

Construction Company

A better way to search for, select and hire
construction vendors



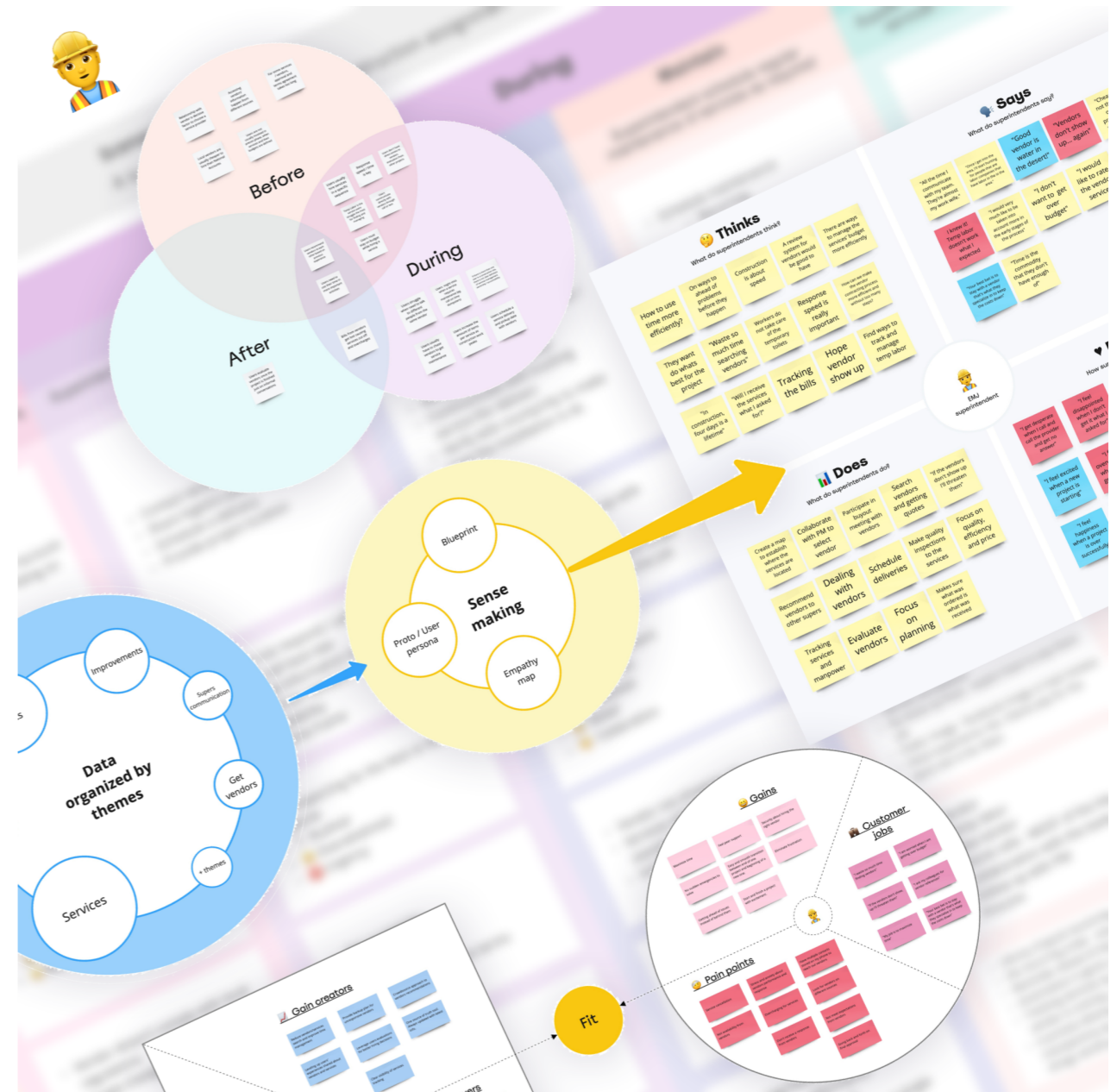
Project overview

The product

This is a construction company concerned about their superintendents' problems with searching for, selecting and managing services for construction sites. In order to discover their frictions, needs, and hassles, we used the design thinking methodology.

Project Duration

4 weeks.



Project overview

The problem

Construction company superintendents' biggest issue is finding the best and most reliable service vendors.

The goal

Know who the people we will design for are; their needs, behaviors, expectations, motivations and pain points.

Discover what the main frictions are during the process of searching for and selecting construction services.



Project overview

Our Role

Using design thinking methodology, we tackled this challenge with an iterative process. The phases are not strictly linear, but rather each supports both the previous and following ones as the process evolves.

Responsibilities

- Research
- Analysis
- Synthesize
- Ideation
- Definition of MVP features

Research

- Secondary research
- UX Competitive audit
- Primary research

Context

Before starting, we researched

Before starting the discovery phase, we researched what a superintendent is and what features of on-demand apps could help them most.

For that purpose we worked on:

- Secondary research
- UX competitive audit

Secondary research

What is it?

Secondary research is an exploration of the problem space to identify important questions and best practices in the field of study. It's a tool that provides extra information to support insights obtained in the user research process.

Our secondary research

The focus of our secondary research was to understand what a superintendent is, what their responsibilities and skills are, the tools they use on a day to day basis, and the importance of this role within the construction company. Through searching the web we gathered information from different articles and websites. **We found that superintendents' mindset is working around efficiency & resource management.**

UX competitive audit

What is it?

A competitive audit is an overview of your competitors' strengths and weaknesses. It is a UX research resource used to provide strategic insights into the features, functions, flows, and feelings evoked by the design solutions of the competitors to strategically design a solution with the goal of making a superior product or service.

Our UX competitive audit

In order to propose a solution that allows the fast and efficient discovery and contracting of services, we thoroughly researched what other services offer similar solutions. **We found some on-demand app features such as searching for and selecting could help to relieve construction company superintendents' frictions.**



Primary research objectives

Know our user

Know who the people we will design for are; their needs, behaviors, expectations, motivations and pain points.

Uncover pain points

In order to create a solution for construction company superintendents, we need to discover what the main frictions are during the process of searching for and selecting construction services.

Research questions

- 1 | What are the main frictions in the process of searching for and selecting construction services?
- 2 | What can we learn from the steps superintendents take to search for and select construction services?

User interviews

What is it?

Interviews give insights into what users think about a site, an application, a product, or a process. They can point out what site content is memorable, what people feel is important on the site, and what ideas for improvement they may have.

Our method

- **What:** Five user interviews
- **Where:** All participants were interviewed remotely, from their job sites in the U.S.
- **When:** Interviews took place on March 8th, 9th and 10th.
- **How:** The interviews were conducted through Microsoft Teams. Each interview lasted 45-60 minutes and included an introduction (brief of the project) and follow up questionnaire.
- **Who:** 4 superintendents and 1 project manager.

