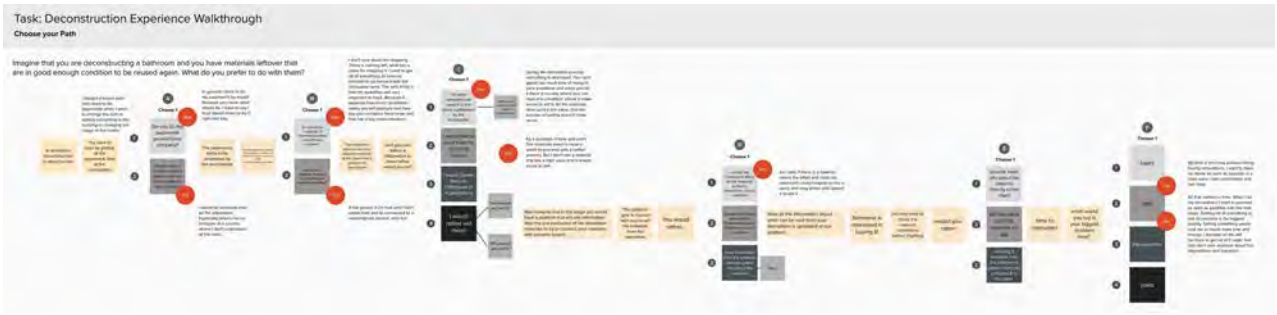
The process we did five times is as follows:

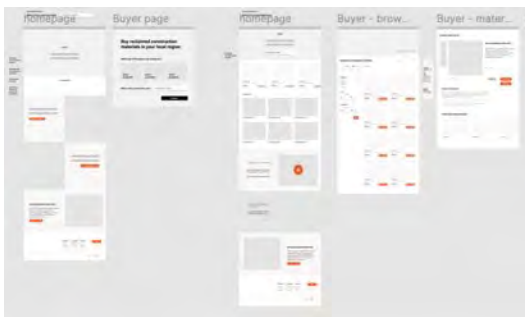
1. Analyze user journey and take note of doubts and questions
2. Define purpose of the prototype: explore, experiment, validate
3. Select a prototype technique and check its validity
4. Prototype
5. Prototype debrief - Cluster ideas and classify learnings

PROTOTYPE TECHNIQUES

With a consultive participation level, the stakeholders were involved in interviews and three main types of prototypes:

- Card and prioritization games
- Walkthough
- Observation of task oriented actions (of 3 different wireframes)





LEARNINGS

Although our initial idea for the project changed with each iteration, our core value remained the same: divert usable construction materials from going to waste.

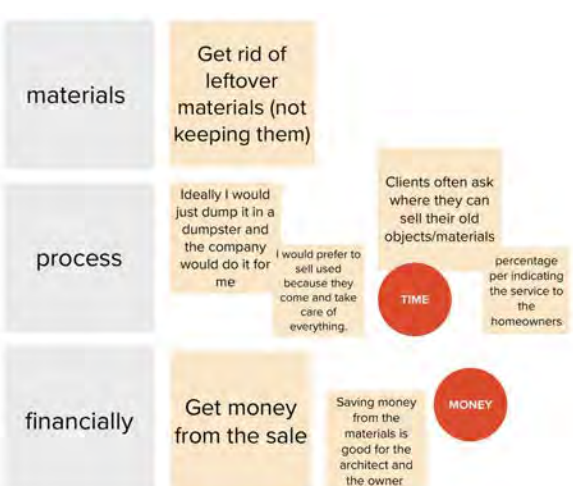
We practiced problem solving within the project and validating our assumptions from the research phase and we learnt what our stakeholders value the most.

Buyers needs

Sellers needs

Buyers motives

Sellers motives



PROTOTYPING JOURNEY

BEFORE

Marketplace of construction materials from demolitions and renovations.

- Partner with local municipalities to track down valuable materials.
- Materials for sale until the day of the demolition.
- Buyers could place an add on what they were looking for.

AFTER

Platform for the resale of deconstructed products that can be used for the construction of homes and businesses.

- A partner goes to the project site, deconstruct and take away the products.
- The products are stored in Renova's warehouse.
- Buyers will browse what is available at the platform.

03. ABOUT THE SERVICE

03.A

WHAT IS RENOVA

Renova is a second hand platform for the resale of deconstructed products that can be used for the construction of homes and businesses.

This platform sells previously installed products like wood flooring, bathroom and kitchen fixtures, doors, gates, and handrails among other general fixtures.

> Renova is an easy, efficient platform to buy and sell pre-installed construction products. With Renova, the buildings of today reconfigure the buildings of yesterday to honor the environment of tomorrow.

RENOVA SERVICE CAN BE USED IN TWO DIFFERENT WAYS: FOR BUYING OR SELLING PRODUCTS.

The 31 products included in the platform are:

GENERAL FIXTURES

- Wood door
- Metal door
- Wood window
- Metal window
- Wood gates
- Metal gates
- Metal grids
- Mirrors
- Brackets
- Handrails

HARDWARE

- Knobs
- Handles

BATH FIXTURES

- Grab bars
- Toilet paper holder
- Faucets
- Sinks
- Toilets
- Shower box
- Bathtub

KITCHEN FIXTURES

- Stone countertops
- Kitchen faucets
- Metal sinks
- Kitchen sinks

LIGHT FIXTURES

- Pendant light
- Chandelier
- Light switches
- Sconces
- Ceiling lamps

FLOORING

- Solid wood flooring
- Wooden parquet floor
- Engineered wood flooring

03.B

HOW IT WORKS

SELLER

Sellers are home or business owners, who can choose to sell pre-installed items to Renova so they can be sent to a new home.

The process is quick and easy:

1. The seller can download the app or access the website and send Renova a message.

2. Renova will ask for some basic information about the product to be sold and will ask for the seller to upload a photo or video of the product(s).

3. Renova will evaluate the application and get in contact with the seller to make an offer.

4. The seller will schedule a time for a Renova partner to come to the project site, deconstruct, pay for the products and take them away on the same day.

