



ARAPAHOE COUNTY

ARAPAHOE COUNTY - DIGITAL SERVICES TEAM

USER RESEARCH MOTOR VEHICLES & BEYOND

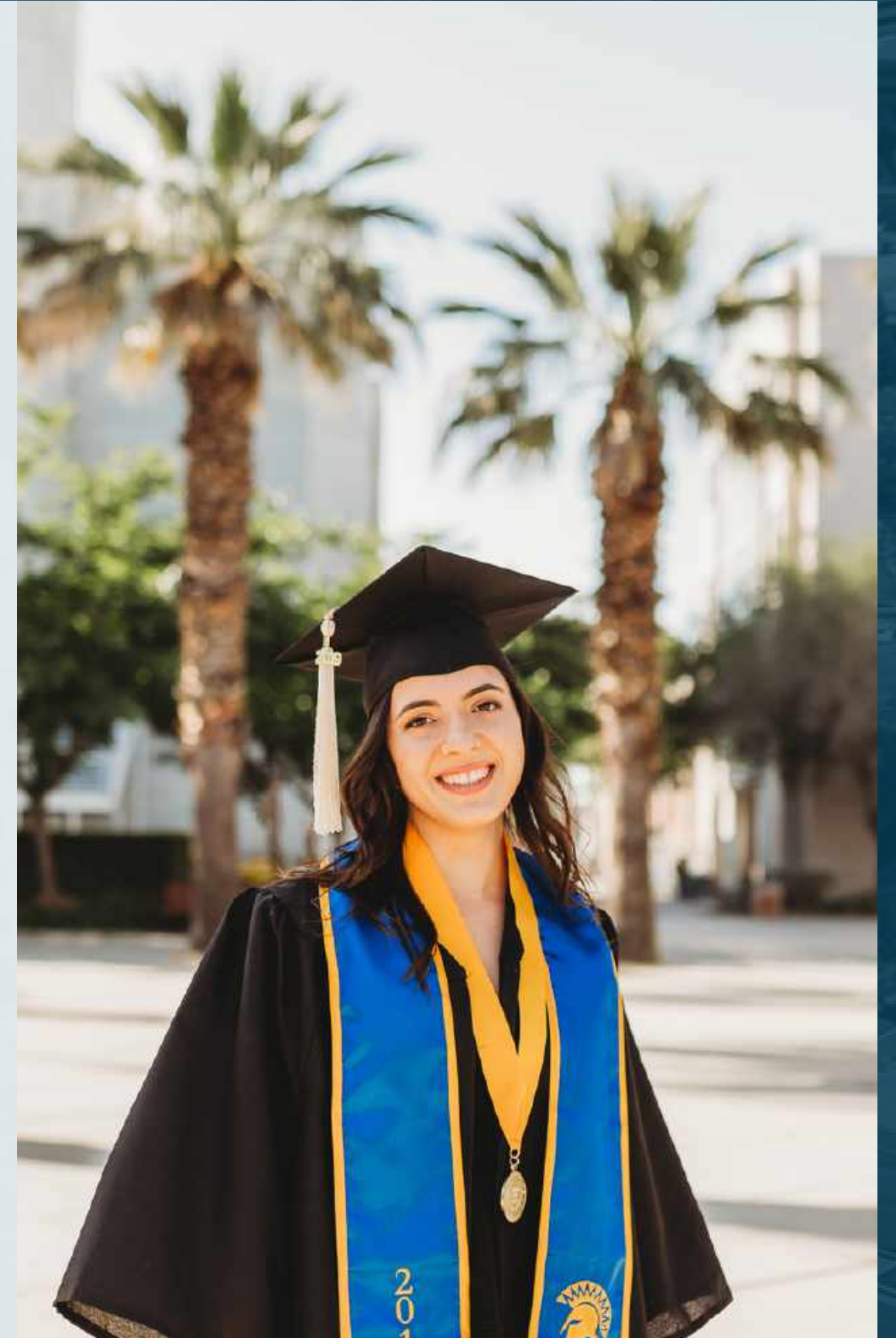
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Christina Andrade