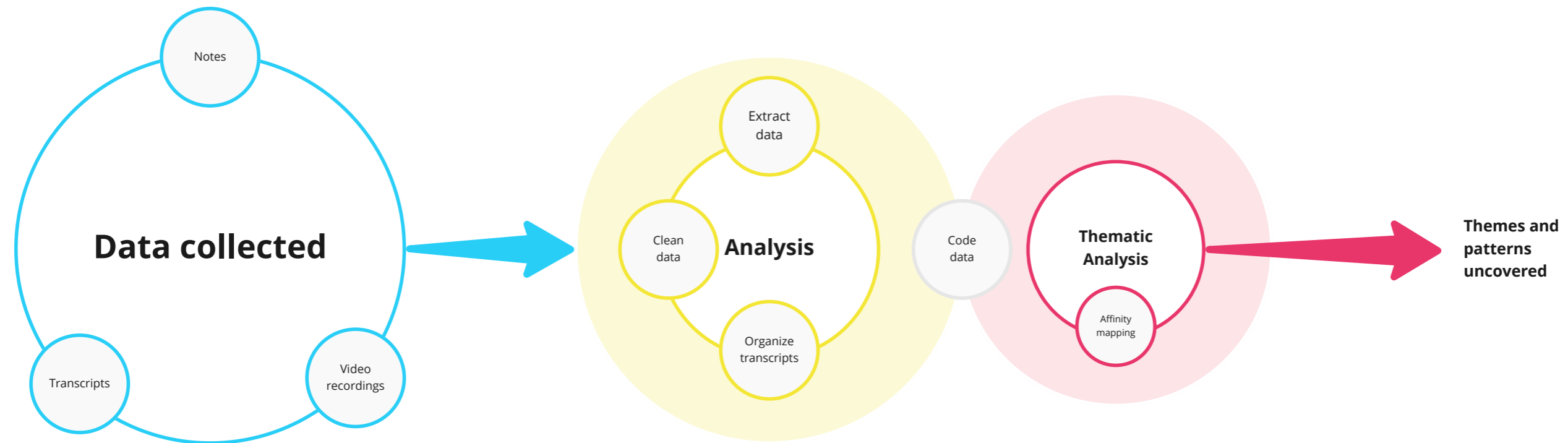
Analyze

- Affinity diagram
- Patterns and themes

Analyzing

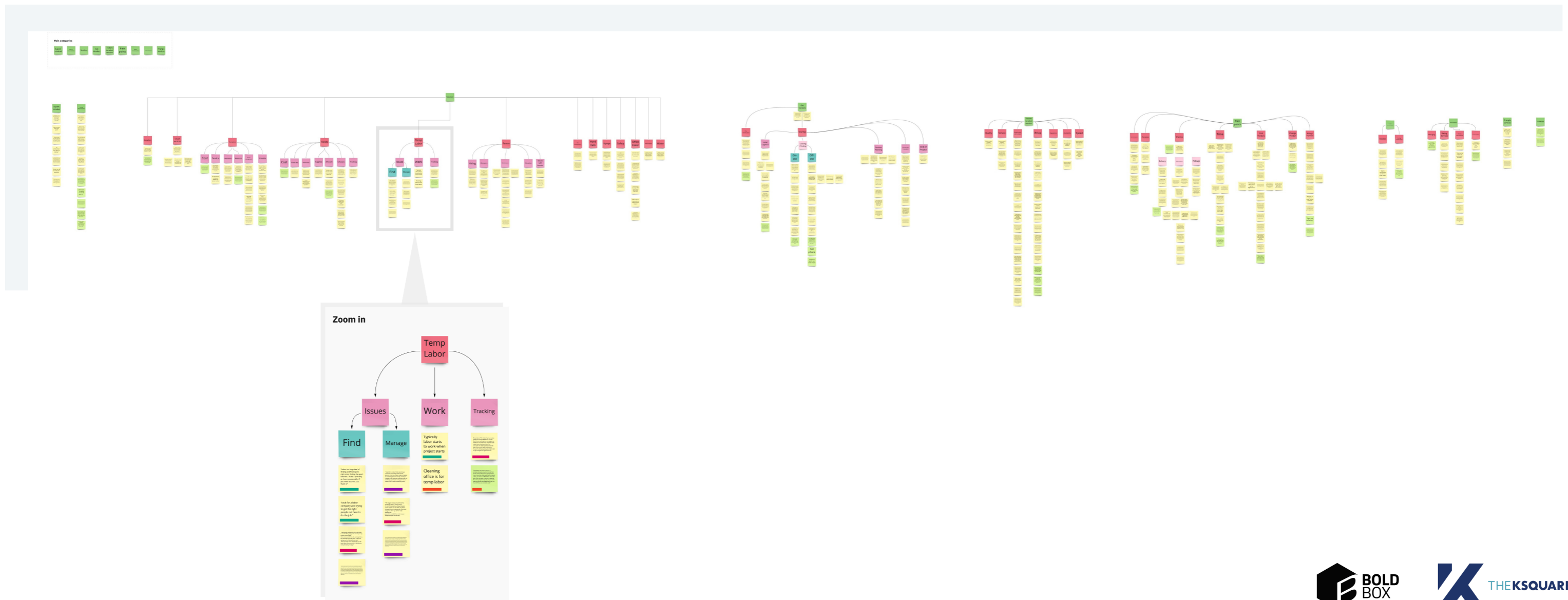
How did we analyze the data?

Once we completed the user interview process, we converted the data into findings and insights that helped us define the features for the MVP.



Affinity diagram

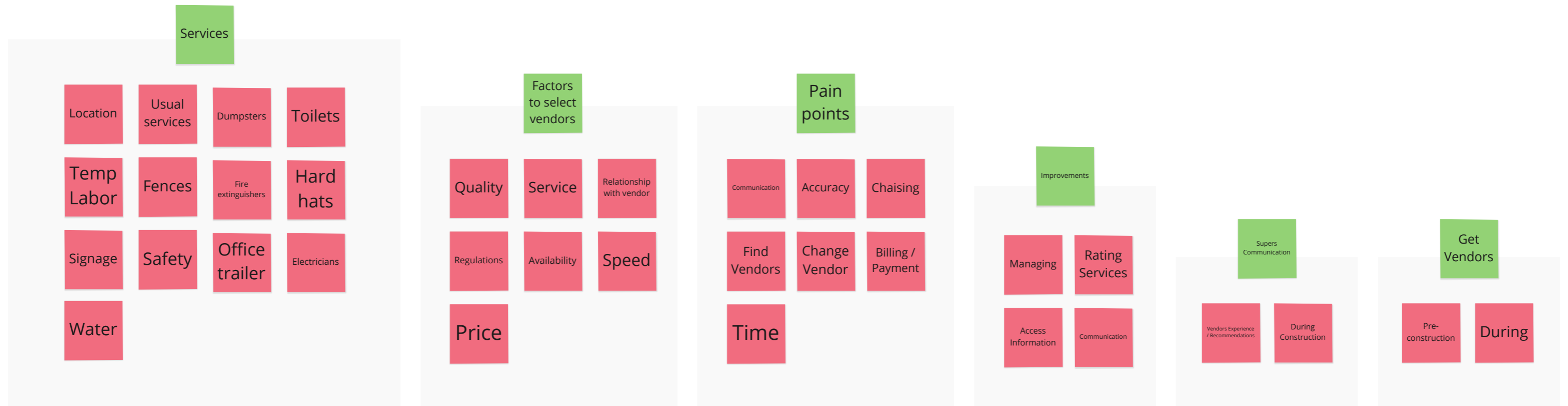
The affinity diagram is a UX method used to organize research data to identify common themes and patterns.



Themes & patterns

How to read:

■ Theme ■ Subcategories



Additional themes

Supers mindset

Roles & Responsibilities

Challenges

Synthesize

- User persona & proto-personas
- Empathy map
- Customer journey blueprint
- Problem statement
- Findings & insights

Empathizing

Who are we designing for?

In order to understand who the users we are designing for are, we used three UX tools:

- **User personas:** a fictional representation of real data that shows the similarities among certain groups of users. This UX tool guide us to define the users we are crafting a solution for.
- **Empathy map:** used to articulate what we know about a particular type of user. It externalizes knowledge about users in order to create a shared understanding of their needs, motivations and pain points.
- **Proto personas:** an approximation of users that we don't have much information about. The data collected for crafting this tool is obtained through indirect resources: interviews with stakeholders, secondary research, etc. Unlike personas, in this tool behaviors and beliefs are highlighted.