** Detailed service blueprint can be found in section 5 of this paper.*

JOURNEY MAP

PRODUCT SELLER
STORYBOARD
USER ACTIONS
EMOTIONAL CURVE
FACE TO FACE
DIGITAL
PRODUCT
SPACE

RENOVA // CUSTOMER JOURNEY MAP

PRE-SERVICE		SERVICE						POST-SERVICE
								
Homeowner decides to renovate	Sees a Renova advertisement	Access Renova, as a "seller"	Sends Renova some videos/photos of the place for evaluation	Renova sends an offer for the products	The homeowner agrees on the offer and sets an appointment for the products to be removed	Renova contractors will remove the components before the place is demolished	Renova pays the owner for the materials and takes them to the warehouse	Feedback survey
						Renova contractors remove the components		
	Searches options for deconstruction and finds a Renova ad	Enters the website and selects "I want to sell" option	Uses phone to take videos and photos of the place for evaluation	Receives an email with the offer for the products	Agrees and selects a date available in the platform's calendar		Receives renovate payment notification online	Fill out online service feedback survey
						Components	Receives renovate payment notification online	
onsite			onsite			onsite		

BUYER

Any architect, designer, or industry professional can purchase items from Renova through the app or website.

Renova is an online platform where immersive technologies like interactive 3D dollhouse models and augmented reality engage customers to help understand what the collection of products could look like in a project.

This platform shows products that are in the user's city, with tailored suggestions depending on the type of project that the buyer is working on.

1. The buyer can browse the products collection through an AR portal
2. Reserve the items that (s)he would like to purchase
3. Buy the items and have them shipped directly to the project site, or if preferred, an appointment can be scheduled to see them in-person at Renova's city based warehouse location.

JOURNEY MAP

PRODUCT BUYER	PRE-SERVICE
STORYBOARD	
USER ACTIONS	Architect or professional has a new renovation project Sees a Renova advertisement
EMOTIONAL CURVE	
FACE TO FACE	
DIGITAL	Searches options for deconstruction and finds a Renova ad
PRODUCT	
SPACE	

SERVICE							POST-SERVICE	
								
Access Renova, as a "buyer" from his location	Browses through the catalogue and reads specifications	Downloads product's 3D preview	Creates a profile in the platform and saves favorite items	Shows the client the project model with selected products	Buys products	Receives products	Installs product	Posts content on social media
				client meeting to select the products to be bought				
Enters the website and selects "I want to buy" and his location	Browses through the catalogue online and reads specifications	Download product's 3D preview to insert in the project model	Creates a profile in the platform and saves favorite items		Buys the products and awaits for them to be delivered	Receives the products from Renova		Renova's marketing team reposts the content
							products	
				onsite		onsite	onsite	

03.C

OFFERING MAP

RENOVATORS

CUSTOMERS

Individuals who are renovating their spaces, such as home or business owners

NEEDS

Individuals need to demolish and get rid of their previously installed products as quickly and cheaply as possible

OFFERINGS

- Sale of previously installed construction products
- Deconstruction and removal of products

ARCHITECTS

CUSTOMERS

Interior designers, builders, and architects who are building new spaces

NEEDS

Designers need unique, low-cost products that are eco friendly so they can stay on budget, meet their eco certification guidelines, and please their clients

OFFERINGS

- Sustainable building materials at low prices
- Shipping to project site

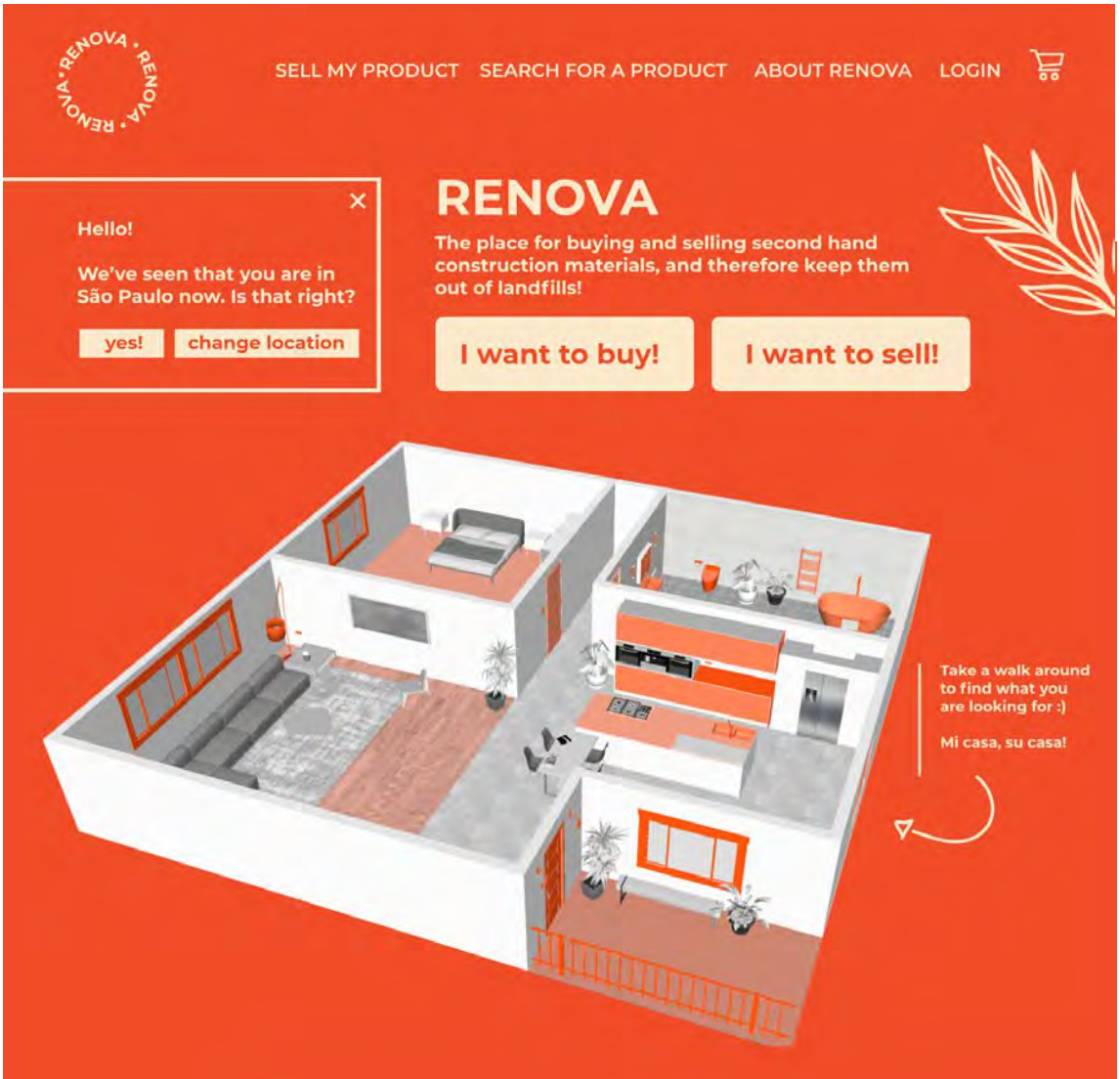
03.D

TOUCHPOINTS

WEBSITE

The landing page shows the users the two services available for them: buying or selling.

