# Plastics Packaging Portal Alpha User Research

A summary of insights drawn from user research conducted between January and February 2022.

# Contents

# Introduction

# The Plastics Packaging Portal (PPP)

The Plastics Packaging Portal has been funded by Innovate UK. It is a collaborative project led by OPRL with Open Data Manchester, Dsposal, RECOUP and Ecosurety.

It aims to:

- Develop an open standard for plastic packaging data

- Extend the Open3R Household Waste Recycling Centre data standard

- Develop online portals to streamline the collection of these two datasets, enable them to be linked and improve access to this data for all along the plastic-packaging value chain.

# Alpha User Research

To design a data standard that is fit for purpose, it is important to test whatever is being built with potential users. As such, an Alpha User Research project has been carried out, with the following objectives:

- To get feedback on the data standard as it has been designed so far

- To discuss the value around specific data fields

- To understand where the standard can be improved in order for it to be fit for purpose

Our research has also informed the service design techniques employed during this phase of the project.

# Methodology

When designing the research, we believed that discussions had in Alpha would need to build on the conversations we had during the Discovery phase.

We went back to the stakeholders that were involved in our first round of research, but also recruited a number of new organisations.

We hosted new engagement workshops, which not only were an efficient way of gathering feedback on the standard, but also of keeping all parties informed and engaged with the project.

We also ran a service design workshop with our team to start thinking about user personas and potential user journeys.

# Recruitment

Organisations engaged:

- **Brands:** Huel, PZ Cussons, Nestle, Toolstation, Travis Perkins

- **Packaging manufacturers:** Waddington Europe (Novolex), Sampling Innovations, IPAC, Root, ProAmpac, Berry Global, Pragmatic, Sealed Air, Molygran, GSK, Chiesi Farmaceutici

- **Product manufacturers:** PZ Cussons, GSK, Essity, Nestle,  Chiesi Farmaceutici

- **Recyclers:** Veolia, BPR Group, Biffa

- **Industry bodies:** BPF, PCEP, IGD

- **Retailers:** Tesco, Co-op, Ocado, Marks & Spencer

# Recruitment

- **Waste management:** Veolia, BPR Group, Biffa

- **Compliance schemes:** ComplyDirect, Lorax EPI, Valpak

- **Third-party developers:** Horizon, Polytag, The Ink Bin, Rio ESG, Ecoveritas, Greyparrot

- **Academia:** University of Manchester

- **Local government:** Warwickshire Council, Reigate and Banstead Council

- **National government:** Department for Environment, Food and Rural Affairs (Defra)

# Recruitment

In total we:

- Engaged 42 organisations

- Ran 6 stakeholder-engagement workshops

- Ran 1 service-design workshop

- Interacted with 38 participants

- Engaged researchers from Defra and University of Manchester (One Bin project)

# Data standard

How the data standard currently looks based on insights drawn from the workshops.
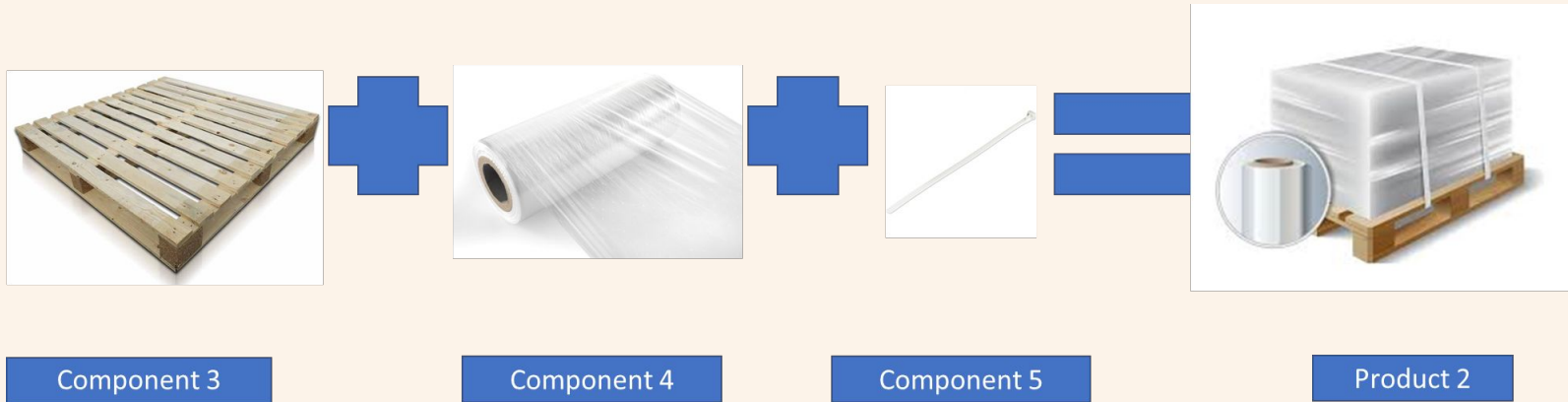
# A granular approach: example