User persona



”

“Cheapest is not the better one.
It's probably the worst one.”

”

Jeremy

- 👤 35 years old
- 📍 Chattanooga, Tennessee
- 👔 Lead superintendent

Bio

Jeremy oversees everything that goes on in the construction site and ensures it all goes according to plan. He hires the best service vendors for the project in accordance with the budget and makes sure the services are rendered as established in the initial quote. Jeremy thinks in terms of quality, efficiency and speed, because as he says, "In construction, four days is a lifetime".

Goals & Motivations

- Get the best services for the construction site as quickly as possible without going over budget.
- Receive what he asked for from service vendors in order to maximize efficiency in the workflow.
- Monitor status of services to keep job site as clean as possible to work quickly and efficiently and finish the construction work according to plan.

Frustrations

- He wastes time looking for service vendors from multiple sources.
- Sometimes gets uneven levels of quality when dealing with services from unknown vendors.
- Chase vendors to provide maintenance for the services rendered.
- Have too many activities and points of supervision he might miss when a service requires maintenance.

Empathy map

How to read:

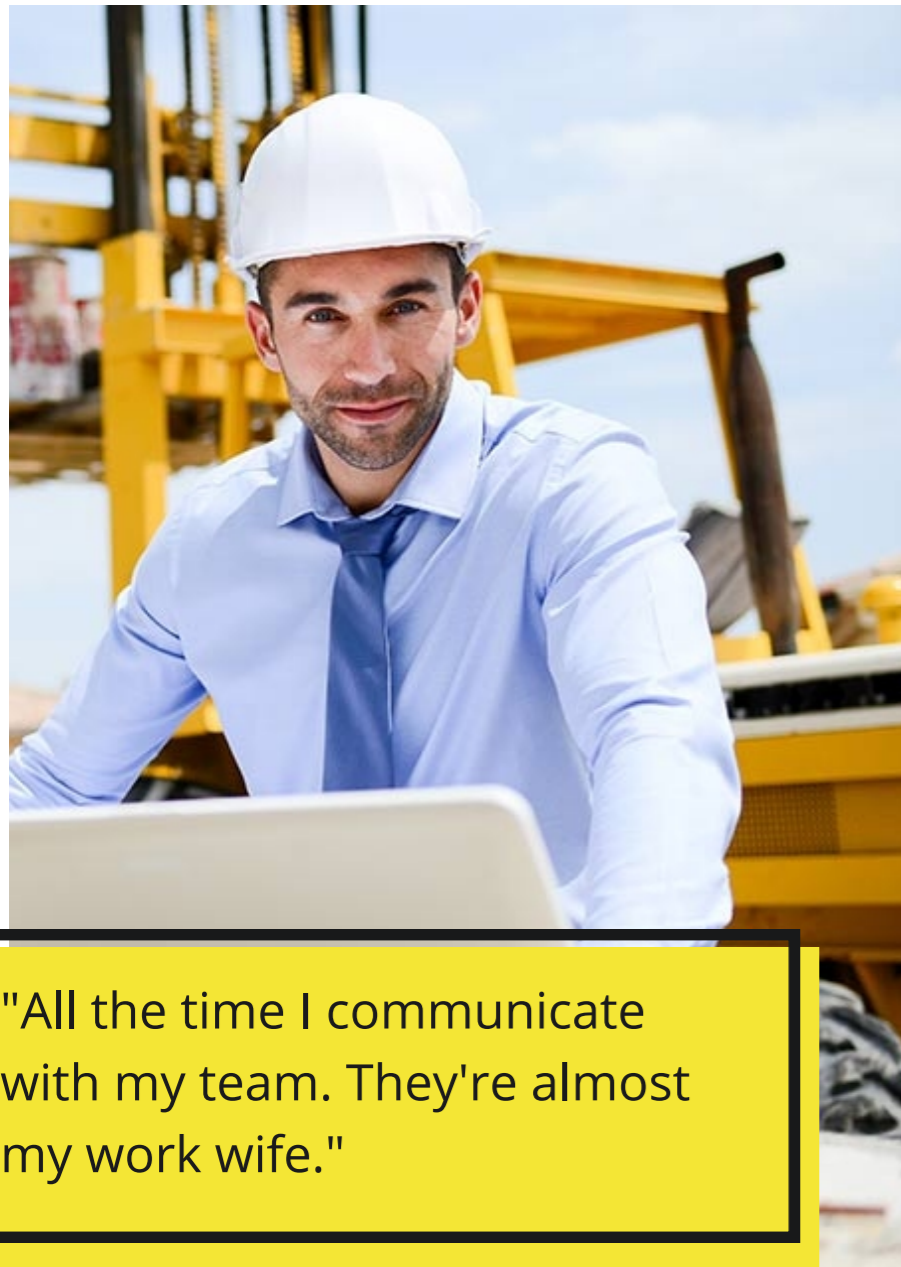
Statements
 Negative
 Positive



Zoom in: Says



Proto persona



"All the time I communicate with my team. They're almost my work wife."

Orland

👤 37 years old

📍 Chattanooga, Tennessee

👜 Project Manager

Bio

Orland supervises the overall construction of a project and is in charge of controlling the budget. He supports superintendents in order to provide them with the resources to finish the construction work according to plan. He's constantly in communication with his supers, and says "My teamwork is my work wife".

Needs and goals

- Provide resources to supers in order to maximize efficiency and work as quickly as possible.
- Wisely use the money assigned for the project by approving the best quotes.
- Track bills in order to maintain services within the budget assigned and to avoid paying extra fees.
- Ensures everything goes according to plan on the construction site.
- Delegate responsibilities to the people involved in the project.

Behaviors / Beliefs

- **Communication.** He is constantly communicating his concerns and next steps to supers and project stakeholders.
- **Foresight.** He is one step ahead of problems, not behind them.
- **Cautious.** His experience aids in choosing the best vendors. E.g. Sometimes he'd rather pay a few more for temp labor than a company that doesn't deliver what he expects.



User journey

What is the user journey for construction management services?

In addition to the data we gathered from user interviews we lead a workshop to figure out what are the main tasks users perform while conducting construction management services. We discovered pain points, feelings, actors, risks and improvement areas.

- **Blueprint:** a diagram that visualizes the relationships between different service components — people, props (physical or digital evidence), and processes — that are directly tied to touch points in a specific customer journey.