As a main feature, there is an interactive 3D dollhouse model that when clicking on a room, it zooms in to show the available category of products, for example, if clicking on the bathroom, you can select the bathtub and you will be directed to the collection of available bathtubs.



LANDING PAGE SECTIONS

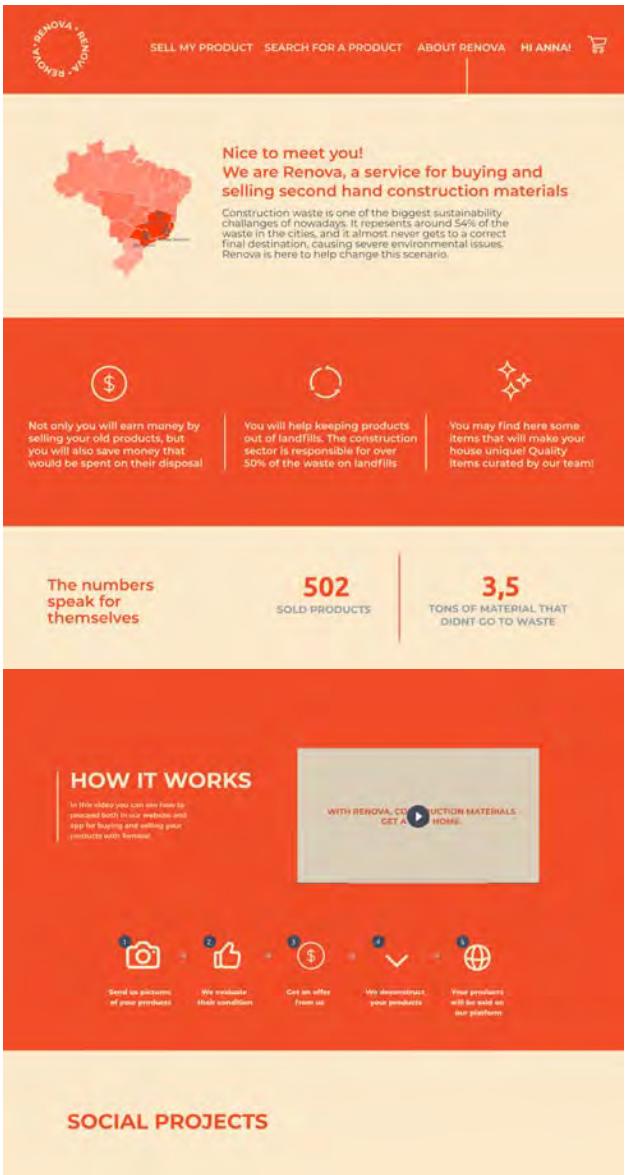
When scrolling down the landing page there is an assorted selection of products that when clicking on them, their short description becomes visible.

Right below, there is an explanation of the service offering and its sustainable benefits, including a video of how the system works.

In the bottom part, there is the blog section that includes articles regarding projects made with Renova and how circular economy is sustainable.

ABOUT SECTION

It shows the region inwhich the service works, numbers related to product salvage, a brief explanation of the offering and benefits, video about how it works and related social projects from the company.

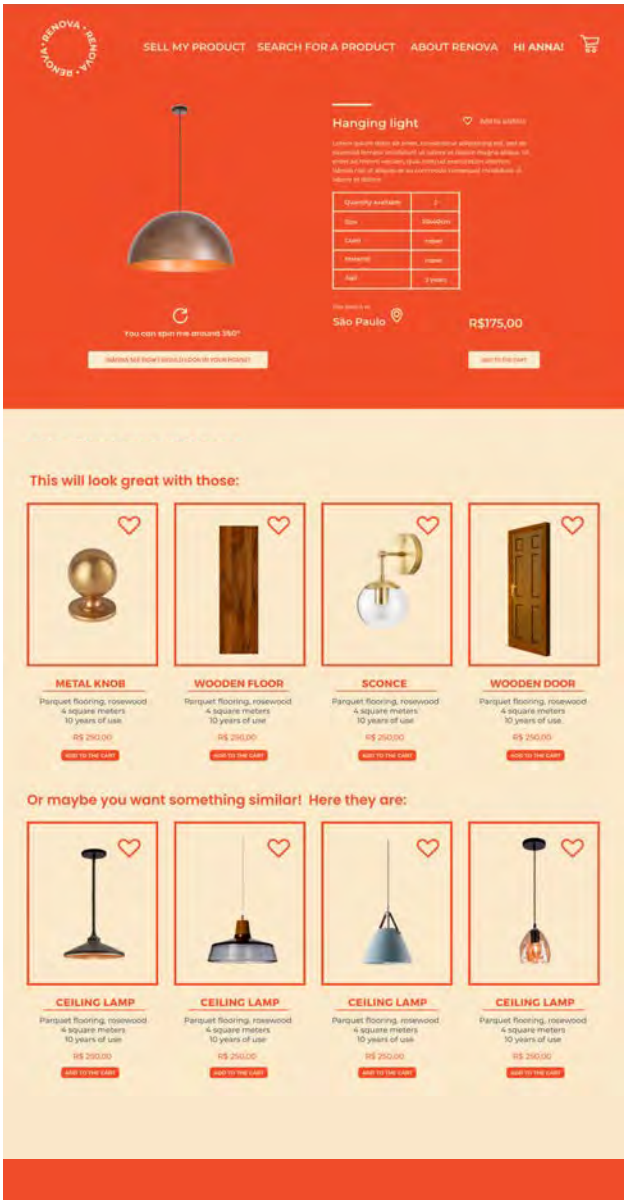


LOOKING FOR PRODUCTS

When clicking on the "Search for a product" section a menu with all the product categories appears and when clicking, the subsections and images of existing products show up on the screen.