**Components** are treated as individual units. They are then combined to create a single **product**.



Component 1

Component 2
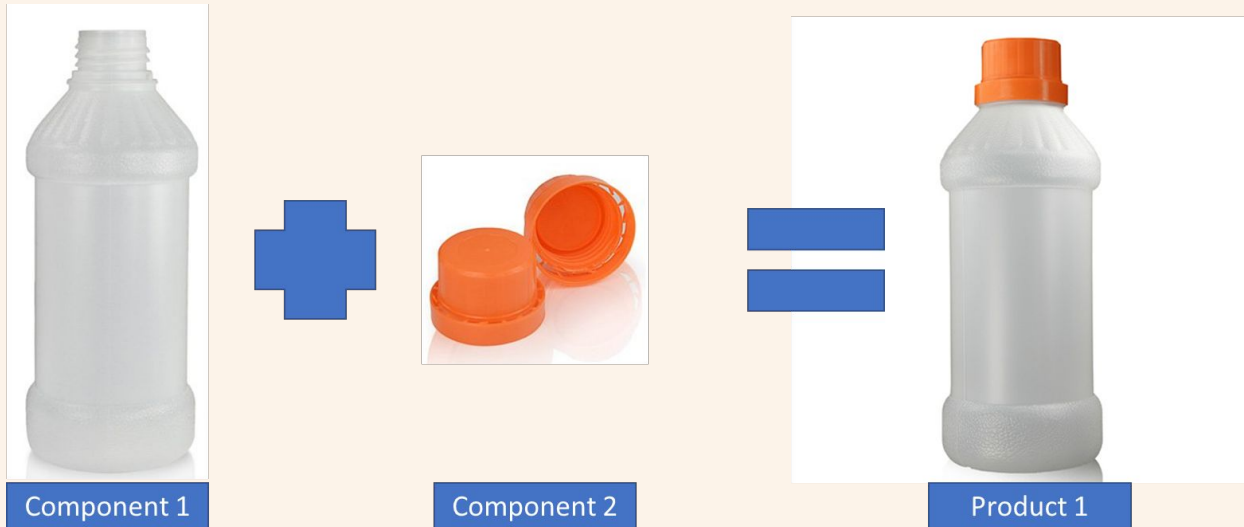
Product 1

# A granular approach: example

As indicated throughout the workshops with secondary and tertiary packaging, the pallet, along with shrinkwrap and other components used to transport products, are often compiled together and given a single barcode. Thus, when the individual components are put together, they are treated as an individual product.

| Component 3 | Component 4 | Component 5 | Product 2 |

# A granular approach: example

When each product is combined to send to the intended destination, the **packaging** is created. The product can be combined *without* shrinkwrap or pallets. This is just how the products are combined to be sent out.

In this example, the bottles are turned into a drink that is then shrink-wrapped and placed on a pallet to send to a store for consumer purchase.



100

Product 1

Product 2

Packaging 1

# The Catalogue of Components

A packaging manufacturer will enter information about each component. This will create a generalised entry, or **template**, for this component. When a user wishes to create a component from this template, they will pull the template's identifier and add unique information.
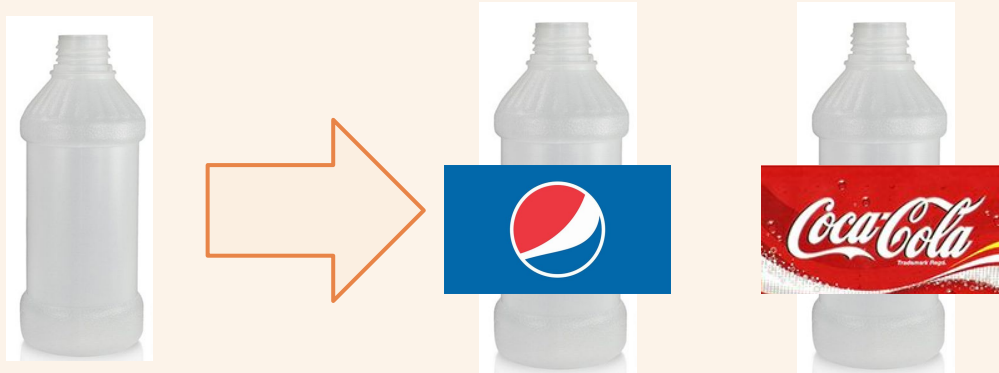


For example, the same created bottle could be used by either Pepsi or Gatorade.

# Creating a new component for the catalogue



| Data fields: | |
|---|---|
| Identifier | Description |
| Name | Tag |
| Image | |

# Creating a new component for the catalogue



| Data fields: | | |
|---|---|---|
| Height (mm) | Width (mm) | Date verification for each field |
| Length (mm) | Volume (mm3) | |
| Weight (g) | Thickness (μm) | |