Journey blueprint

Scope and goal	User	Scenario	Scenario Statement						
	Superintendent	Superintendent needs to manage services for a construction site (Happy Path)	A superintendent has a new construction assignment and needs to find, hire and manage the services required for the work.						
Project Lifecycle	Before			During				After	
Phases	Definition	Source / Find Vendor	Approval	Hire	Place / Installation	Maintain	Return	Evaluate / Rate	Recommend
	Pre-construction team put together budget and identify the services needed	Superintendent looks and select vendors that provide the services required in the area	PM approves superintendent vendor choices according to regulations / budget	Superintendent hires vendor and finalize transaction details	Superintendent indicates the best location for service installation	Superintendent schedule regular maintenance of services as required	Superintendent contacts vendor to collect services when their lifecycle ends	Superintendent evaluates service provided by vendor internally in EMJ	Superintendent gives recommendations to peers about vendors and services
User tasks and activities <small>What do superintendents do on each phase?</small>	<ul style="list-style-type: none"> Not usually involved in this phase but if included: <ul style="list-style-type: none"> Awareness and suggestions. Offering suggestions of what's needed to execute properly the project. Bring insights on the overrun in other projects. 	<ul style="list-style-type: none"> Search <ul style="list-style-type: none"> List in Procore Ask colleagues Visit the location Online Contact vendor <ul style="list-style-type: none"> By email Call Text Buyout Meet Quote service Assess quote vs budget Decide 	<ul style="list-style-type: none"> Send proposal to PM Credit check Reference check to open an account Collecting insurance depending on the services/location Setup permits Get approval Training for operation (for specific services) 	<ul style="list-style-type: none"> Contact vendor Share logistics plans Schedule a delivery Provide project location 	<ul style="list-style-type: none"> Find best place for installation Verify quality / service Indicates vendor where to place / locate service Verify service installation Communicate with trucking service (for deliver) Verify with county/city to make sure the installation is ok. 	<ul style="list-style-type: none"> Schedule maintenance <ul style="list-style-type: none"> Recurring <ul style="list-style-type: none"> When needed Look for temp labor Do it themselves Recurrent payment Track the service Verify with county/city to make sure the vendor is doing an excellent job Billing 	<ul style="list-style-type: none"> Call vendor Verify collection Service terminated Get final bill 	<ul style="list-style-type: none"> Quality of the service Efficiency of the service Overall experience 	<ul style="list-style-type: none"> Communicate to peers about vendor services <ul style="list-style-type: none"> Give an opinion <ul style="list-style-type: none"> Recommend <ul style="list-style-type: none"> Do not recommend Provide contact information Ask about other superintendents. Know GOOD and BAD.
Painpoints <small>What do superintendents struggle with on each phase?</small>	<ul style="list-style-type: none"> If user is not part of this process, it becomes a problem. 	<ul style="list-style-type: none"> Making multiple calls Travel Don't get a response Miscommunication Get wrong quote Takes a lot of time 	<ul style="list-style-type: none"> Vendor can't supply Going back and forward on final approval 	<ul style="list-style-type: none"> Vendor not respond / call back Vendor call back late Reiterate information to new people from vendors Not availability Other time frame 	<ul style="list-style-type: none"> Vendor do not show up with what it was asked Short material Wrong understanding of scope People not able to do the job 	<ul style="list-style-type: none"> Service Issue <ul style="list-style-type: none"> Multiple calls to vendor and no show ups Vendor not giving maintenance Bill lost Service cancellation Lose of time 	<ul style="list-style-type: none"> Bill lost Overcharging Lack of service 	<ul style="list-style-type: none"> The last thing you want to do is sit down and review the project when you are already done and starting a new project. There is not a formal way to evaluate / rate vendors 	<ul style="list-style-type: none"> Information access is not open Write email to request or give a recommendation (takes time)
Feeling Adjective <small>How do superintendents feel on each phase?</small>	<ul style="list-style-type: none"> Excited about the new project Curious to know all about the new project. Stress for what needs to be completed before the new project starts! 	<ul style="list-style-type: none"> Overwhelmed Frustrated 	<ul style="list-style-type: none"> Anxious Ready to start 	<ul style="list-style-type: none"> Expecting for the best or the worse Rushed Overwhelmed Urgency 	<ul style="list-style-type: none"> Accomplishment Excitement Exhausted Relief Celebration 	<ul style="list-style-type: none"> Stressed Frustrated Relieved if there is a good vendor! (water in the desert) 	<ul style="list-style-type: none"> Job is completed! Happy! Worried about staying within the budget. 	<ul style="list-style-type: none"> Exhausted Tired Mentally done! 	<ul style="list-style-type: none"> Frustrated - find vendors and if they are bad, how do you deal with that. Good feeling when getting a good recommendation.
Risks <small>What are the risks associated to each phase?</small>	<ul style="list-style-type: none"> The budget is not right. Something that takes too much time and it distracts the user. User's availability Out of scope requirements that are missed. Hit or miss on Procore data. 	<ul style="list-style-type: none"> Not finding a vendor Go over budget Get wrong quote Taking too long Dragging other people's time into sourcing activities No vendor response 	<ul style="list-style-type: none"> Vendor doesn't comply with local regulations Quote change while approval process Payment terms not agreed 	<ul style="list-style-type: none"> Not availability Other time frame Quote can change Issues with payment terms 	<ul style="list-style-type: none"> Vendor not showing up Services without the required standards Installation problems 	<ul style="list-style-type: none"> Vendor not giving maintenance Bill lost Service cancellation No show up fines - supers have to pay them off Public image - facebook image or bad reviews Client experience risk. Clients pay for the work site to be clean. 	<ul style="list-style-type: none"> Bill lost Additional bills coming in Prices changing Overcharging Not finding another vendor to replace - with cleaning - An angry client! 	<ul style="list-style-type: none"> Loosing a service because of a bad review. Not having a condensed source of information related to services experience. 	<ul style="list-style-type: none"> Recommend a service without correct regulations. Person's perspective Outdated - how old is it Not doing research because you got a good recommendation.
Touchpoint <small>What are the touchpoints for a superintendent on each phase? (People / systems)</small>	<ul style="list-style-type: none"> Internal team meetings Conversation with the pre-construction manager Procore 	<ul style="list-style-type: none"> PM Procore Vendors Local subcontractors County / City Precon team Other supers 	<ul style="list-style-type: none"> PM Vendors Accounting Department 	<ul style="list-style-type: none"> Vendor PM Precon Procore 	<ul style="list-style-type: none"> Vendor Delivery people EMJ team for support Jurisdiction for inspection 	<ul style="list-style-type: none"> Vendor Temp labor New vendor Phone calls - MOST of the time Collaboration with the team Follow up with PM Procore 	<ul style="list-style-type: none"> Vendor Phone calls Job walk with the client, the county, etc. PM is always involved - Take over! Hand-off 	<ul style="list-style-type: none"> PM Other supers 	<ul style="list-style-type: none"> Superintendents Pre-con for future jobs PM EMJ team
Opportunities <small>What are some ideas to improve or fix the pain points or risks?</small>	<ul style="list-style-type: none"> Finding early availability of services Involve users early in the process Accuracy of information Could possibly help in determining the services needed Hand-off of previous project happens before 	<ul style="list-style-type: none"> Have an app as single source Partner vendors National account Report / directory Consistency on predictability/price/availability Vendor predictability on delivery 	<ul style="list-style-type: none"> Payment terms workout earlier Eliminate steps with other departments (accounting, etc) Have an agreement template ready to send 	<ul style="list-style-type: none"> Eliminate the approval phase Setting vendors up earlier 	<ul style="list-style-type: none"> Having historical record of vendors performance Star rating system Having vendor have one single point of contact for supers 	<ul style="list-style-type: none"> Library of good recommendations Set recurring order - automatic - Reminder ahead of time Automation in general Tracking services to know when the service or vendor is coming on site A process where you could have more transparency and visibility of the status of things vendors are doing. 	<ul style="list-style-type: none"> Overall rating of the service In-depth review Summary of services to both parties Reminders for pick-up services and termination Notice we are not paying for your service after pickup date. 	<ul style="list-style-type: none"> Review the project as it is going instead of at the end. Have a way to give a review and rate to vendors Customer service -future- to open it to other companies. 	<ul style="list-style-type: none"> Point of contact in your organization -if opened to other companies. Precon needs to have visibility to recommendations. Service provider to share your recommendation on social channels

Zoom in: Pain points during hire stage

- Vendor not respond / call back
- Vendor call back late
- Reiterate information to new people from vendors
- Not availability
- Other time frame

Problem statement

Jeremy is a busy superintendent in a construction company who needs a solution to easily and quickly find the best, most reliable vendors of construction services because this activity is time consuming and prevents him from keeping his focus on the coordination of the project he works on.