**Civic Innovation Corps User
Researcher Fellow**

BACKGROUND AND EXPERIENCE

- Human Factors and Ergonomics M.S. (2023)
with a focus in Human Computer Interaction
- BA in Psychology; Minors in Human Systems
Integration and Computer Science



Key Goals & Projects

User Research Framework

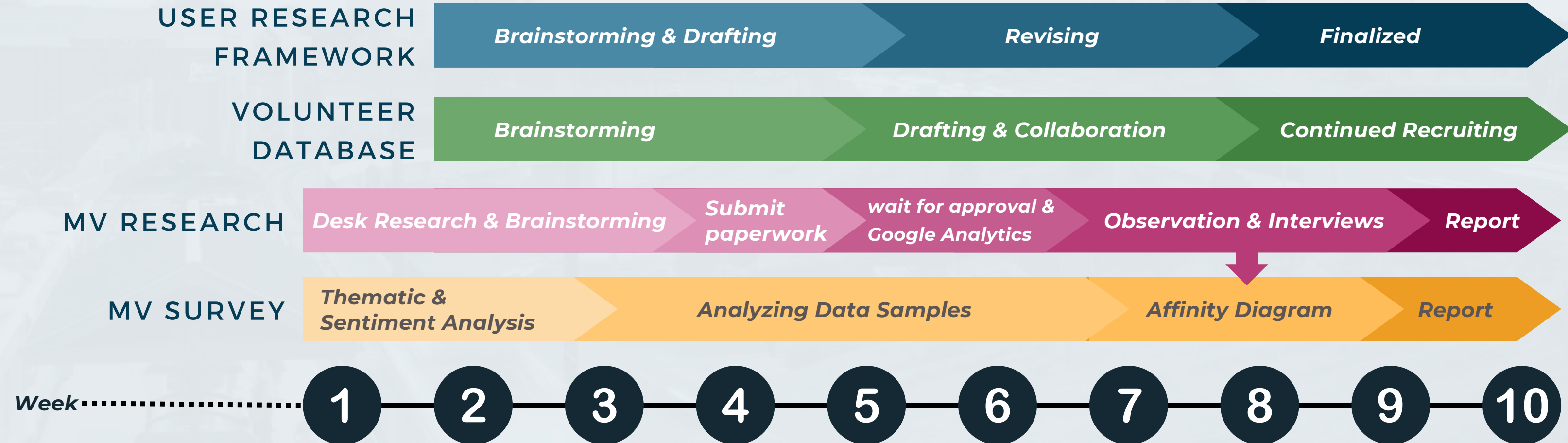
To create an accessible and repeatable user research guide and "recipe book" that can be reused and adapted across projects.

Motor Vehicles

Understand the current state of customer engagement.

How might we improve communication and services for Motor Vehicle customers?