# Creating a new component for the catalogue



Data fields:

| Format (controlled list) | Flexibility (controlled list) |
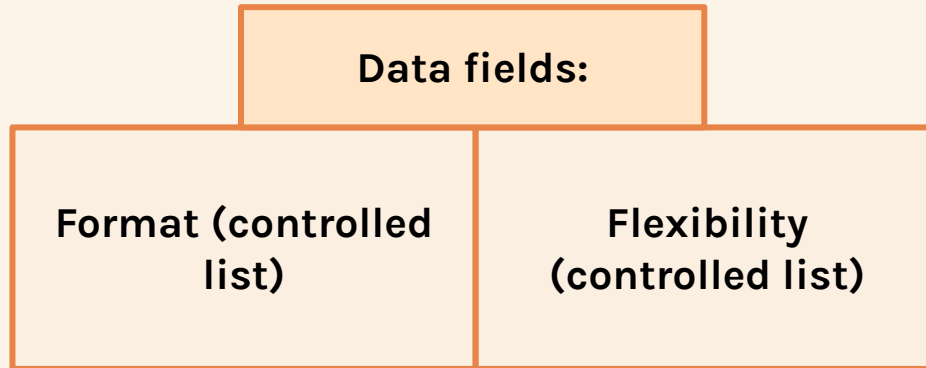
# Creating a new component for the catalogue

Data fields:

Material Identifier
(database)

# Creating a new component for the catalogue
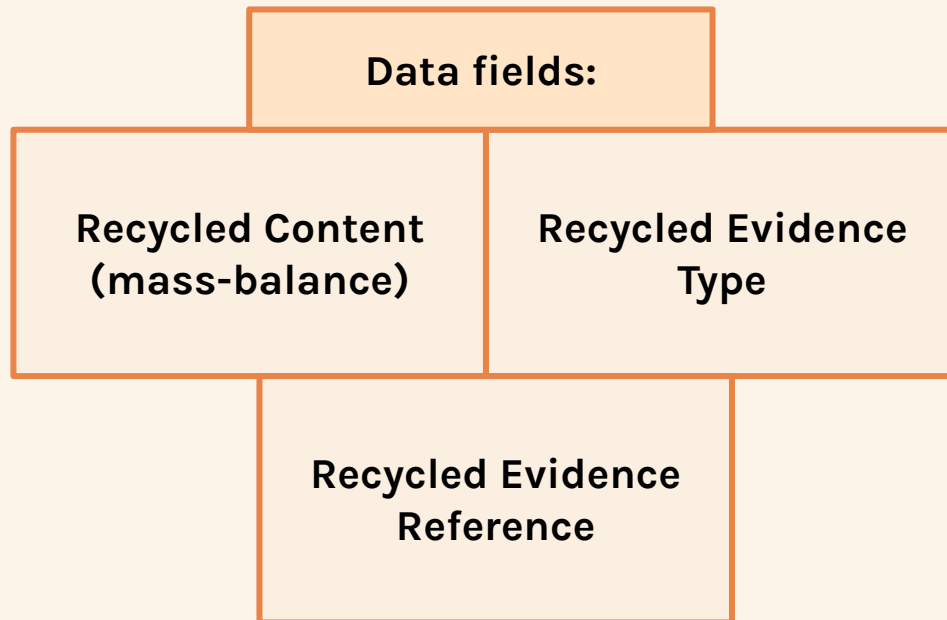
| Material Identifier (database) | |
|---|---|
| Identifier | Core Material (controlled list) |
| Material (controlled list) | Virgin Material (%) |

# Creating a new component for the catalogue



**Data fields:**

**Recycled Content (mass-balance)**

**Recycled Evidence Type**

**Recycled Evidence Reference**

# Creating a new component for the catalogue

Data fields:

| Updated Date | Release Date |
| --- | --- |

Discontinued Date
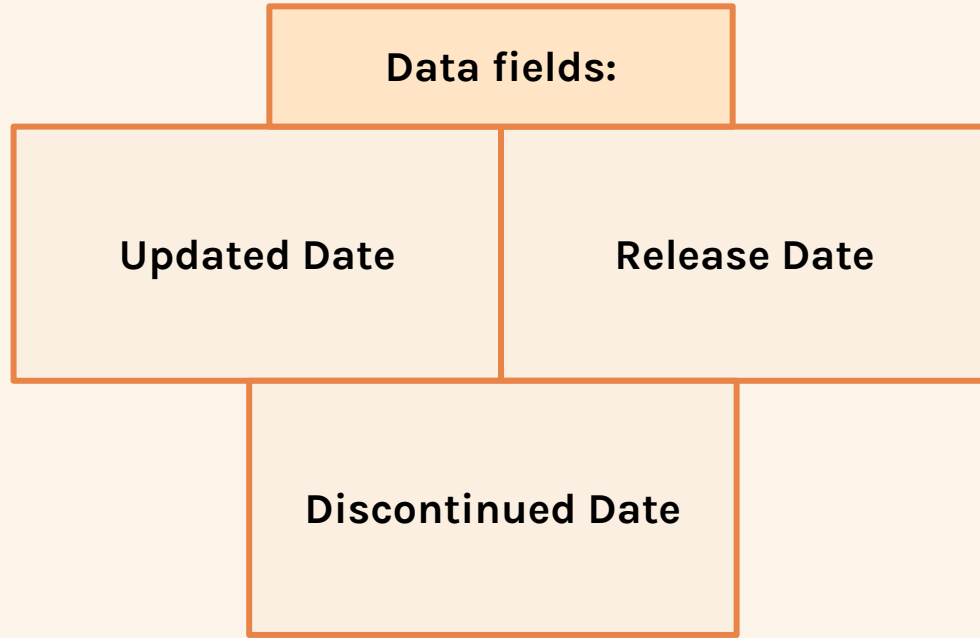
# Creating a new component for the catalogue

**Data fields:**

| | |
|---|---|
| Organisation Name | Address |
| Industry | Role |

# Using the catalogue to create unique components

A user will pull information from the component catalogue to add unique information. This process turns a template into an actual physical, unique component – from an intangible component to a tangible component.
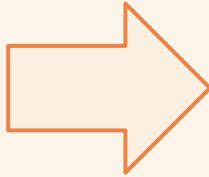


For example, the bottle template is turned into a physical bottle.