Findings

According to the Cambridge Dictionary, a finding is “a piece of information that is discovered during an official examination of a problem, situation, or object. In UX, findings tells us what the users are doing, believing & interpreting during a certain process.

Service vendors don't have a clear organization (e.g. they don't have a person assigned to follow up on the service assigned)

Before During

Temp Labor is the service users struggle the most to find and manage

Before During

Users don't have direct access to vendors' evaluation from other projects

Before During

Response speed / time is key

Before

For some services and vendors, approval and terms agreement takes too long

Before

Users must stay on budget while hiring a service

Before During

Users communicate directly with vendors through call or text

Before During

Users struggle when they need to talk to different people from the same vendor

During

If there is more than one user in a construction site, there is no clear definition of services management, ownership and accountability.

During

Users only evaluate vendors once the project is finished through informal conversations

After

Local vendors are usually cheaper to hire than National Accounts

Before

Users usually hire services in a specific sequence

Before During

Users recommend vendors to each other based on previous experience

After Before During

Users schedule a service delivery and pickup date with vendors

During

Bills from vendors get lost causing service cut offs and overcharges

After During

Users increase the amount of items per service as construction work peaks

During

On some occasions, users overlooked the maintenance of services (for example, the state of temporary toilets or dumpsters)

During

Users need to spend their time on more operation activities instead of administrative (services management) ones

After Before During

Users usually have to chase vendors to get service maintenance

During

Users might miss when a service requires maintenance (e.g. call on time dumpsters)

During

Accessing vendors' information happens from different sources

Before

Users are not usually involved in the precon phase, which is when services and their budgets are defined

Before

Relationship with vendor is a decisive factor in choosing a service provider

Before

Findings

Project lifecycle

We divided findings into the project lifecycle to better visualize the things we discovered.



Insights

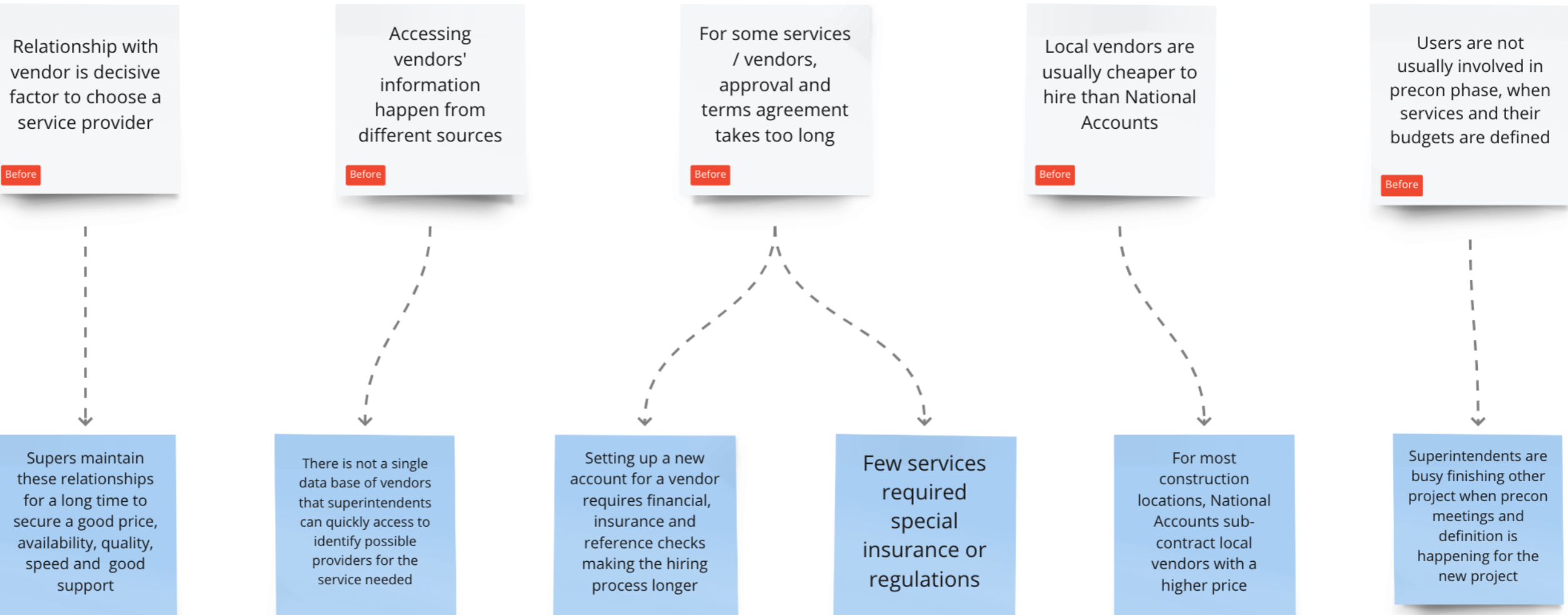
What is an insight?

According to the Cambridge dictionary an insight is “a clear, deep, and sometimes sudden understanding of a complicated problem or situation”. In UX, insights can explain why the users are behaving as they do. It captures unarticulated truths and applies knowledge to facts.

In order to have a clear understanding of where the insight originated, we placed the findings and drew the related insights in the same phase of the project lifecycle.

Insights: Before

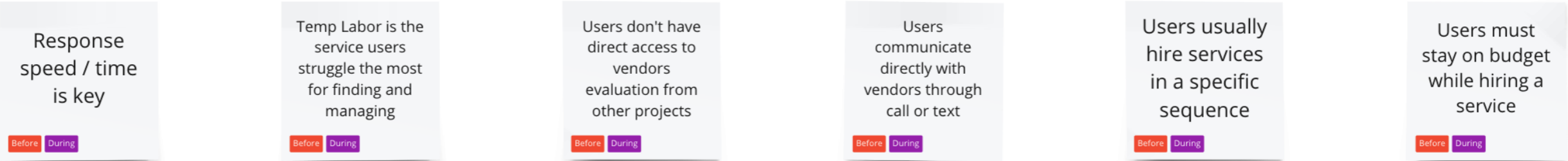
Findings



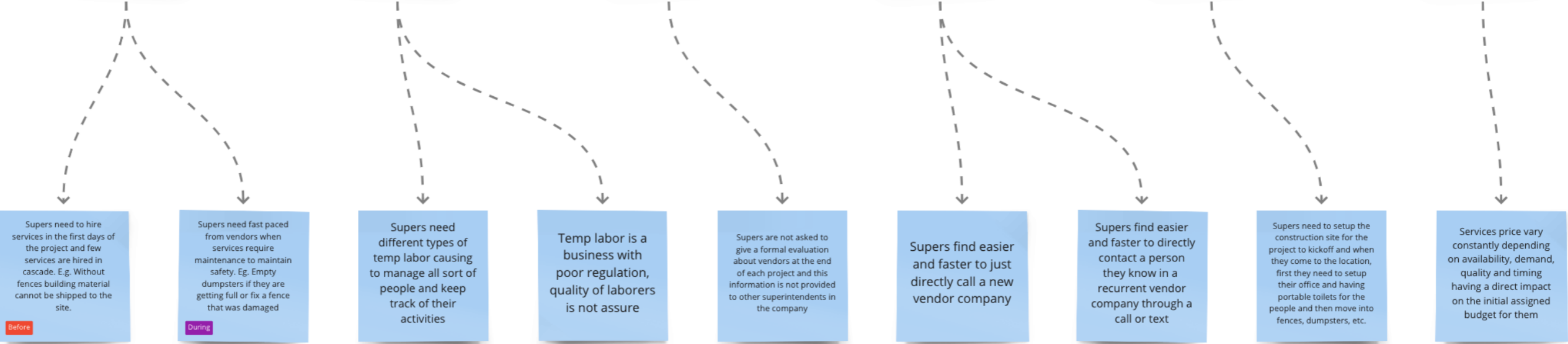
Insights

Insights: Before / During

Findings



Insights



Insights: During

Findings

Users struggle when need to talk to different people from the same vendor

During

Users might miss when a service requires maintenance (eg. call on time dumpsters)