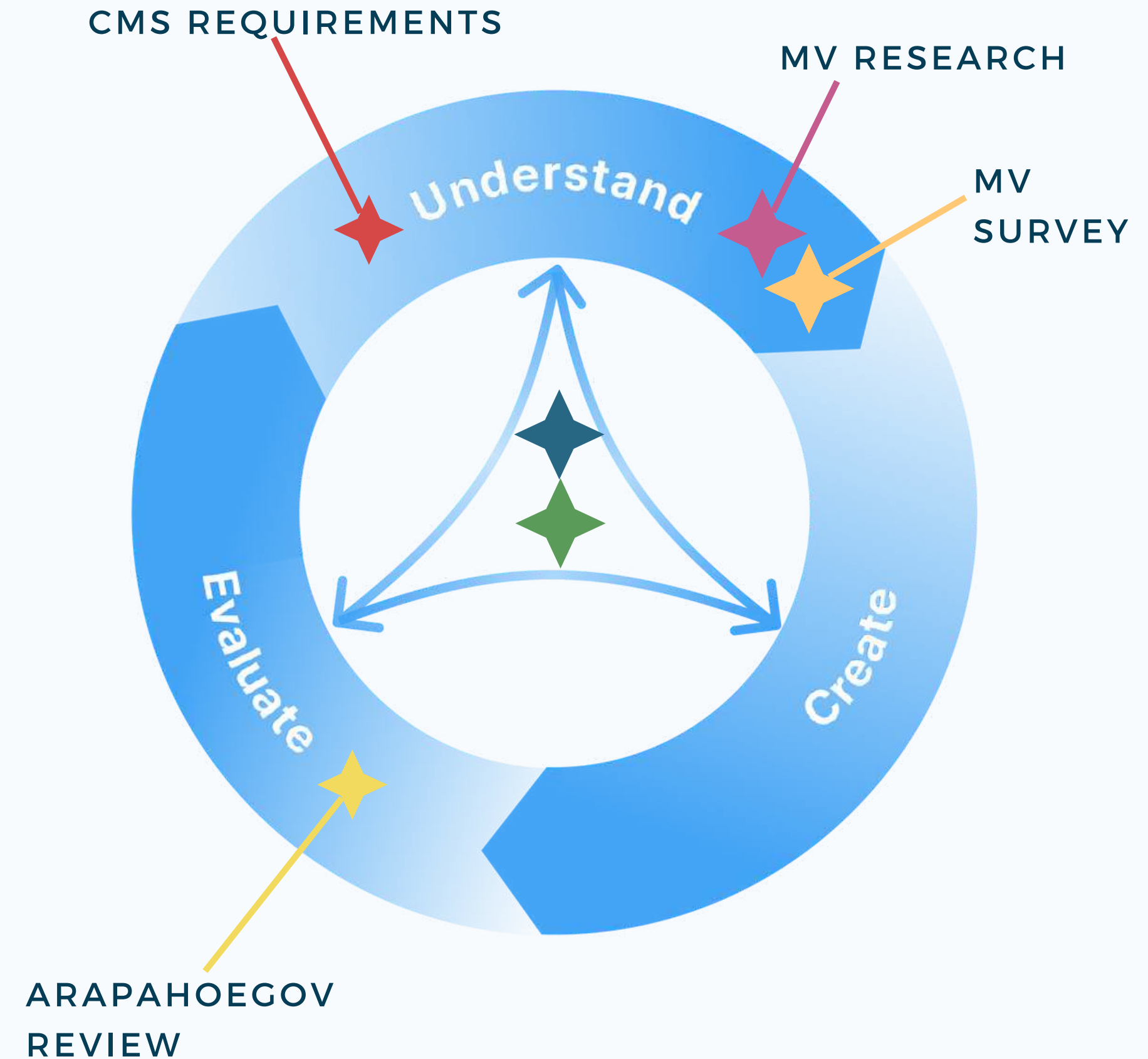
Major Projects



Micro Projects



User Centered Design Cycle



USER RESEARCH FRAMEWORK
VOLUNTEER DATABASE

Value of User Research



Pinpoint problems
and address them



Make informed
decisions and design
for the right users



Lower risks and costs
in the long run

A Blip on the Radar



User Research Framework



Developed user research guide, including:

- Overview of user research and key methods
- 5 Key user research scenarios with methods and tips
- Recommended tools and resources



Research Plan Scenarios

- Building a digital version for an existing service
- Improving an existing design/digital service
- Build an entirely new service digitally
- Making sure what is being/has been built is usable
- Evaluating an existing service to convince stakeholders it needs improvement and is worth their shared interest/investment



We want to improve an existing design/digital service

The goal is to get feedback from users on where they're confused, frustrated, encountering errors, etc. and to uncover usability issues.