# Creating a unique component

| Data fields: | |
|---|---|
| Identifier | Description |
| Name | Tag |

# Creating a unique component



| Data fields: | |
|---|---|
| Level (controlled list) | Reuse System |
| Component (from database/catalogue) | Recycling Disruptors (controlled list) |

# From unique components to packaging

Once the unique components are created, they are put together to form a unique packaging item, ready to be filled with a product.

For example, when creating a beverage, a bottle, lid and label are put together.

The label will then contain the barcode used to represent the product sold to consumers.

# Assembling components for a product

Product Identifier

# Creating unique packaging

Different packaging filled with the product will be grouped together and wrapped in secondary and tertiary packaging. This packaging is then sent to its final destination.

**Packaging Identifier**



**Product Identifier**

# Creating unique packaging



| Data fields: | |
|---|---|
| Identifier | Description |
| Name | Tag |

# Creating unique packaging



Data fields:

| Destination Name | Destination Address |

# Next steps: controlled lists

During the workshops, a considerable amount of time was spent discussing what was needed on the 'controlled lists' for each data field.

There was consensus on two of them, such as level and format, but there's still work to be done on others, like sub-material types and recycling disruptors.

This will be one of the focusses for our next round of workshops, in the Beta phase.

| Controlled List | Bottle |
| --- | --- |
| | Pot |
| | Tray |
| | Pallet |
| | ... |
| | Shrinkwrap |

# Service design

A recap of the main artefacts from the Discovery phase, along with the first personas and user journeys for the Alpha phase.

# User pain points from Discovery

Big shifts in legislation makes it difficult to know what will be asked of organisations to report on

Reporting formats for different organisations can vary...

... and data gathering can be very time and resource-consuming

# User pain points from Discovery

Tech debt within organisations and lack of standardisation in the value chain makes processes inefficient

Data quality is inconsistent throughout the value chain

And there's data from parts of the chain that don't reach relevant parties that need that information

# User pain points from Discovery

All of this generates lack of trust

# User stories from Discovery

**As someone who works in the plastics-packaging value chain...**

I need transparent, accurate and consistent data across the whole value chain, so that I have an understanding of the whole picture and improve decision making

I need validation checks at point of data entry, clear terminology and units of measure, so that errors are minimised and data is inputted more accurately

I need data that is easy to access and export, so that I can efficiently report on it for clients, commitments and schemes

# User stories from Discovery

**As someone who works in the plastics-packaging value chain...**

I need an easy way to input data, so I can spend less resourcing on data capture and the process is less onerous on my clients

I need clarity on new legislation, so that I feel well informed on what data needs capturing and I can put things in place to remain compliant

I need to be able to input changes to packaging, so that I can mitigate seasonality and foster innovation
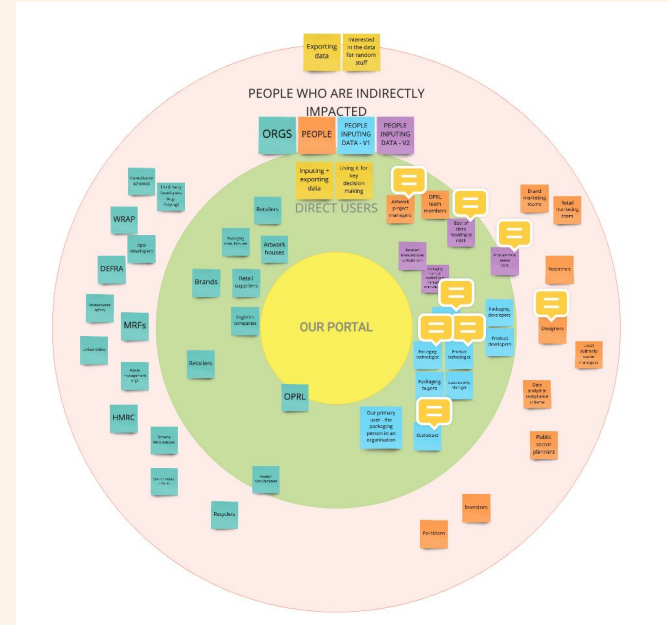
# User mapping

**Key users**

- Packaging manufacturers, product developers, scheme administrators and regulators:

  - Using the portal to input and export data, as well as for informing decision-making
  - Or, those keeping organisations accountable

**Other direct users**

- Artwork houses, logistics companies, procurement teams, OPRL team members and more:

  - Might look at available data, but will not input data or export reports

# User mapping

**Those in the value chain that are indirectly impacted by the portal**

- Brand and retail marketing teams

- Researchers and academia

- Designers

- Local authority waste managers

- Compliance schemes

- Public-sector planners

- Investors

- Recyclers

- Third-party developers

- Waste and Resources Action Programme (WRAP)