During

If there is more than one user in a construction site, there is not clear definition of services management ownership / accountability

During

Users usually have to chase vendors to get service maintenance

During

Users increase the amount of items per service as construction work peaks

During

Users schedule a service delivery and pickup date with vendors

During

Insights

Supers had an initial contact with a person but the rest of the follow up communication happens with different people from the vendors' company who don't have context, previous information, relationship, etc. So, supers need to constantly repeat the same information

Supers have many aspects to supervise and manage in a project that keeps them from completely focus on administrative activities such as schedule a maintenance for a service

Supers have many aspects to supervise and manage in a project that keeps them from completely focus on administrative activities such as separate services responsibilities

Once vendors are hired and being paid, lose interest in keeping the services to a good maintenance standard

Some vendors have a pre-built route and schedule the maintenance team follow that doesn't match when the super request the maintenance

The construction project usually initiates with minimum labor while services are setup, the filed is cleaned and foundation work is carried out but as the project progress more labor is added. Therefore, the number of toilets, dumpsters, temp labor, etc increases

Supers need to have services in place to initiate activities and require services to be removed asap once they are not needed anymore

Insights: During / After

Findings

Bills from vendors get lost causing services cut off and overcharges

After During

Users evaluate vendors once the project is finished just on informal conversations

After

Insights

There is a lot of manual/human work involving receiving bills and produce payments for vendors

Supers are not asked about vendors experience at any point and just informally talk about it with other supers and / or PM

Insights: All phases

Findings

Users recommend vendors to each other based on previous experience

After Before During

Users need to use their time in more important activities

After Before During

Insights

Peers' recommendation by email or call is the only way to know about vendors' companies outside national accounts

Supers need to supervise many activities and are in charge of operation for the whole construction project

Ideation & Definition

- How might we method
- MSCW technique

Define & ideate

How did we approach this last phase?

We followed an iterative process to ideate on which features are necessary for the MVP.

In order to get ideas on possible solutions, we used the how might we technique to solve the uncovered problems.

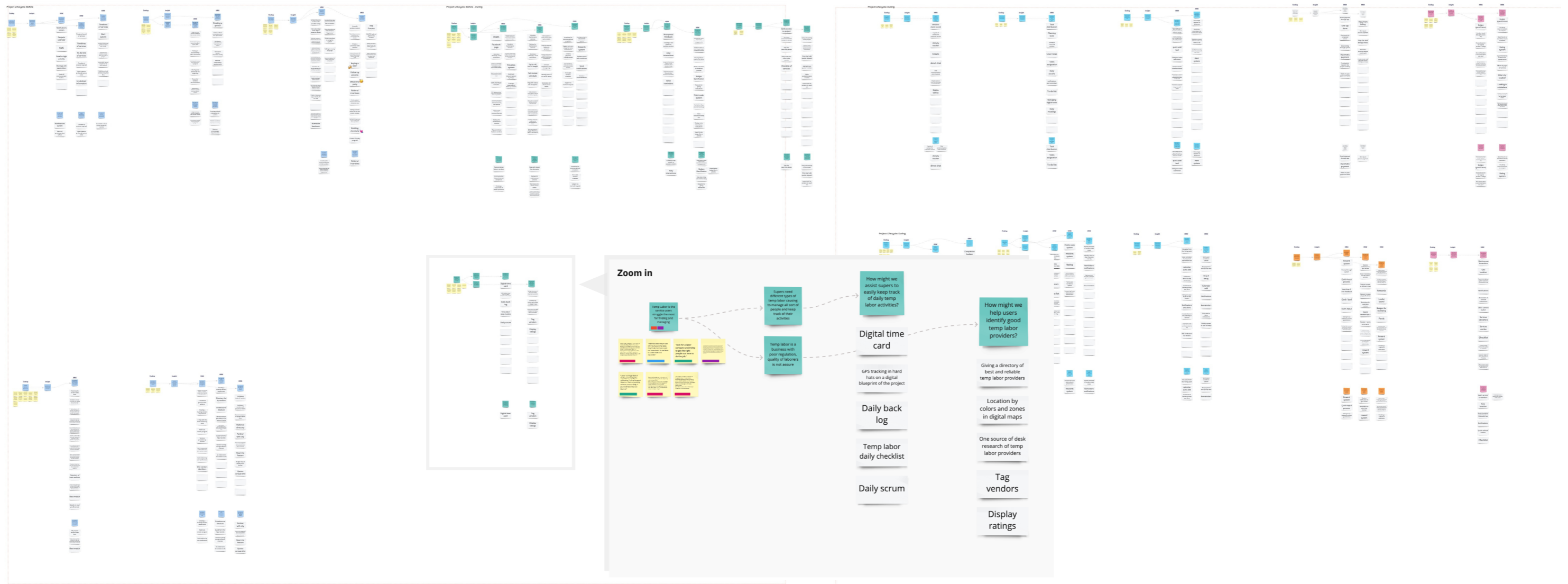
Once we had the possible solutions laid out, we prioritized them following the MSCW method to match the ideas or features with the business and user needs.

We defined two main goals in order to clarify our next steps:

1. Centralize information of construction vendors and have quick access to them (one source of truth).
2. Make possible crowdsourcing of the information.



How might we...