- *(if applicable)* **gather requirements** and considerations from relevant department/team or legislation
- tap existing **survey data** or create one
- **observe and/or interview** (if relevant) users as they interact with the service - can done as more directed tasks (**usability test**) or natural behavior observation and **contextual inquiry**
- **heuristic evaluation or cognitive walk through** - have usability expert(s) flag usability issues for improvement

Some other methods that may be helpful: **Focus groups, brainstorming** (depends on scope of redesign), **card sort** (to make sure organization matches the mental models of individuals)

[<< back to scenario list](#)

improve existing digital service



2

Recruit

- **survey** - 20+ "higher than the number of questions in the survey" (as many as possible)
- **usability tests or contextual inquiry** - 3 - 12 users (individual sessions)
- **heuristic evaluation** or **cognitive walkthrough** - 1 - 3 experts (review separately)

3

Run

How to guides and information: [survey](#) | [usability test](#) | [contextual inquiry](#) | [heuristic evaluation](#) | [cognitive walkthrough](#) | [focus group](#) | [brainstorming](#) | [card sort](#)

4

Analyze

- For qualitative data from surveys, interviews, etc., data analysis can be time consuming - allot enough time for individual or group analysis
- for usability tests or contextual inquiry, separate data into performance, behavior, and subjective groups

5

Report

- Prioritize issues to fix from most critical to least
- Once you've made improvements you could conduct further user research to ensure it is usable / check if improvements result in desired outcomes

User Research Volunteer Database



To address recruitment challenges and ease research timelines, we:

- Created a recruitment survey and call to action for interested residents to sign up to be notified about future user research opportunities

OUTREACH



STEP 1: NEWSLETTER CALL

Original call went out in Aug.
5th Newsletter



STEP 2: SOCIAL MEDIA AND PEERS

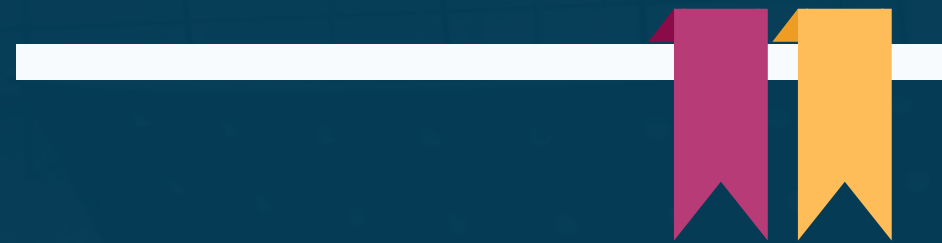
Sending out a secondary call
on social media platforms and
inviting peer recruitment via
email



STEP 3: BUSINESS CENTERS & WEBSITE

Invite business departments to
send out in their
communications as well (e.g.
email signature, etc)

Motor Vehicle Research



What we did:

- Analyzed existing available data
 - MV Feedback Survey
 - Google Analytics
- Observed & interviewed customers at MV offices
- Synthesized data via an Affinity Diagram
- Developed personas



GUIDING RESEARCH QUESTIONS

1

What are the preferred customer methods of communication with the county, by the interaction reason and by customer type?

2

What do our customers like/dislike when communicating with MV?

3

What additional communication channels should be added, in what order, and why?

4

What information are people seeking when they contact MV and how can we provide better access to that information so the customer does not have to contact us?

5

How do current state regulations and rules hinder providing better service and information to MV customers?

6

How should we collect actionable customer input on recommendations for improvements? How do we market our improvements to reach the intended audiences?

7

What other questions should we focus on to improve our resident services for MV and improve trust in government?