SELECTING A PRODUCT

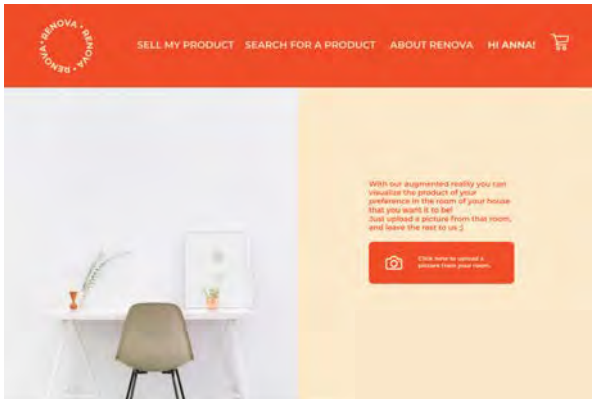
When selecting a product you will find more details about it and below it there will be recommendations of similar and matching products according to the style, materials and type of product.

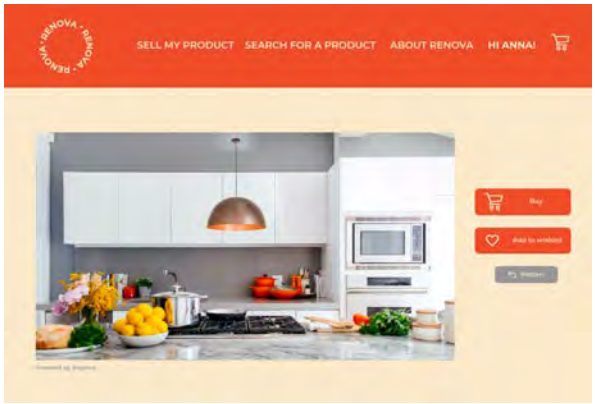


3D AR VISUALIZATION

Every product is available for visualizing in any space, by uploading a photo in the website, or by using the app and trying the AR visualization directly on the space.

These 3D models are available for downloading to be placed in architectural renderings.

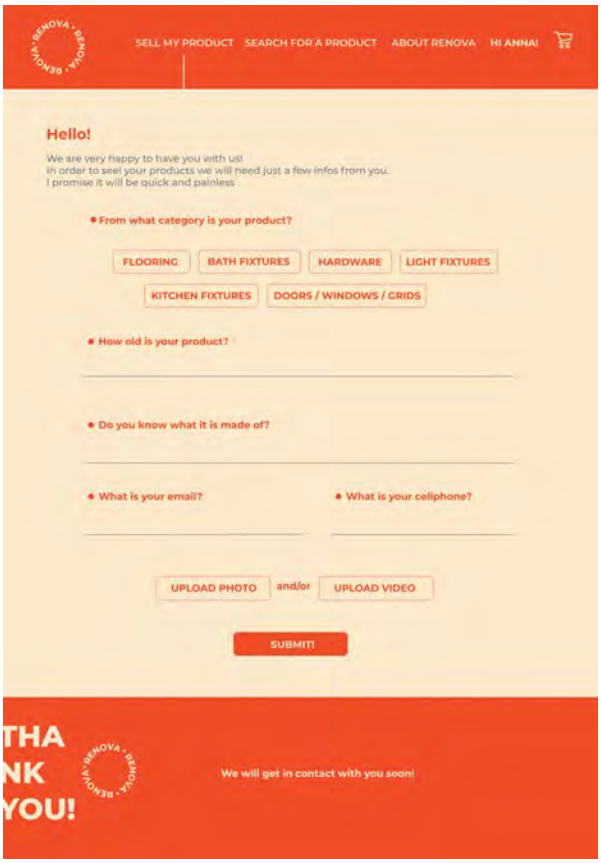




SELLING PRODUCTS

For selling any product, the first thing to do is to fill out a simple format and share some photos and/or videos of the product.

From there, Renova will make an offer and stay in touch through the entire process.



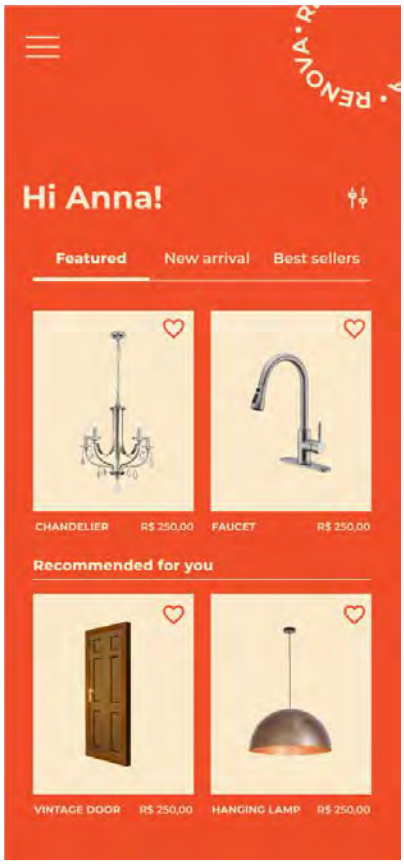
EXISTING USERS

Once a buyer or seller has an account they will have a personalized area with their wishlist, recommendations and bought or sold products list.

MOBILE APP

HOME SCREEN

The app home screen provides information about the selected items, new arrivals and most loved ones. It shows personalized offers for the user based on what they have been viewing.