Prioritize: MSCW

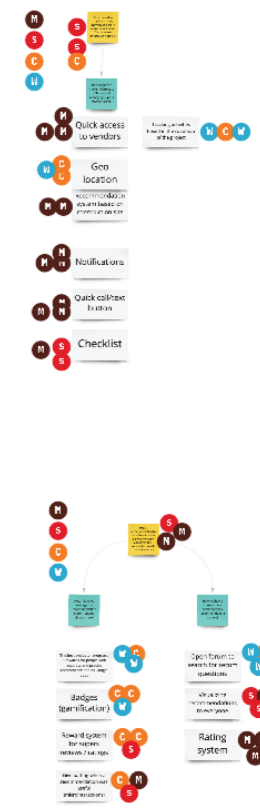
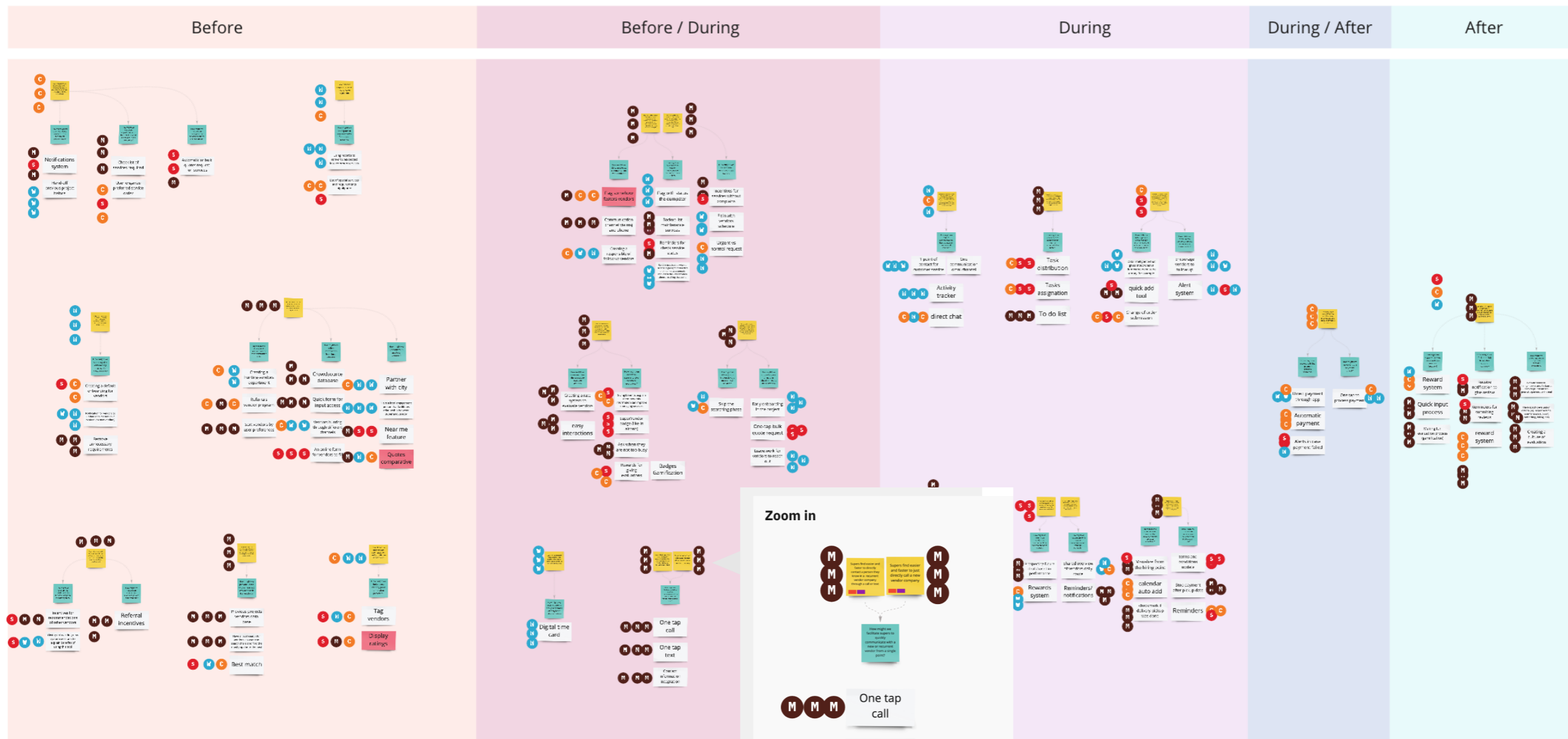
MSCW method

Once we had a lot of ideas from different perspectives we decided to use those that relieve the problem we stated: searching for, selecting and hiring construction vendors. We transformed ideas into features.

We use MSCW technique in order to prioritize what features match with the business and user needs to define the MVP.

The MSCW method is a four-step approach to prioritizing which project requirements will provide the best return on investment. MSCW stands for must have, should have, could have and will not have.

MSCW method



Going Forward

- Value proposition
- Key takeaways
- Next Steps
- System vision
- MVP features

Value proposition

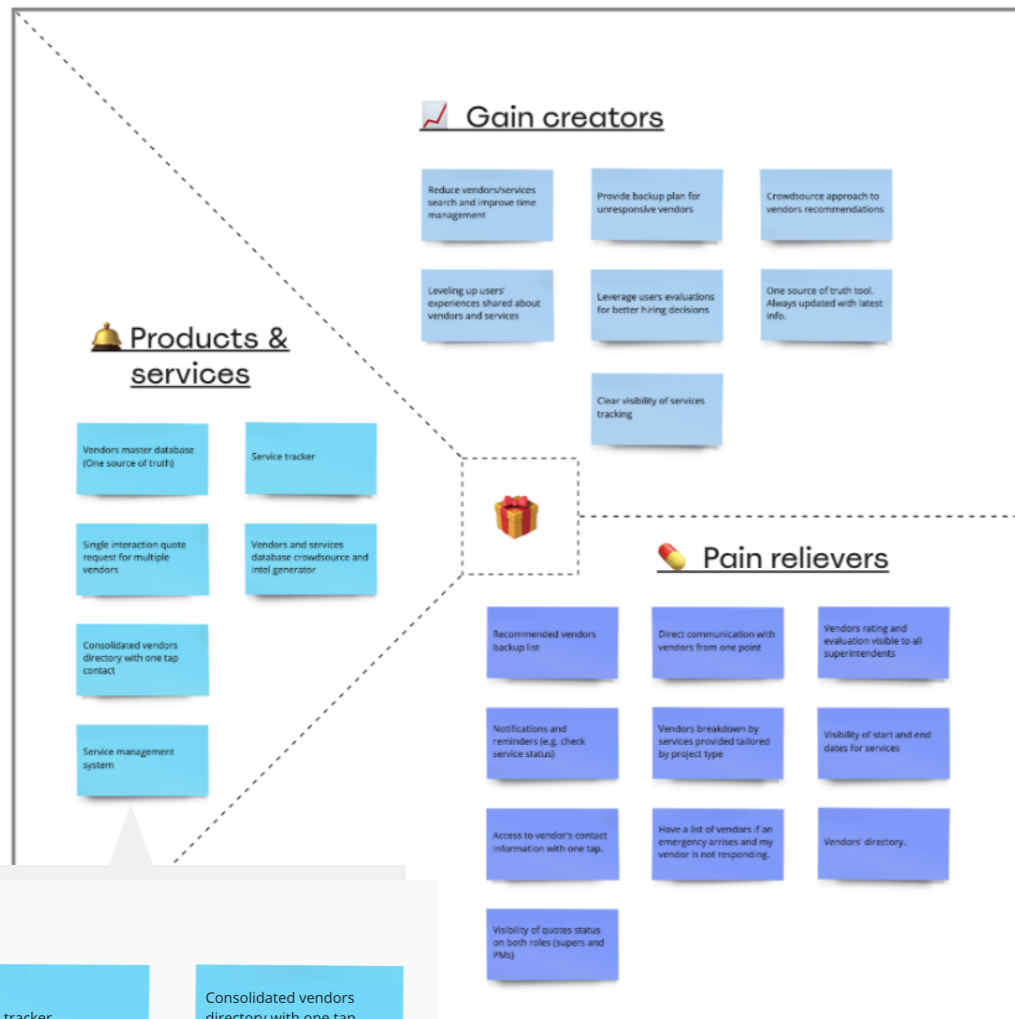
What is this canvas?

The Value Proposition Canvas is a business model tool that helps you make sure that a company's product or service is positioned around customers' values and needs. The main purpose is, therefore, to create a fit between the product and market.