8

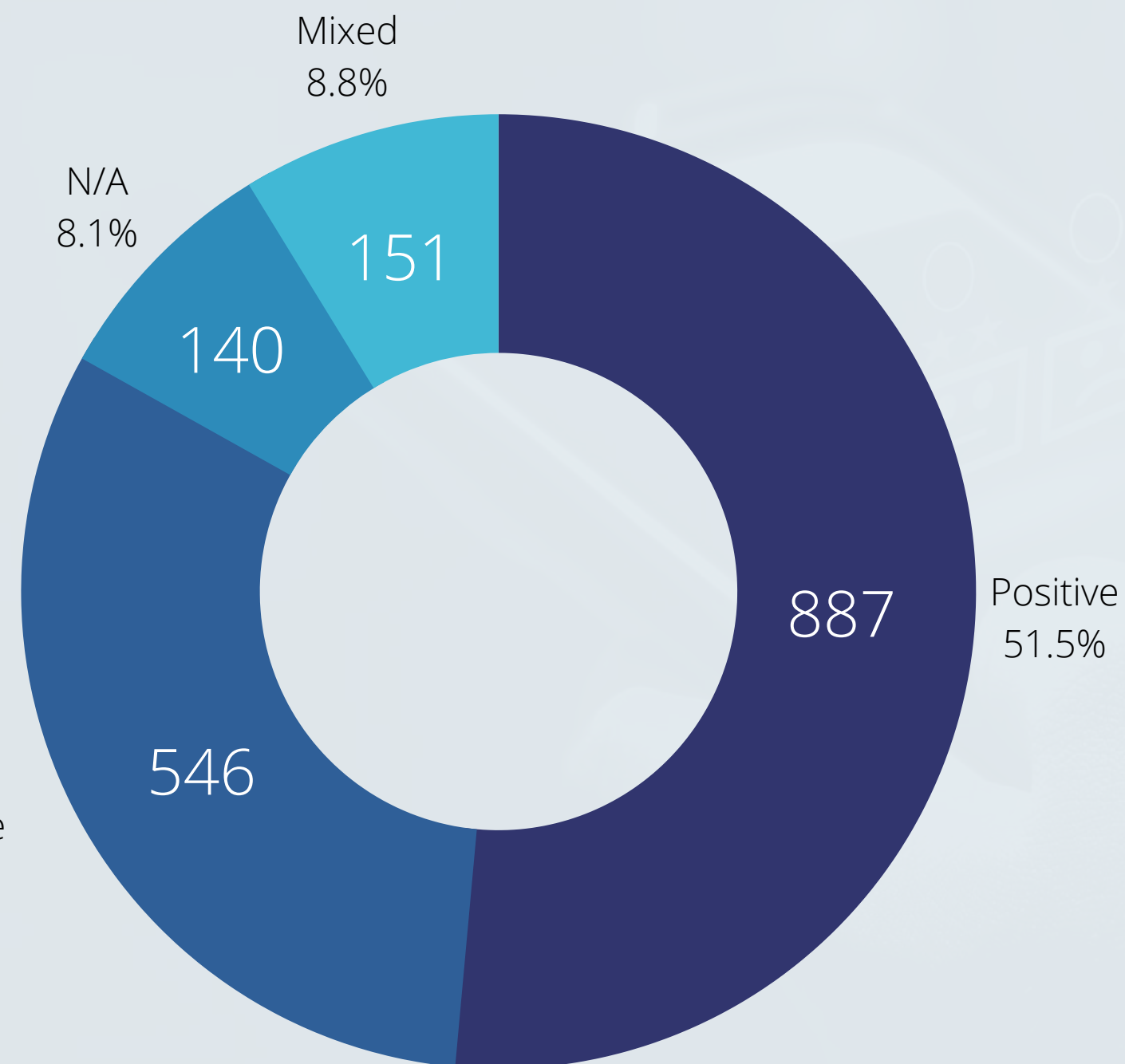
What data do we need to answer our questions reliably?