- Defra, Her Majesty's Revenue and Customs (HMRC), the Environment Agency

- Materials Recovery Facilities (MRFs)

- Waste management organisations

- Activists

# Persona #1

| Persona | Packaging developers and manufacturers |
|---------|----------------------------------------|
| Motivators | <ul><li>PPP could be a repository of their packaging data and help avoid duplication</li><li>It would be a way to get feedback on their packaging recyclability</li><li>It could make reporting easier</li><li>In the longer term, they could use it to spot trends or understand how many products they might be selling through intermediaries</li><li>It could potentially be a sales opportunity, since product manufacturers can use it as a reference for future products</li></ul> |
| Actions | <ul><li>Bulk-upload existing database</li><li>Input specifications for new packaging developed</li><li>Edit and update specifications for existing products</li><li>Get feedback on recyclability</li><li>Have oversight of how much packaging is being sold and to whom</li><li>Export reports</li></ul> |

# User stories

**As a packaging developer or manufacturer:**

I need to be able to easily bulk upload existing data into the system, so that I can have one single repository and avoid duplication

I need to be able to add and edit specifications of new and existing products, so that I can keep my database accurate and up to date

I need to get automated information on recyclability, so that I can use it as a selling point for customers and be compliant towards regulation
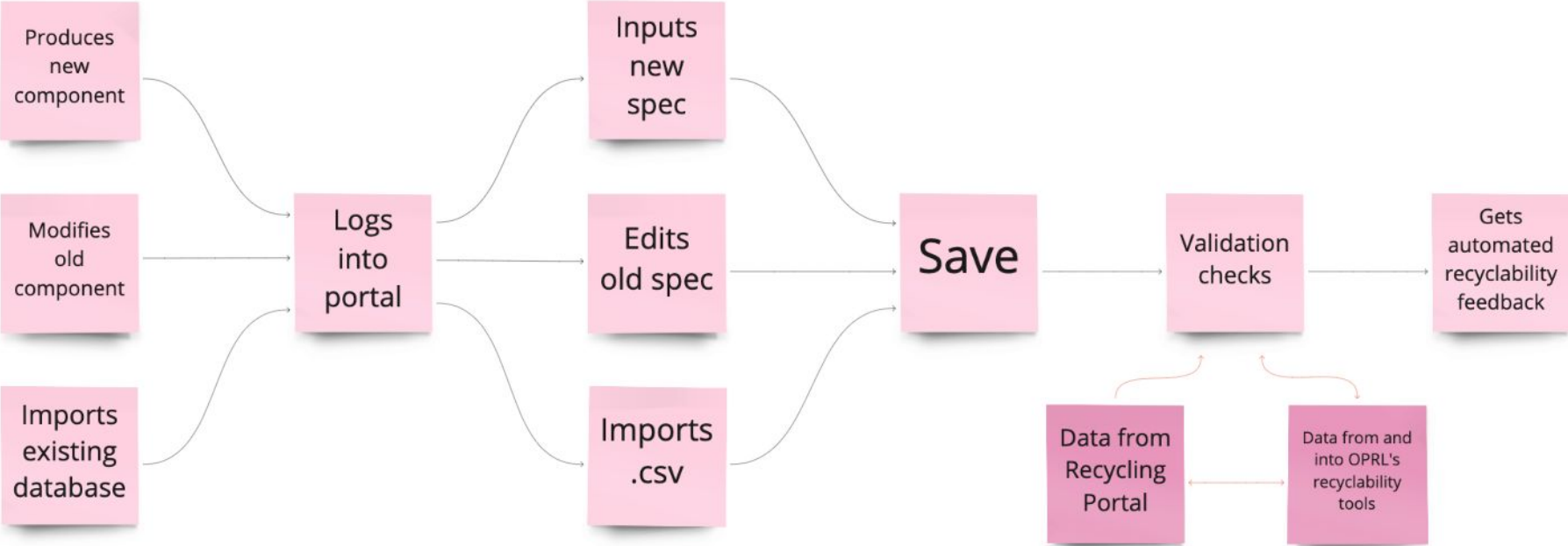
# User stories

**As a packaging developer or manufacturer:**

I need to be able to see how much packaging is being sold directly and via intermediaries, so that I can manage production and spot trends, which will in turn inform better decision making

I need to be able to export data into different report formats, so that I don't spend needless time data gathering and filling different templates

I need to be able to enter how much of each packaging are on the market, so that I can keep track of sales and make reporting easier

# User journey: packaging manufacturer

# Persona #2

| Persona | Product developers |
|---|---|
| Motivators | <ul><li>PPP could be used to research and select appropriate packaging for their products, especially if they can see recycled-content and recyclability specs</li><li>It would be a way to get feedback on the recyclability of their products and getting the OPRL label</li><li>It would make reporting easier</li><li>It could be the go-to place to get their recyclability assessment and OPRL label</li></ul> |
| Actions | <ul><li>Research and select components for an existing or new product</li><li>Link to recyclability label from OPRL</li><li>Get feedback on product recyclability</li><li>Select how much of each packaging and product would be on the market</li><li>Export reports on packaging data for regulators</li></ul> |