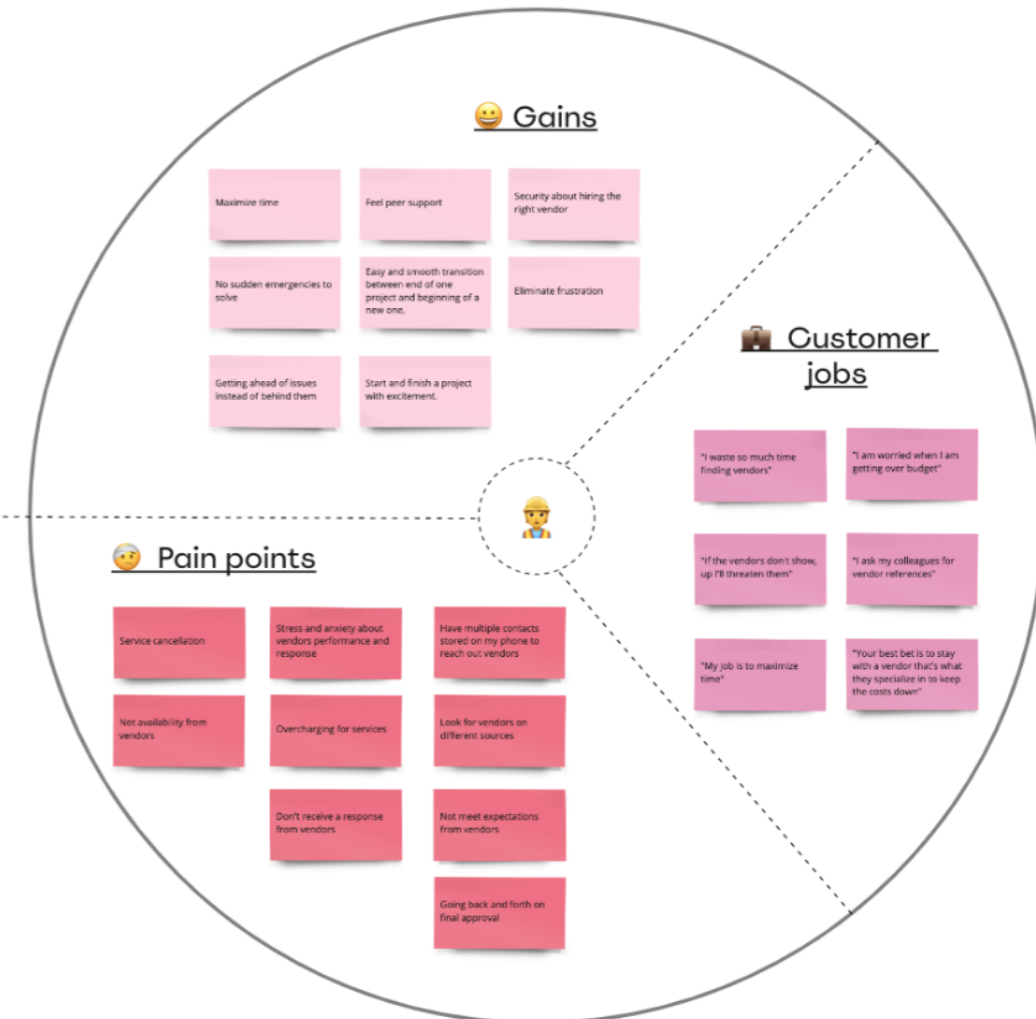
This tool can be used when there is need to refine an existing product or service offering or where a new offering is being developed from scratch as in this case.

Canvas

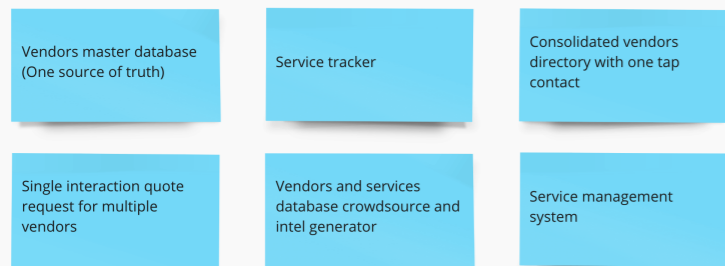
Value map



Superintendent profile



Zoom in



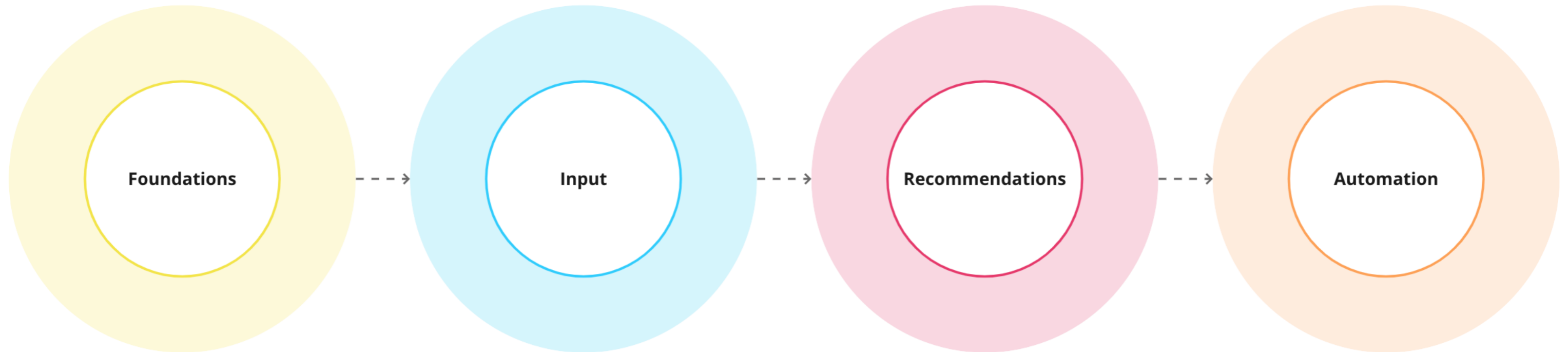
Takeaways

- 🗝️ Speed of response from construction services is a major factor for superintendents performance.
- 🗣️ Human relationships must be taken into account when we are crafting solutions to everyday problems.
- 📄 It's highly recommended to create contracts and documents that clearly highlight arrangements.
- 🤖 Disorganization within construction services is a factor that impacts the timeline of projects more than we think.
- 🙌 Supers have built a strong community of support: If they need vendor information, they're likely to ask another super for help.
- ⚙️ Standardization increases speed and efficiency. Some services for construction sites are the same. This planning impacts the performance of the stakeholders on the construction site.

Next steps

- Final presentation of Discovery Phase.
- Discuss and define features of MVP.
- Plan roadmap for next phase of the project.
- Create and define design system for MVP.
- Define information architecture.
- Define user flows.
- Design LoFi wireframes.
- Design mockups to hand-off to dev team.

System vision



- Create database structure.
- Centralize information of construction service vendors and have quick access to them (one source of truth).
- Make possible crowdsourcing of the information.

- Generate data input from superintendents' work.
- Task distribution and assignation.
- Accelerate database crowdsource and information management.

- System generates tailored recommendation based on users' previous tracking and input.
- Intel generated.
- Reduction of time hiring vendors and managing them.

- System learns from users' previous decisions and from the data crowdsourced to automate choosing options and requesting quotes.
- Most of the admin processes are, or can be, automated.

MVP Features

General

SSO

Account Settings

Notifications
-New project assigned
-Check service status reminder (eg. dumpsters/toilets)
-Evaluate vendor reminder
-Budget burnout alert
-Quote received
-Etc
-Etc

Vendors' Contact

Call vendor (only for communications purposes- maintenance)

Text vendor

Email vendor

Project

Display project information (pull from Procore ViewPoint) Duration, location, people, budgets, etc

services required for project

Multi-user on the same project access to information / such as quotes requested/received, budgets, tracking, etc

Management

Request more items from a vendor (eg. augment number of dumpsters needed, toilets, fence, etc)

Display (and edit) agreed start/end date of vendor's service

Backup list of vendors for maintenance

Confirmation of service pick up

Confirmation of service delivery

Searching Vendors

Search vendors

Sort vendors by preferences (eg. favorites, rating, nearest, cheaper, etc)

Filter vendors by preferences (eg. favorites, rating, location, price?, national/local, types of services offered, etc)

View Vendor details

View Vendor evaluations

Crowdsource

Evaluate (rate) vendor/service (scale on this MVP)

Supers add vendors to DB (crowdsource)

Add and maintain database of vendors interface*

Quoting Services

Broadcast request action for quotes (from template)

Single vendor quote request (from template)

Track quotes status

View quotes

Select quote

Gamification

Supers badges system for evaluations given



**Thanks for
tuning in! 🙌**