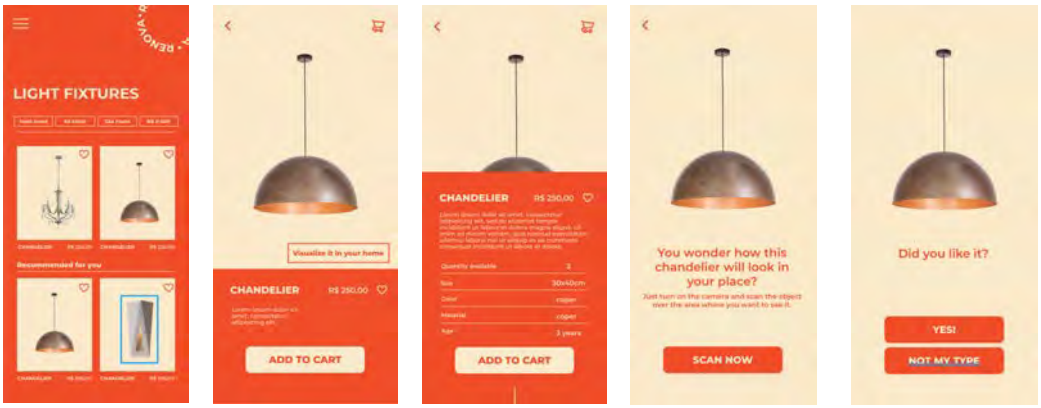


ONBOARDING EXPERIENCE

Onboarding experience aims to reflect the value proposition and offer of the service to the first time user and choose between the 2 options of use.

PURCHASING EXPERIENCE

These screens include the product listings and shows customers what is on offer. The user can filter the products by type, location and the price range.



The app offers the possibility of visualizing any product in the users space through the phone camera by using AR technology.

SELLING EXPERIENCE

Users' first actions are to choose a category of products that they would like to sell, bu clicking on the doll house model and then selecting among the list of items.

Then the seller is guided through a set of questions and is required to upload pictures and video of the item.

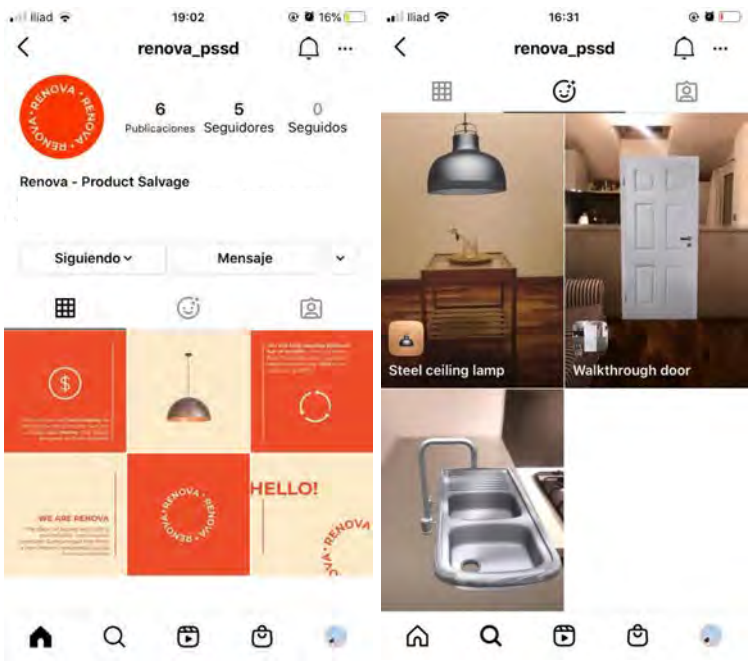
In this way Renova can gather relevant information about the product and give an offer for it.

MENU

The collapsible menu includes the main options which are: home, sell products, buy products, about renova and login option for new and existing users.

SOCIAL MEDIA

Users can make use of Renova's instagram filters to visualize products on their space, and gain information about the service through the company's posts.



04.
BUSINESS MODEL

04

BUSINESS MODEL

KEY PARTNERS

- Truck Leasing Agency
- Deconstruction Contractors

KEY ACTIVITIES

- Connecting buyers to the right second hand products
- Buying and deconstructing products to be sold
- Recovered product inventory management
- AR and visualization of recovered products

KEY RESOURCES

- Warehouse Space
- Technologists and Designers
- Product Experts (for negotiation and representation)
- Inventory of pre-installed products

VALUE PROPOSITION

Giving architects and builders the opportunity to buy low-cost pre-installed construction products

A way for renovators to sell pre-installed materials and have them deconstructed and taken away quickly

COST STRUCTURE

- Leasing of warehouse and trucks
- Platform maintenance and marketing
- Employees and contractors

NET INCOME

1.411.617,22 EUR 2023

SOCIAL & ENVIRONMENTAL COSTS

- Transportation of Products

CUSTOMER RELATIONSHIPS

- App and Website
- Relationships with our experts at industry events
- App and Website
- Renova Representative at point of sale

CHANNELS

- Online platform
- Online platform

CUSTOMER SEGMENTS

- Interior designers, architects, and building professionals (buyer)
- Home and business renovators (seller)