# User stories

**As a product developer:**

I need to be able to easily bulk upload existing data into the system, so that I can have one single repository and avoid duplication

I need to get automated information on recyclability, so that I can use it as a selling point for customers and be compliant towards regulation

I need to easily get access to my OPRL label, so that I can optimise production and keep customers well informed about recyclability
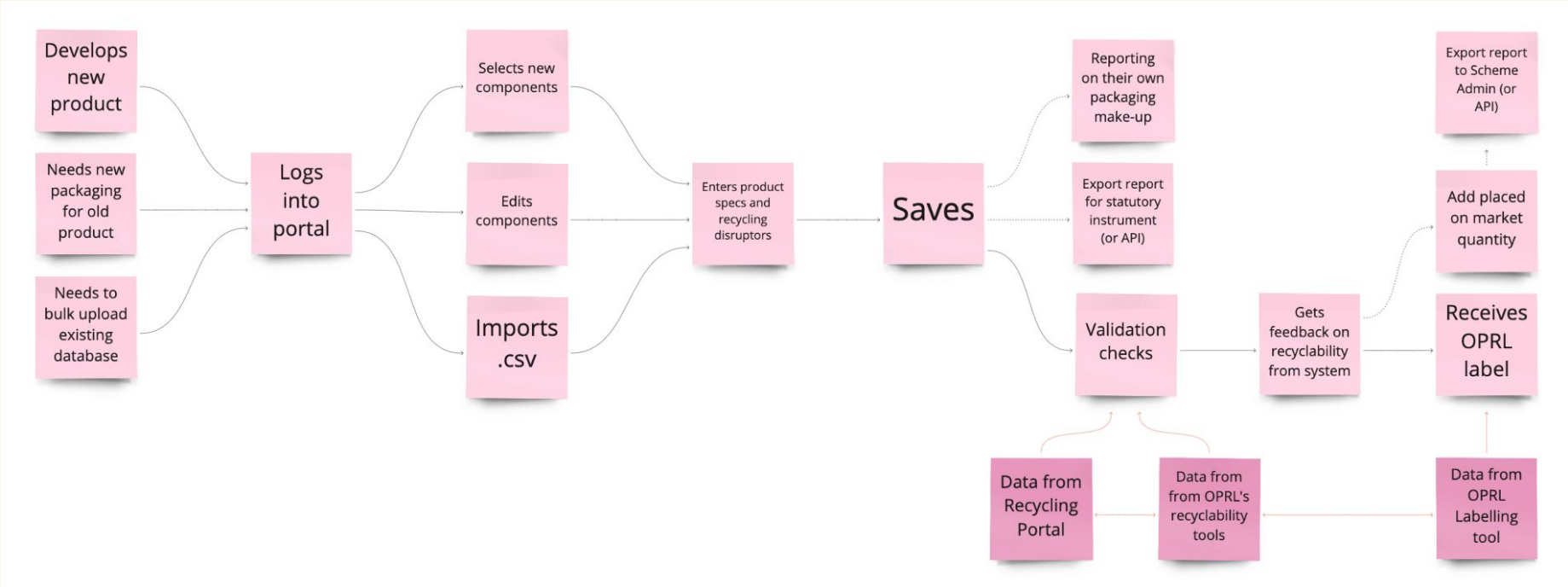
# User stories

**As a product developer:**

I need to be able to enter how much of each packaging and product are on the market, so that I can keep track of sales and make reporting easier

I need to be able to export data into different report formats, so that I don't spend needless time data gathering and filling different templates

# User journey: product developer

# Persona #3

| Persona | Regulator or scheme administrator |
|---|---|
| **Motivators** | <ul><li>PPP could help them get a good picture of what is on the market</li><li>This could help them spot trends and understand how much of each resource is being used</li><li>Through PPP, they could get access to detailed information that is not included in the reporting, which could help with keeping organisations accountable</li></ul> |
| **Actions** | <ul><li>View repositories for both packaging, and product, manufacturers and developers</li><li>Search and filter according to organisation, material, format and more</li><li>Export reports</li><li>No editing rights</li></ul> |

# User stories

As a regulator or scheme administrator:

I need to be able to search for specific things, such as IDs and organisations, so that I can get quicker to information rather than scrolling through a database

I need to be able to filter the database according to the data fields, so that I can get a glance of quantities and specs

