ADPQ Vendor Pool

reachout
Search, Share, Support

June 9, 2016

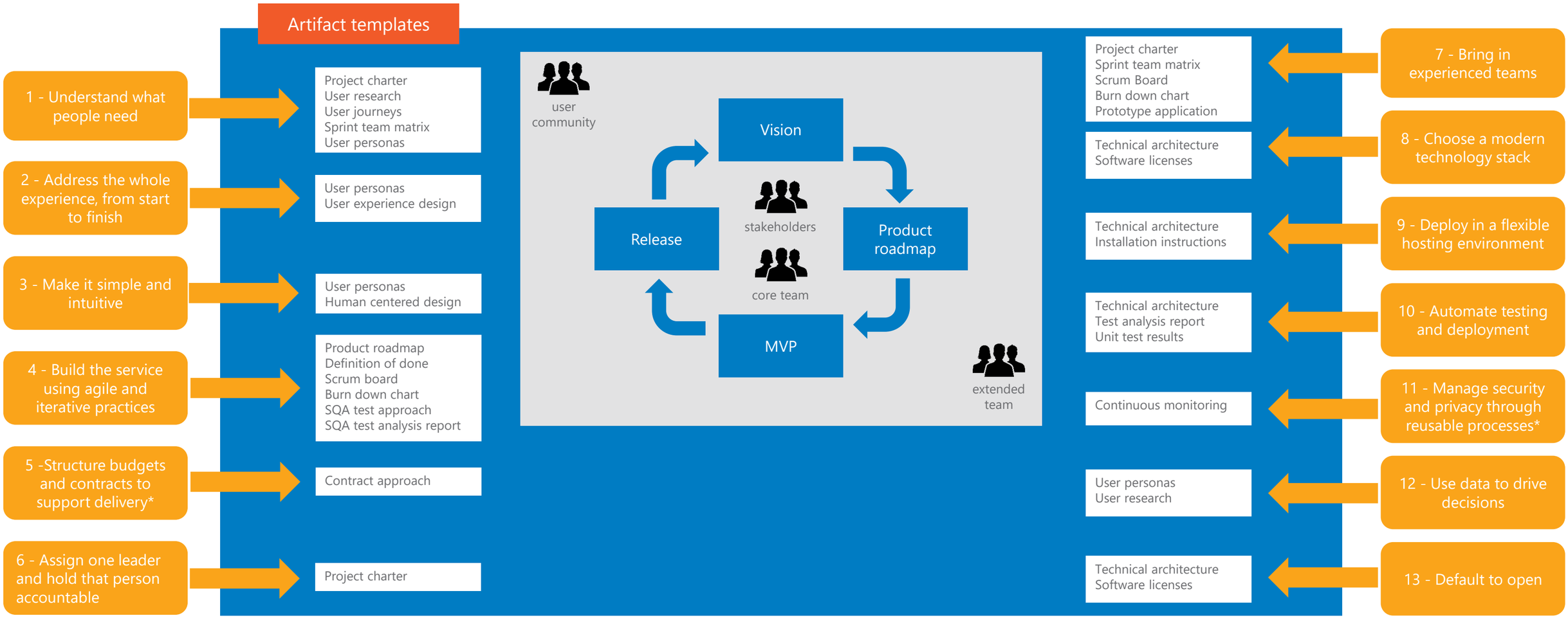
Best practice digital service plays

1. Understand what people need
2. Address the whole experience, from start to finish
3. Make it simple and intuitive
4. Build the service using agile and iterative practices
5. Structure budgets and contracts to support delivery
6. Assign one leader and hold that person accountable
7. Bring in experienced teams
8. Choose a modern technology stack
9. Deploy in a flexible hosting environment
10. Automate testing and deployment
11. Manage security and privacy through reusable processes
12. Use data to drive decisions
13. Default to open