Buyer

Seller

REVENUE STREAMS

- Sold materials

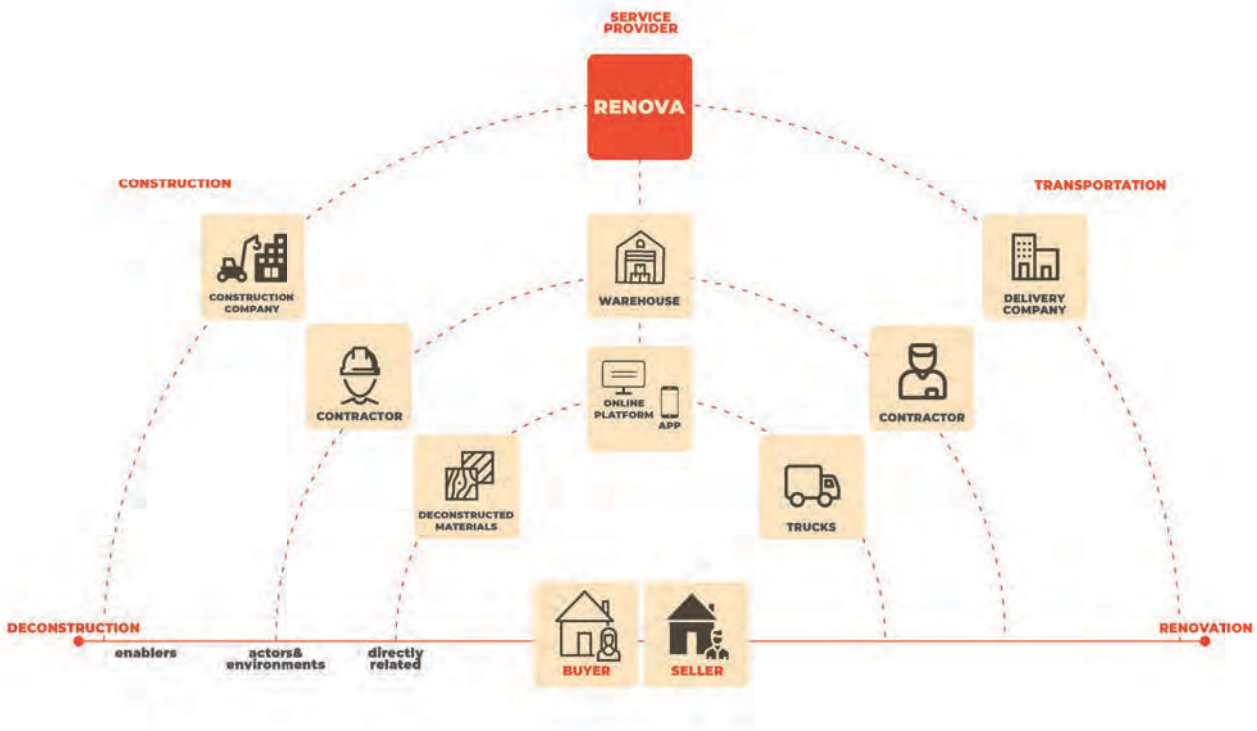
SOCIAL & ENVIRONMENTAL BENEFITS

- Significant reuse of pre-installed building products

05. DELIVE-RABLES

05.A

ECOSYSTEM MAP



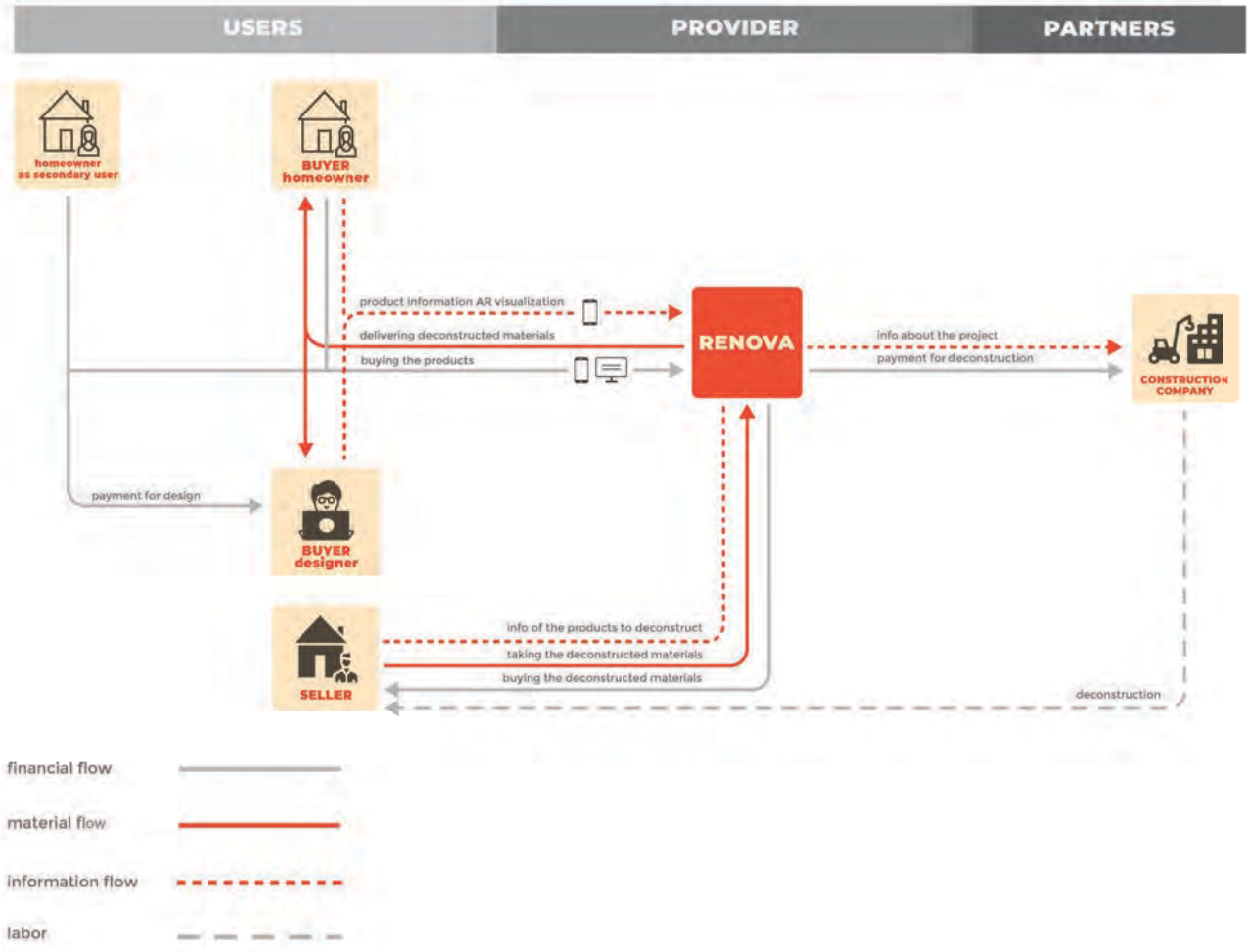
The ecosystem map outlines the relationships between the actors, the touch points, and the sectors that they operate within.

Renova functions in the construction industry and the transportation and logistics sector. Renova works with construction companies and delivery companies whose personnel serve Renova customers on a contract basis. Users primarily interact directly with the digital touch-points of the service which are the online platform and app.

05.B

SYSTEM MAP

The system map shows the value exchange between Renova and the buyers and sellers. In addition, it shows how key partners, construction companies, help provide deconstruction services for Renova customers.



05.C

STORYBOARD

03

BLACK SCREEN

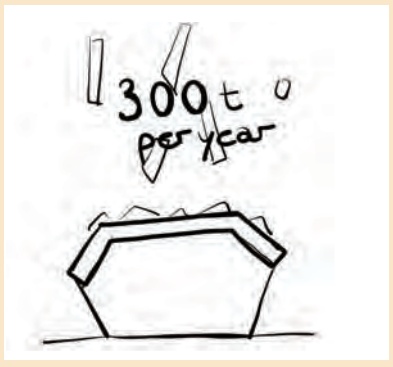
04

Black & white
Opening:
Why construction Waste

02

Black & white
Construction waste is the number one contributor of solid waste in the world. It fills our local landfills and wastes our precious natural resources.