10,195 FEEDBACK SURVEY RESPONSES

FROM MAY 2020 TO MAY 2022

If you have to go through the task of making an appointment then the appointment should be at the set time, not 35 minutes later. If I'd been late by 5 minutes I would have been cancelled. People time is valuable.	Negative	Specific	Appointment Wait Time
Absolutely nothing. The clerk was great	Positive	Specific	Staff
Accept legal paperwork from your own Arapahoe county	Negative	Specific	Paperwork communication
Not on this transaction		N/A	
My only thing is that I have to make an appointment but waited 20 minutes but other than that easy and fast at the counter.	Mixed	Specific	Fast Appointment Wait Time
Better explanation of where and how to renew when DMV needs proof of insurance. When I couldn't renew online, I could make an in person appointment. I show up, wait 30 minutes after my appt time only to be told to use the drop box! Why not explain without putting me through this OR BETTER YET: have full service offered on location in your offices since I can leave the envelope with receptionist!!!	Negative	Specific	Access to info Communication Receptionist Renewal (Registration?)
None		N/A	
No -- we're all coping with the pandemic the best we can. The clerk who assisted me was pleasant and professional.	Positive	Specific	Professional Friendly Staff
Not really. I think you've done a great job with the system you have put in place. Just frustrating when you have an appointment but you still have to wait 1/2 hr or longer to be seen. That's probably a "me" issue though as i hate waiting, lol. Thank you for all that those employees do!	Mixed	Specific	Appointment Wait Time



1,724

**COMMENTS WERE
RANDOMLY SAMPLE AND
CODED FOR SENTIMENT
AND DETAIL**

COMMENTS CODED INDUCTIVELY FOR THEMES AND VISUALIZED

1,513

COMMENTS CODED
INDUCTIVELY FOR THEMES
AND VISUALIZED

708 NEGATIVE



On-site Research

Littleton



16 Observations



14 Mini-Interviews



greeter



kiosk



kiosk
12



service desk
2



6 Observations



11 Mini-Interviews



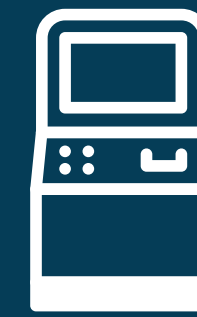
greeter



kiosk
4



service desk
2



kiosk
4



service desk
7



Affinity Diagram

Organized the emerging qualitative findings and themes into natural relationships



Environment

Physical Environment

Environment - more handsantilizer

More hand sanitizer offered

Signage for county building

Better Signage

Lacking signage; not attention catching; not professional looking

Want specific signs with handicap instructions

Conflicting and overwhelming signage (no walking sticks inside)

Trouble hearing

Waiting outside in cold or heat

More chairs

Not as packed (due to appointments)

No table to put things on by kiosk; people fumbling with their stuff, dropping stuff

COVID protocols (disinfectant, social distancing)

Ticket call screen (show upcoming numbers)? - Show numbers

Residents have no idea where they are in the line based on the appointment numbering system. Suggestion, show the order of at least the next five numbers to be called so people have hope and know if they can go to the restroom or walk outside for a while.



Personas

From our research, we took the most common pain points, user goals, and scenarios and built a set of personas to:

-build empathy and understanding

-guide future ideation and discovery

Marshall Graham



USER TYPE	Resident
AGE	45
OCCUPATION	Service Industry
LOCATION	Littleton
TIME IN ARAPAHOE	10 years
TECH SAAVINESS	Medium
INTERNET USE	Several times a week
DISABILITY	No
VETERAN	No

“ I scheduled an appointment which I thought was a great idea. My appointment was at 1:30. I waited for half an hour, but had to leave; I'm a single parent with 2 kids, a full time job and tons of other things to do. My number was not called until 2:45!

Bio

Marshall is a single parent and works in the service industry. He **does not** get paid time off from work other than sick leave. His kids take the bus to and from school and Marshall gets off of work in the afternoons so he can take care of them when they get home from school. He recently traded in his old car for a newer 2014 model at an **in state dealer**.

Service Needs

- Needs to get plates and registration for his new (used) car
- Hoping to get credit for unused registration on the car he traded in.