Infosys agile method aligns with these plays

When a process step maps to a play it is highlighted with #

Infosys agile artifacts align with digital service plays



There is a close correlation between the Infosys agile method and artifacts and the digital service plays

Subsequent slides provide additional details on individual agile method steps

* The RFI scenario scope does provide an opportunity to soundly demonstrate plays 5 and 11, although these are part of the Infosys agile method

Infosys *Design Thinking* is…

"…a method for improving the creative confidence of individuals, teams and organizations to explore areas of significant opportunity which are also complicated by substantial ambiguity."

driven through a state of mind that is

Human centric, empathetic

Engage with customers
Observe users in context
Experience their lives first hand
Understand their motivations
Uncover their emotions

Iterative

Dynamic
Fast feedback
Quick to optimize and re-align
Unwavering focus on user needs

Design think. Design do

Taking action is part of the problem solving process
Experiment
Storyboard
Role play
Prototype to learn
Prototype to crystallize ideas

Collaborative

Unlock creativity
Interdisciplinary teams
Collective ownership of ideas

Design Thinking isn't a method or a prescription

Design Thinking is a state of mind which overlays everything we do

Infosys *Design Thinking* demands user centric design techniques

1 2 3 4 12

conceptual

tangible

Discover

Ideate

Prototype

User research

Personas

User journeys

Wireframe walkthrough

Prototypes

User group testing

Inter disciplinary team

Brand survey

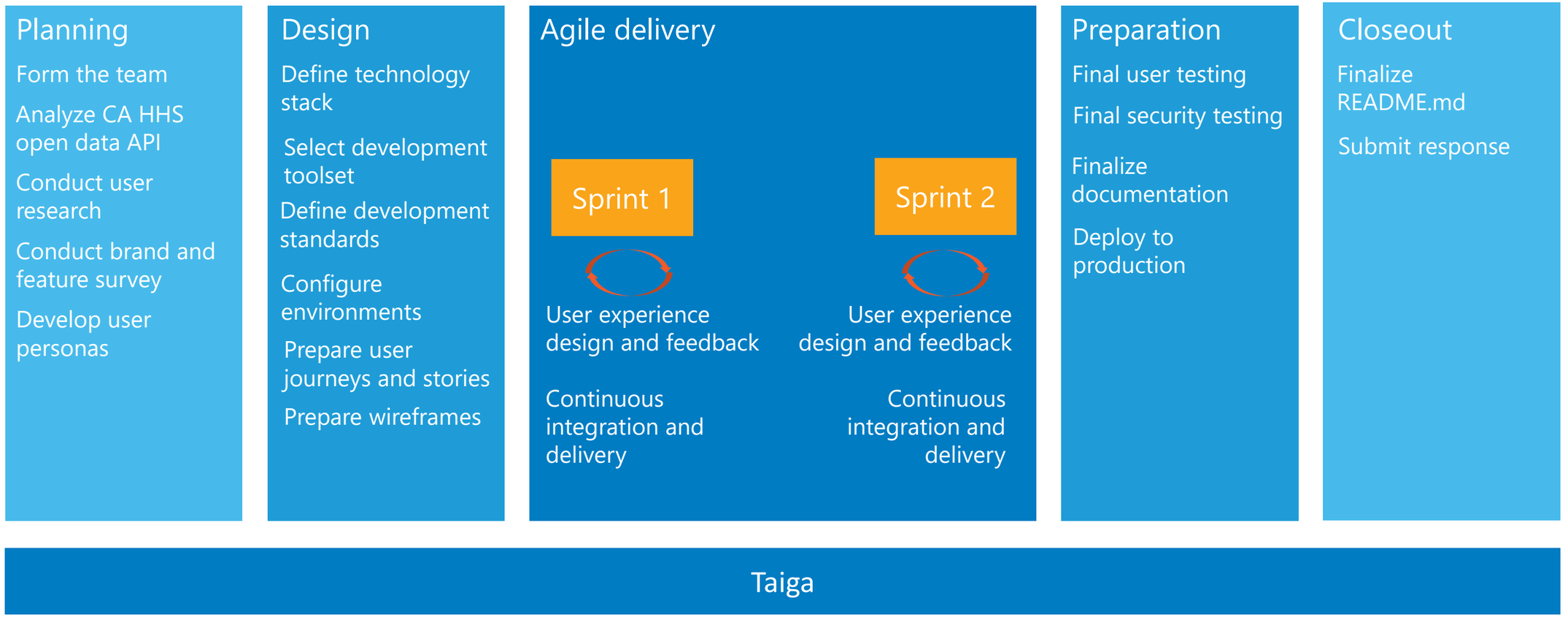
User survey

A/B testing

Our team employed 10 user centric design techniques

Subsequent slides provide additional detail on each technique employed

Infosys agile method



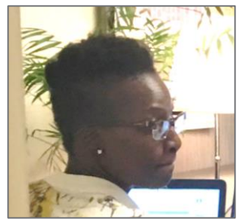
We estimated 85 points to be delivered

Based on the user stories we developed a 2 sprint plan and used Taiga to manage our work

Assemble an experienced interdisciplinary core team

Product manager:
Kevin Bell

Interaction designer,
Usability tester:
Annette Ross



Delivery manager:
SurendaNath Indarapu

Front end developer:
Prasad Hirlikar

Technical architect:
Satish Mutalik

Back end developer:
Ganesh Rajagopal

DevOps engineer:
Mahikdeep Singh

Visual designer:
Paneer Selvam

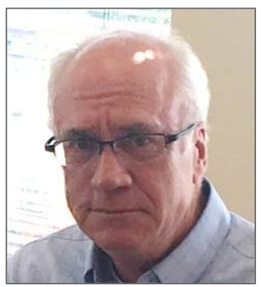
Our product manager provides oversight and decision making for the entire *reachout* product

Each of our chosen core team has experience in agile methods, three have child welfare experience

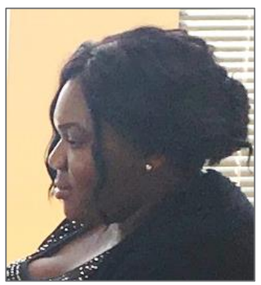
Assemble an extended interdisciplinary team – experts and influencers

core team

on call internal experts



John Santucci
Security Engineer



Crystal Peyton
Writer/Content Designer

Jayantha Ghosh
Agile Coach

Kuldeep Saini
Digital Performance Analyst

user representatives

moms and dads

Internal experts on demand to provide technical and functional guidance

External user representatives help build user stories and participate in user testing

Create personas

Meet Emily – a parent

"I want to make sure my son is well cared for, and work on getting him home as quickly as I can"

Emily is 24 years and is the mother of Michael – a lively 5 year old. Michael's father left California shortly after his birth and intermittently pays child support.
Emily completed high school and primarily works in retail in downtown San Francisco. Emily has an apartment in Bayview and relies on public transport to get around.
Emily has a smartphone but tries to minimize the use of her data plan to avoid overage charges. She has an iPad at home which is her primary means of internet access.
Emily has found it difficult to find and hold steady employment, in part because she has no family supports in the area and has relied on neighbors to take care of Michael while she worked.
Recently, Emily has found a job offering more hours, but has not been able to find child care for all of the time she is away from the home. When she is at home, neighbors hear the sound of arguments from Emily's apartment.
Three days ago, CPS became involved when Michael was found wandering unattended outside of Emily's apartment building. CPS removed Michael for his own safety after failing to immediately find Emily.