02

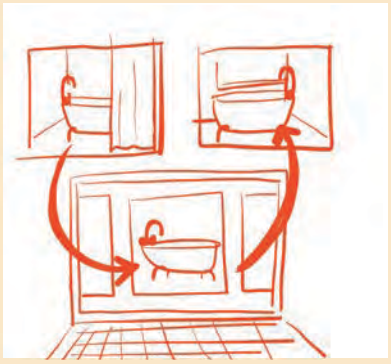


Black & white
The biggest cause of private construction waste comes from the renovations that we do to our homes and businesses. But the good news is that everyone has the power to help combat construction waste.

11

Icons
We will evaluate your application and get in contact to make an offer. Then, a Renova partner will schedule to visit your project site, deconstruct and take away the products on the same day.

12



Over shoulder
How to Use Renova as a Buyer.
As an architect, designer, or industry professional, you can purchase items from Renova.

13

Phone close-up
Renova is an online platform where immersive technologies like interactive 3D dollhouse models and AR engage you to help understand how products could look like in your project.

14

Map view - Website view
We show you products that are in your city, with tailored suggestions depending on the type of project that you are working on.

15

Website view
You can browse our collection through our AR portal and reserve the items that you would like to purchase

16

Delivery
We will ship the items directly to your project site, or if you prefer, you can schedule an appointment to see them in-person at our city based warehouse location.

05

Colour.
Introducing Renova.
Our Mission.

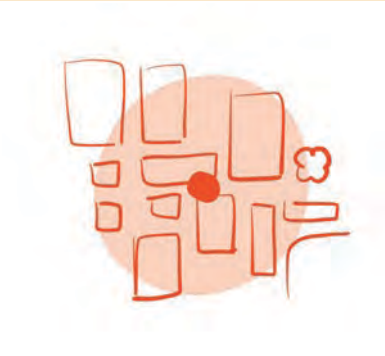
06

Platform
Introducing Renova.
Renova is
a second hand platform
for the resale of
deconstructed products
that can be used for the
construction of homes and
businesses.

07

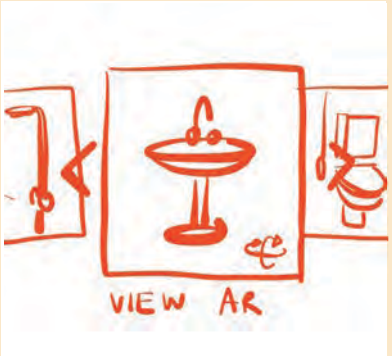
Items list
We sell previously installed products like wood flooring, bathroom and kitchen fixtures, doors, and much more!

08



Over shoulder
How to Use Renova as a Seller. As a home or business owner, you can choose to sell your pre-installed items to us so we can send them to a new home.

09



Phone close-up
The process is quick and easy! Just download the app or access our website and send us a message

10

Phone close-up
We will ask for some basic information about what you have to sell and ask for you to upload a photo or video of the products.

17

Zoom in towards window with nature
Renova is an easy, efficient way to buy and sell pre-installed construction products.

With Renova, the buildings of today reconfigure the buildings of yesterday to honor the environment of tomorrow.

18

Renova
Logo

19

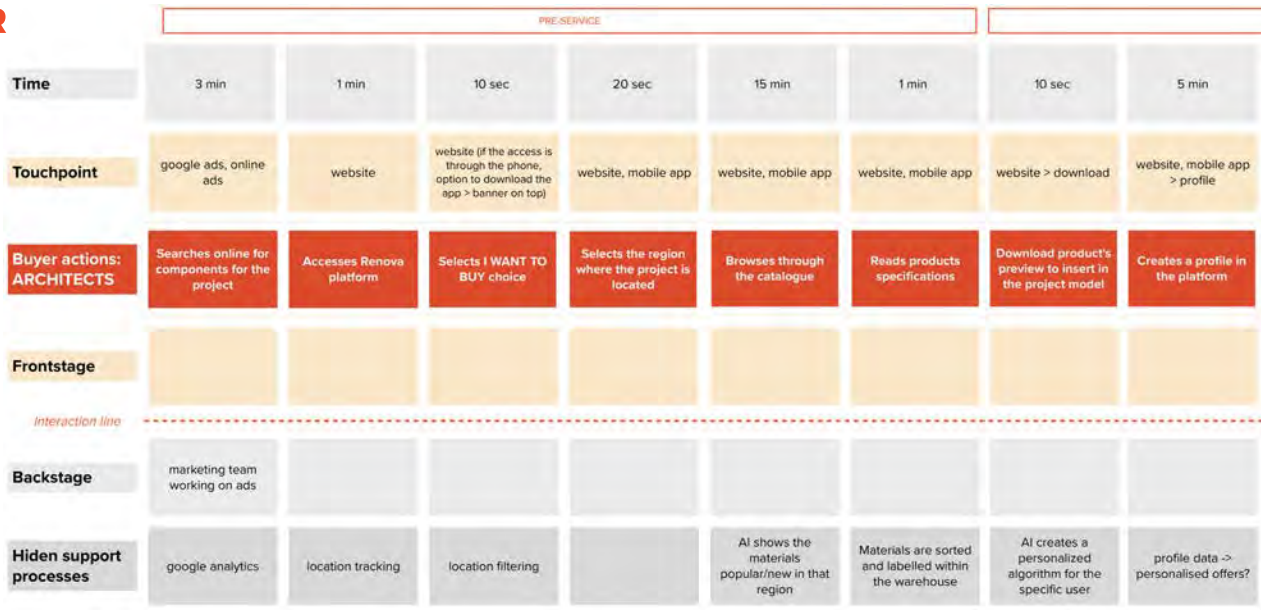
Solid colour background.