Frustrations

- Wait time with an appointment was longer than he expected
- Did not know he needed emissions; he is confused about the 7 year rule.
- Unaware of credit card fees prior to appointment

Vehicle(s)

2015 Ford Edge
Just purchased from dealer using trade-in credit



Payment Methods



Internet & Platforms



Personas

From our research, we took the most common pain points, user goals, and scenarios and built a set of personas to:

-build empathy and understanding

-guide future ideation and discovery

Richard Ellison



USER TYPE	Resident
AGE	77
OCCUPATION	Retired - Fixed income
LOCATION	Unincorporated
TIME IN ARAPAHOE	50 years
TECH SAAVINESS	Low
INTERNET USE	Once a week
DISABILITY	Mobility - uses a cane
VETERAN	Yes - U.S. Army

“ The clerk would not accept my VA Verification of Disability letter or my VA physician's signature.

Pictures of the necessary letters should be posted somewhere on the internet. This is a big inconvenience for disabled veterans that live in rural arapahoe county.

Bio

Richard lives in a rural unincorporated area of Arapahoe County. He prides himself on still being independent after his wife passed away, but lately he's been having to rely more and more on his cane to get around. Luckily, he still has his daughter and son who live in Douglas and Adams, who are available to help support him if needed.

Service Needs

- Acquire disability placards / plates
- Renew Car Registration
- The price of the service is very important given his fixed income

Frustrations

- MV does not accept his VA Verification of Disability
 - He does not have a cell phone for making an appointment
- The Arapahoe MV operations has changed a lot in the past couple years and he's no longer sure how to get the service he needs.

Vehicle(s)

2001 Toyota Camry LE
Title under Richard's name



Payment Methods



Internet & Platforms



CHALLENGES ENCOUNTERED

- **Accessing Data**

we were not able to access key data or the data was lacking relevant information

- **Accessing Staff**

had limited access to staff (front line, etc.) for interviews and questions on processes

- **County vs. State**

the disconnect between county and state systems exacerbated access to data and lead to low morale or apathy in departments

- **Hesitancy & Fear**

A hesitancy to expose issues or inefficiencies in processes prevents opportunities for improvement for both users and business dept.

RECOMMENDATIONS

BUDGET COMPENSATION FOR USER RESEARCH

Will help with recruitment challenges, fairly compensate residents for their time, and create more diverse and inclusive findings

HIRE A DEDICATED USER UX RESEARCHER / DESIGNER

Adds additional skills, resources, and expertise toward projects.

- local
- language capabilities
- differing background

INVOLVE BUSINESS DEPARTMENT STAKEHOLDERS

Occasionally involving them in conducting research can help build empathy, partnership, and more nuanced understanding of users.

DON'T FORGET FRONT LINE STAFF

Involve front line staff as users in research to understand their unique perspective, pain points, and insights

Backup: budget time and money for upskilling

RECOMMENDATIONS

STATE 'STONEWALLS' : IDEATE COUNTY SOLUTIONS

Ideate with the business department and explore ideas on what can be done in the county's domain to resolve or alleviate issues.

STATE 'STONEWALLS' : PARTNER WITH OTHER COUNTIES

Partner with other counties to raise shared issues to the state.

IF YOU ASK FOR IT; COMMIT TO USING IT

If you ask for user feedback, commit to regularly reviewing and considering it.

IF YOU DON'T ASK FOR IT: THEN ASK FOR IT!

User research doesn't have to start fancy. Incorporating your users even in small ways like a feedback survey can be a great start.

A grayscale background image showing a city street scene. In the foreground, a train is blurred as it moves along tracks. To the right, a multi-lane highway with cars is visible. In the background, there are various city buildings and trees under a clear sky.

“

People want empathy and to be heard

**PROVE TO ME THAT THIS
FEEDBACK IS READ BY A
LIVE CARING PERSON.**

SEPT. 29, 2020

Project Impacts

RECRUITMENT DATABASE

28 participant sign ups;
reducing recruitment
challenges and timelines
for future projects.