Meet Anna – a case worker

"I want to reach out to my families even when I can't see them face to face to help them get back on track"

Anna is 37 years old. She has been a child and family social worker for almost 8 years, after completing her MSW degree. She is considered one of the more senior case workers in her office.
Anna currently has a child caseload of 26 children – including Michael. Anna sometimes struggles to see each family as often as she would like. She spends a lot of time travelling between families, court, schools etc. and worries that she could do more to advise and support families outside of her scheduled visits.
Anna has a state issued smartphone that she uses all the time to keep up with her case schedule, look at emails and ask her supervisor for advice. She also uses an office based PC to document her casework, but her travel schedule means that this is not always completely up to date.
Anna would like to use natural downtime in her day (on the BART, waiting in court) to keep up with her work and connect more often with her assigned families.

Personas allow us to understand needs and develop opportunities

When developing user stories and reviewing system iterations we ask "What would Emily and Anna think of this?"

Product definition – *reachout*

reachout will:

Engage the parent at a difficult time
Bring the parent into the decision making process around foster care
Give the parent and caseworker an informal communication channel to use between scheduled visits

And nothing else…

Tightly define a product that genuinely helps Emily and Anna through a difficult circumstance

Build a product identity that the team can march behind

See Appendix B for additional details regarding our brand reaction survey

User journeys help us explore the situation from a user perspective

	Pre Removal	Michael Removed	Seek Support			Michael Returns Home	
Activity	Working long hours Juggling child care for Michael	Try to find out where Michael has gone	Try to understand fostering options for Michael Try to exert control on foster care location	Seek state subsidized child care services	Attend counselling for parenting skills and anger management	Maintain stability with Michael while still working Settle Michael in new day care facility Demonstrate to CPS that situation has been resolved	CPS case closed
Questions		Why me? What did I do wrong? What do I need to do to get Michael home? Who can I turn to for support?	How can I be sure that Michael is in a safe place? How can control where he goes? How can I keep in contact with Michael?	How can I keep working while providing care for Michael? How much will daycare cost?	How do I demonstrate that my parenting skills have improved? What is CPS looking for?	How do I demonstrate that my parenting skills have improved? What is CPS looking for? Might they remove Michael again?	
Emotion	Stress Exhaustion	Shock Despair Fear	Frustration Powerlessness Uncertainty	Hope	Hope Uncertainty	Joy Relief	
Opportunity	Easier access to support before situation becomes critical		Provide information to assist Emily in becoming comfortable with placement decisions Provide mechanism to allow Emily to exercise some influence on placement decisions based on her needs and her wishes for Michael Provide mechanism to seek, and quickly get, updates, reassurance and advice Provide mechanism to report progress against agreed turnaround actions			Provide ongoing, frequent informal support and encouragement Frequent checkpoints by caseworker can assist in keeping Michael safe and preventing a repeat	

We consider the whole experience – end to end
We consider what the user does
We consider the sequence of user actions
We consider questions and uncertainties the user uncovers
We consider what the user feels at each activity

We discover opportunities for improvement

The period of Michael's removal is the most traumatic period for Emily and Michael

The highest impact goal will be to shorten the period of removal and ensure stability when Michael returns home

Create user journey for Emily

	Pre Removal	Michael Removed	Seek Support			Michael Returns Home	
Activity	Working long hours Juggling child care for Michael	Try to find out where Michael has gone	Try to understand fostering options for Michael Try to exert control on foster care location	Seek state subsidized child care services	Attend counselling for parenting skills and anger management	Maintain stability with Michael while still working Settle Michael in new day care facility Demonstrate to CPS that situation has been resolved	CPS case closed
Questions		Why me? What did I do wrong? What do I need to do to get Michael home? Who can I turn to for support?	How can I be sure that Michael is in a safe place? How can control where he goes? How can I keep in contact with Michael?	How can I keep working while providing care for Michael? How much will daycare cost?	How do I demonstrate that my parenting skills have improved? What is CPS looking for?	How do I demonstrate that my parenting skills have improved? What is CPS looking for? Might they remove Michael again?	
Emotion	Stress Exhaustion	Shock Despair Fear	Frustration Powerlessness Uncertainty	Hope	Hope Uncertainty	Joy Relief	
Opportunity	Easier access to support before situation becomes critical		Provide information to assist Emily in becoming comfortable with placement decisions Provide mechanism to allow Emily to exercise some influence on placement decisions based on her needs and her wishes for Michael Provide mechanism to seek, and quickly get, updates, reassurance and advice Provide mechanism to report progress against agreed turnaround actions			Provide ongoing, frequent informal support and encouragement Frequent checkpoints by caseworker can assist in keeping Michael safe and preventing a repeat	