I need both of these things so that I'm able spot trends, as well as keep organisations accountable
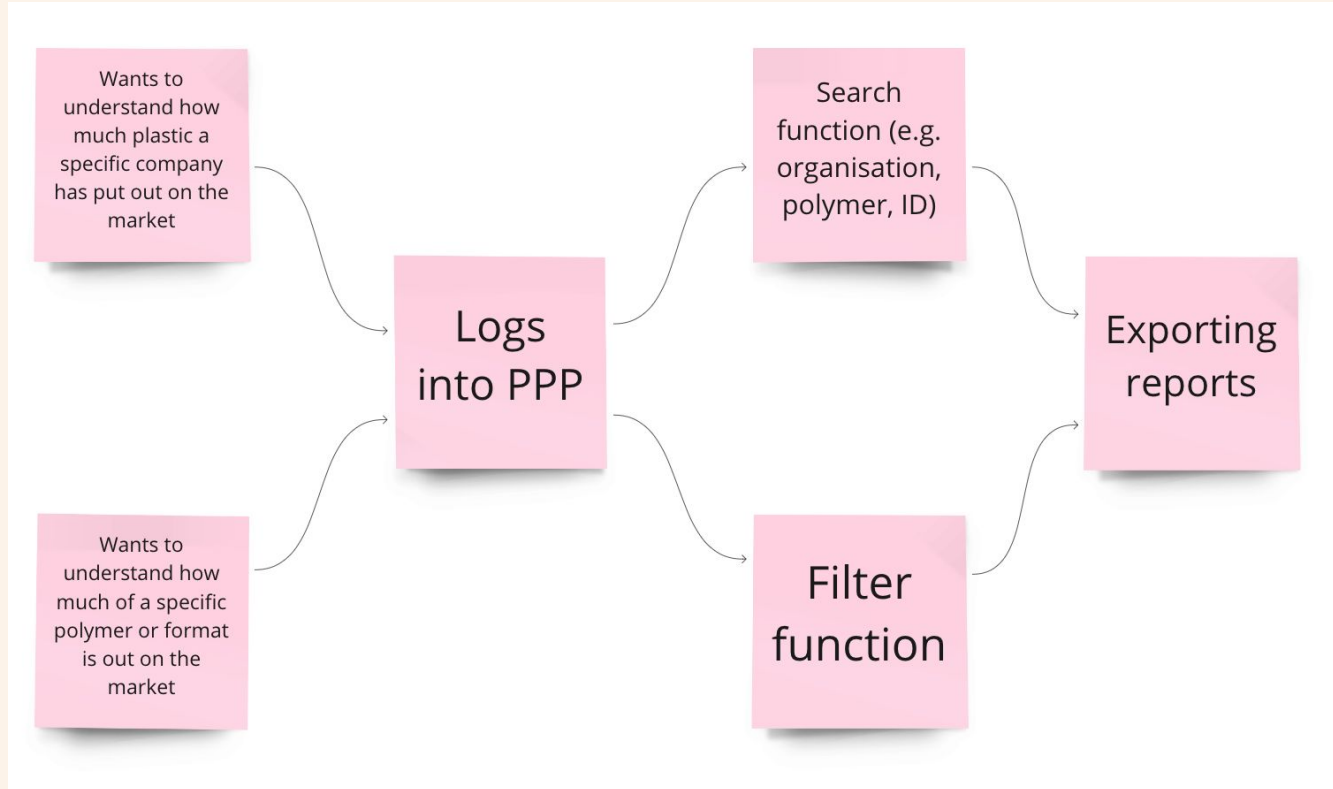
# User stories

**As a regulator or scheme administrator:**

I need to be able to export reports in different formats so that I can easily compile data to present to my regulators

I need to know that the information entered on the portal is trustworthy and accurate, so that I can rely on the data to keep organisations accountable and improve decision-making

# User journey: regulator or scheme administrator

# Persona #4

| Persona | OPRL administrator |
|---|---|
| Motivators | <ul><li>PPP could be where they get data about what's on the market and use this information to create trend reports</li><li>They could use it to understand which products or organisations use a lot of plastic, or how different polymers and materials are being used</li><li>They could use the data to validate assumptions on material recyclability</li><li>They could also use the data to audit organisations (e.g. check if they've changed their packaging)</li></ul> |
| Actions | <ul><li>To be able to search, filter and query the data on the portal</li><li>Import member data from different OPRL tools (e.g. if a packaging supplier creates a new packaging item on the Labelling Tool, it could go directly onto the portal)(API)</li><li>Export data for reports</li><li>Export the controlled lists to use it as a single source of truth</li></ul> |

# User stories

As OPRL:

I need to query the data to keep organisations accountable and spot trends

I need to be able to search for specific things, such as IDs and organisations, so that I can get quicker to information rather than scrolling through a database