05.D

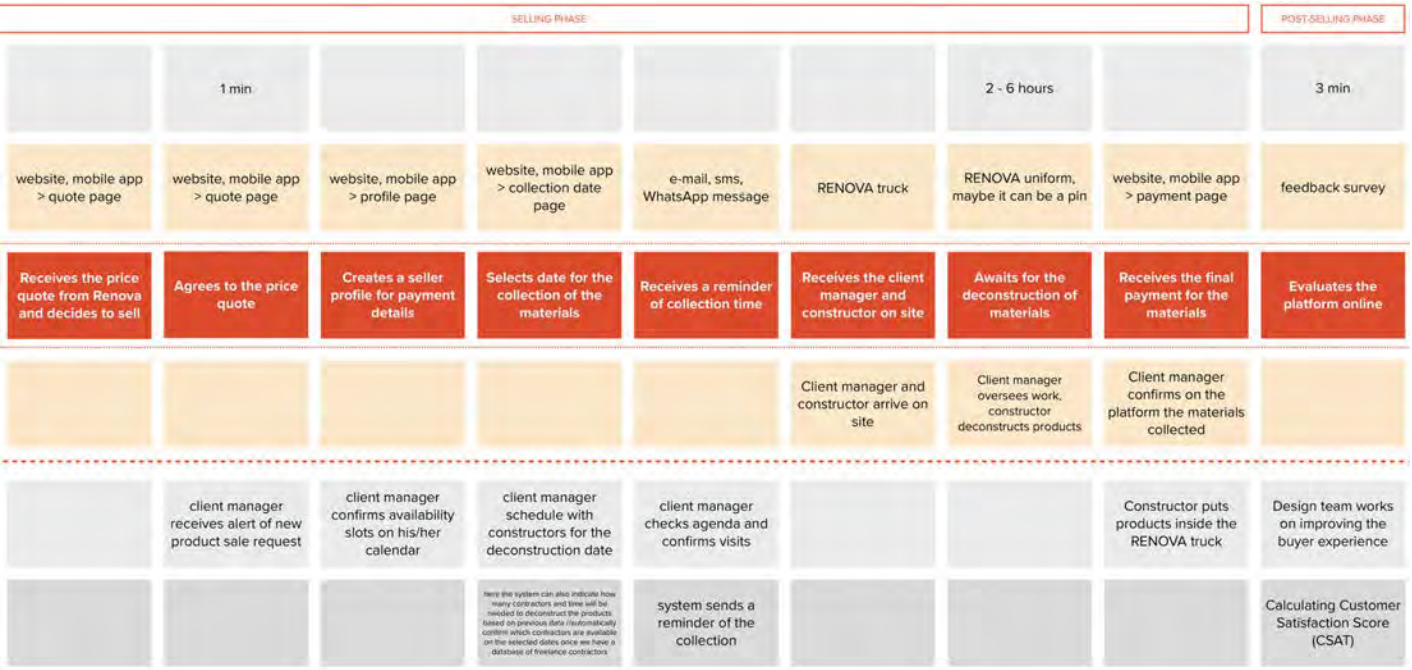
SERVICE BLUEPRINTS

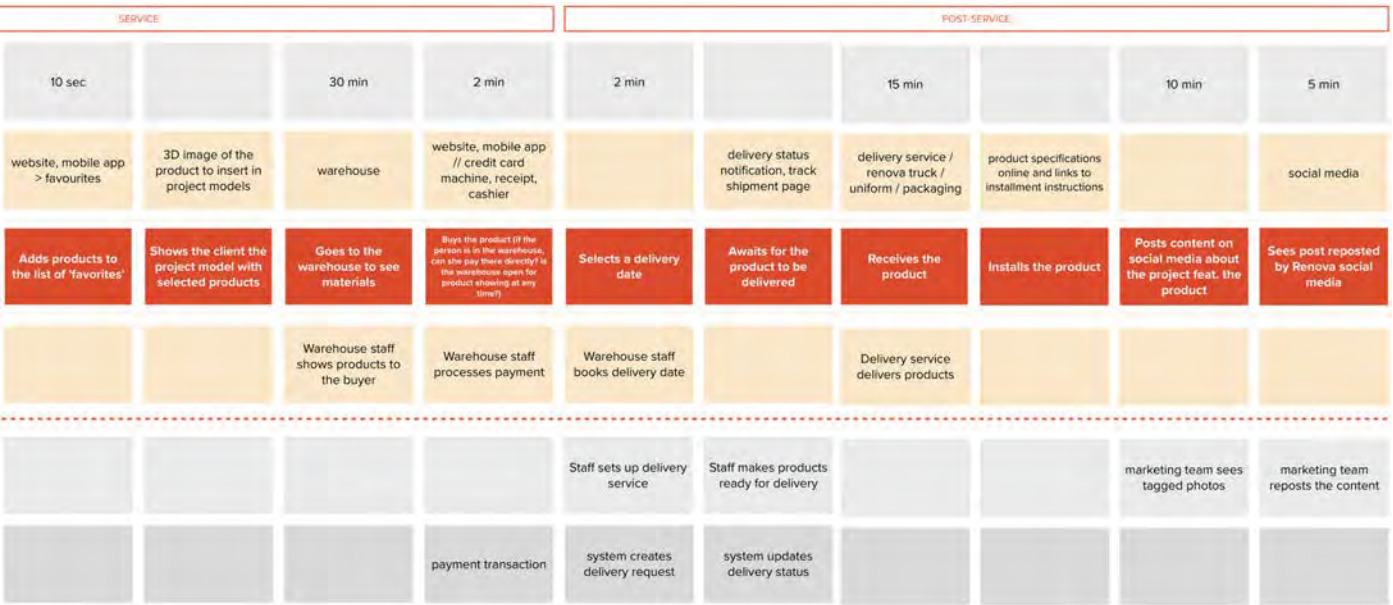
SELLER

BUYER



RENOVA // SERVICE BLUEPRINT





WHEN RENOVA GETS THE MATERIALS

(internal processes that will lead salvaged products to buyers)

Backstage	Constructor takes products to RENOVA's warehouse	Renova employees at the warehouse catalogue new products	Products are photographed again and listed on the platform	Products are warehoused until a sale	Designer or buyer visits the warehouse to check out the products in person	Products are purchased online	Warehouse employee serves the customer in person and allows them to pick up the product at the warehouse	Products are shipped to new project site
Hiden support processes		AI preliminary sort and cataloging for website experience				Payment processing		Shipment Tracking

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RENOVA