USER RESEARCH FRAMEWORK

Legacy deliverable that
will provide a reference
and quick start guide for
future user research
initiatives.

Iterative - can grow with
team needs.

MV RESEARCH PERSONAS

5 Personas that will help
to communicate our
research thus far, build
empathy, and structure
and guide future user
research and ideation.

Impact

MV RESEARCH

Understanding of current user pain points, and improvement areas for customer experience.

Clear direction for continued research and improvement recommendations.

SURVEY DROP OFF

Uncovered and flagged user survey response drop off that lead to discovery and repair of vendor side issue - resuming text message delivery.

Benefits go far beyond us

PRESIDENTIAL EXECUTIVE ORDER ON TRANSFORMING FEDERAL CUSTOMER EXPERIENCE AND SERVICE DELIVERY TO REBUILD TRUST IN GOVERNMENT

DECEMBER 13, 2021

...agencies' efforts to improve customer experience should include **systematically identifying and resolving the root causes of customer experience challenges**, regardless of whether the source of such challenges is statutory, regulatory, budgetary, technological, or process-based.

...management of its customer experience and service delivery **should be driven fundamentally by the voice of the customer through human-centered design methodologies**; empirical customer research; an understanding of behavioral science and user testing, especially for digital services."

Executive Order on Transforming Federal Customer Experience and Service Delivery to Rebuild Trust in Government
Inspired by [United States Digital Service](#)

User Research as a Culture



Strengthen our
ability to do
everyday activities

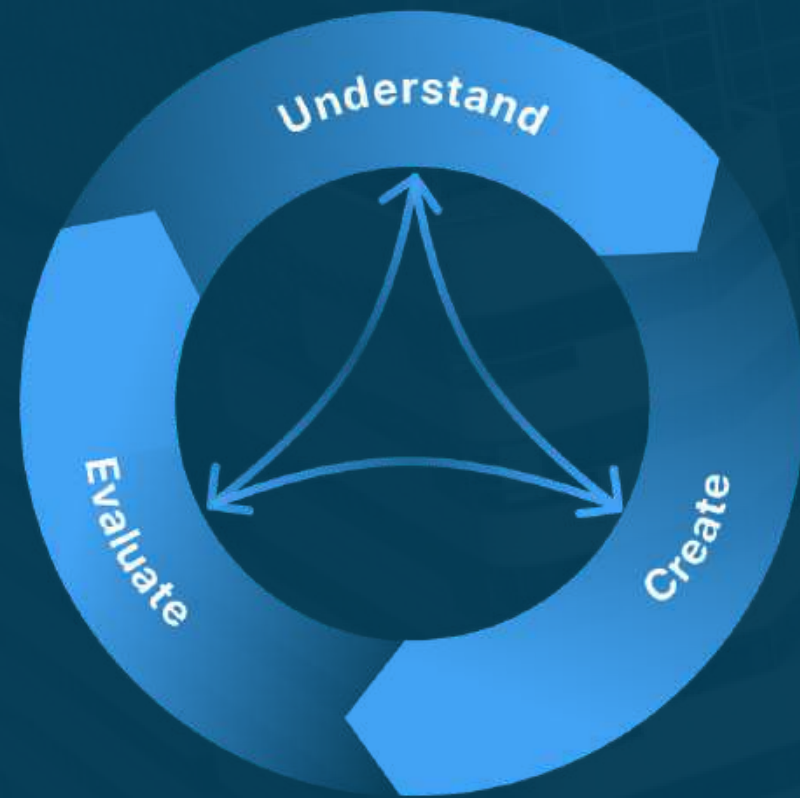


Make us healthier



Reduce the risk of
disease

User Research as a Culture



Strengthen our
ability to function
and provide services



Make us healthier

- satisfaction
- efficiency
- productivity
- safety



Reduce the risk of
problems and
friction

Thank you & Questions