I need to be able to filter the database according to the data fields, so that I can get a glance of quantities and specs
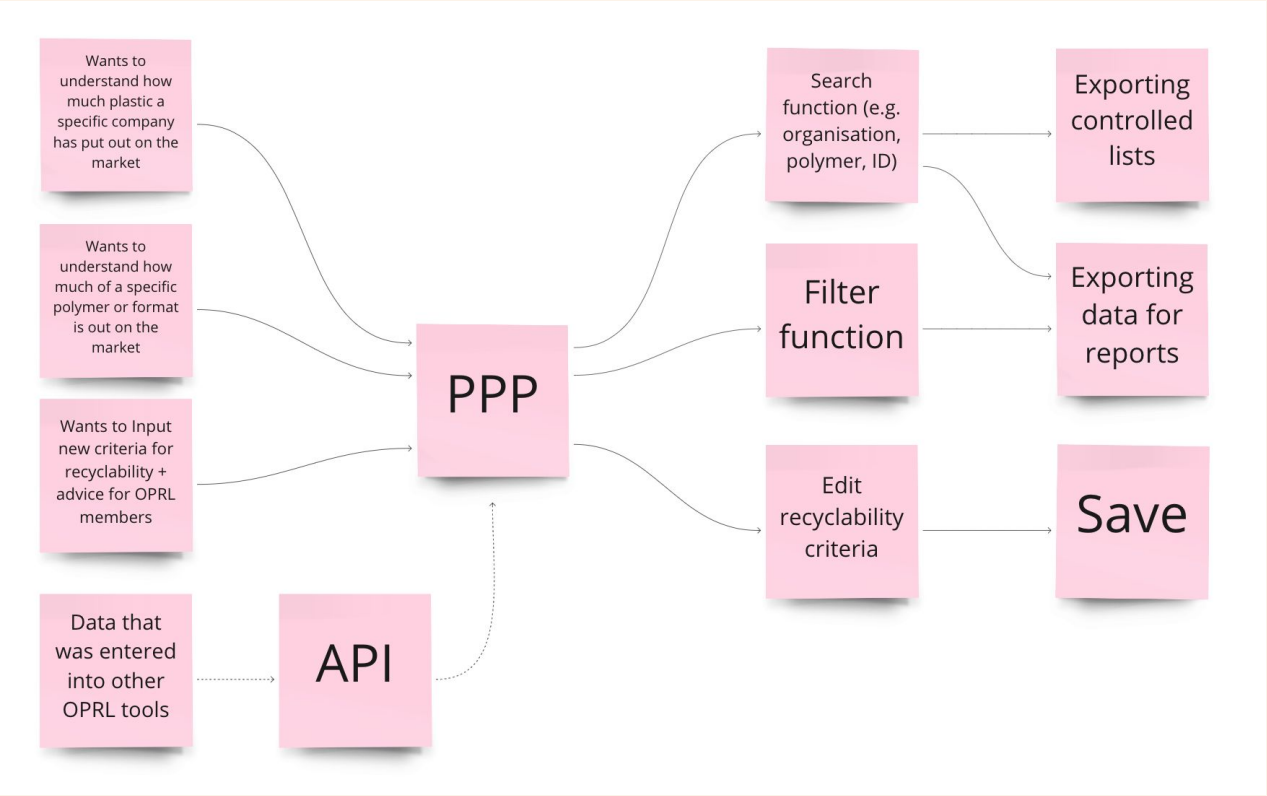
# User stories

**As OPRL:**

I need to export controlled lists so that I can use it in my internal tools and keep a single source of truth and guarantee interoperability between platforms

I need our internal tools to communicate with the portal, so that if one of our members inputs information into our site, they only have to do it once

# User journey: OPRL

# Considerations from the GDS Service Manual

A review of the GDS standards in relation to the PPP project process so far.

# Service standards

According to the GDS Service Manual, in Discovery and Alpha, a service should consider the following standards in research and design:

**#1: understand users and their needs**

We've spent the Discovery phase gathering information across the whole plastic-packaging value chain, which has helped us get an understanding of the specific and systemic challenges that organisations face. We have summarised our findings as user pain points and user needs.

**Next steps**

In Beta, we need to have more in-depth conversations with our key user groups, which have been identified during the Alpha phase. This will enable us to tailor the portal experience, and make it more meaningful and relevant.

# Service standards

**#2: solve a whole problem for users**

In Alpha, we reaffirmed the potential scope of our service and started to map out the different journeys for our users, as well as how these might fit in a wider context. This has already been helpful for informing early thoughts on user experience and interface design.

**Next steps**

In Beta, one-to-one interviews and usability testing will bring more clarity on how to best take our users through the experience and what constraints they might face along the way.

# Service standards

**#5: make sure everyone can use the service**

We are aware of important accessibility guidelines, such as Web Content Accessibility Guidelines (WCAG) principles. In Beta, we will need to ensure there is a full understanding of how to make our service accessible to our specific user groups. This will be a key focus of our interviews, as well as participant recruitment.

**Other points to highlight**

During Discovery and Alpha, we've been working in a multidisciplinary team (#6) in an iterative way (#8), following Agile principles and ceremonies (#7).

# Recommendations

These are the recommended next steps and further rounds of research.

# Further areas of research: Beta

We're looking forward to conducting one-to-one interviews and usability testing sessions with our key user groups in order to validate our assumptions. This will:

- provide us with more knowledge about specific needs and constraints they have, both currently and while using the portal
- help us determine the best ways to build our service experience, what technologies are necessary, governance structure, how to make the portal secure and more
- focus on recruiting a diverse sample of participants for our research, essential for making sure our service and interface design is inclusive

# Further areas of research: Beta

- One of the main objectives of the Beta research on the data standard will be the development of controlled lists for each data field
- As Extended Producer Responsibility (EPR) is one of the major moving parts of the PPP, it will also be important to maintain a good, ongoing relationship with Defra so that both parties are working cohesively to make our users' lives easier
- In addition, it will be useful to start building relationships with other relevant government departments and organisations, such as:
  - HMRC
  - other entities working on waste tracking

# Open3R standard research

- We spoke to 6 people in total about the wireframes and the portal prototype
- The sessions were 1-hour long and we asked participants to tell us how they would go about completing different tasks (e.g. "how would you go about finding information about a recycling centre you manage?")
- Overall, users were able to navigate quite easily through the portal and really enjoyed the experience
- They also mentioned that they could see the relevance of the whole project and each of the sections
- We got some feedback on specific things, like terminology and colours of clicked buttons, and have begun iterating on these initial designs