Emily needs a way to be involved in decision making for Michael

She wants ways of seeking support between social worker visits for advice, progress reporting and encouragement

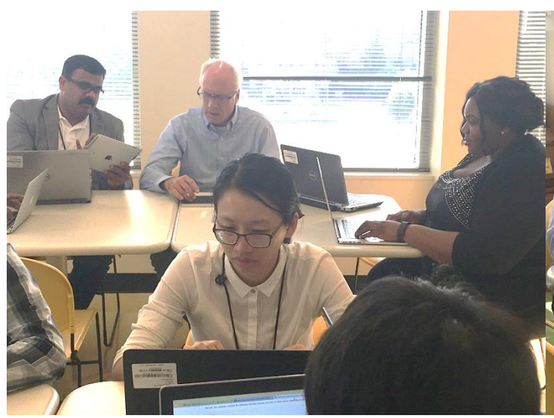
Create user journey for Anna

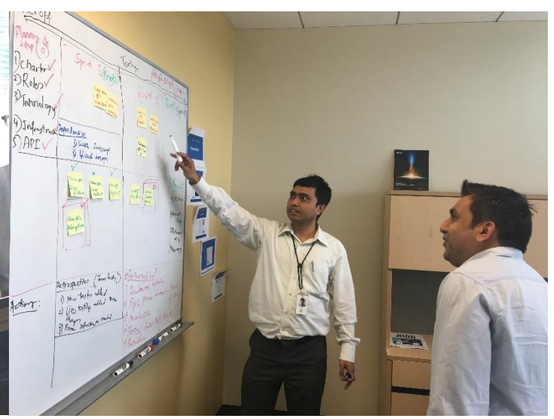
	Pre Removal	Michael Removed	Provide Support			Michael Returns Home	
Activity		Assess whether Michael's safety is at risk Try to find out who the mother is and where she is Remove Michael	Try to understand Emily's needs for a foster placement close to home, school or place of work Find a longer term foster placement	Identify state subsidized child care services for Emily	Refer Emily to counselling services for parenting skills and anger management?	Return Michael to Emily Monitor the family for continued stability	Close the CPS case
Questions		Which facility has an available slot for Michael?	How can I involve Emily in the decision making? How do I balance her needs with Michael's?	Will stable child care be enough for Emily to turn things around?	How can I support and encourage Emily more frequently? How can I check in to see that she is attending counselling and it is helping?	How can I check in with Emily outside of scheduled visits to encourage her and seek early warning if the situation is deteriorating?	
Emotion		Stress	Rushed	Rushed	Rushed Pleased with progress	Rushed Hopeful Fulfilled	Rushed Fulfilled Joy
Opportunity		Mobile directory of available placement slots	Provide information to assist Emily in becoming comfortable with placement decisions Provide a mechanism for Anna to provide support and encouragement to Emily while Michael is removed Provide a mechanism for Anna to suggest additional services that might help Provide a mechanism for Anna to check on Emily's progress with counselling			Provide ongoing, frequent informal support and encouragement Frequent checkpoints by caseworker can assist in keeping Michael safe and preventing a repeat	

Anna needs a way to bring Emily into the decision process for Michael's placement and keep her engaged

She needs a way to reach out to Emily to provide advice, encouragement and check on progress between visits

Collaborative working, multiple stakeholders

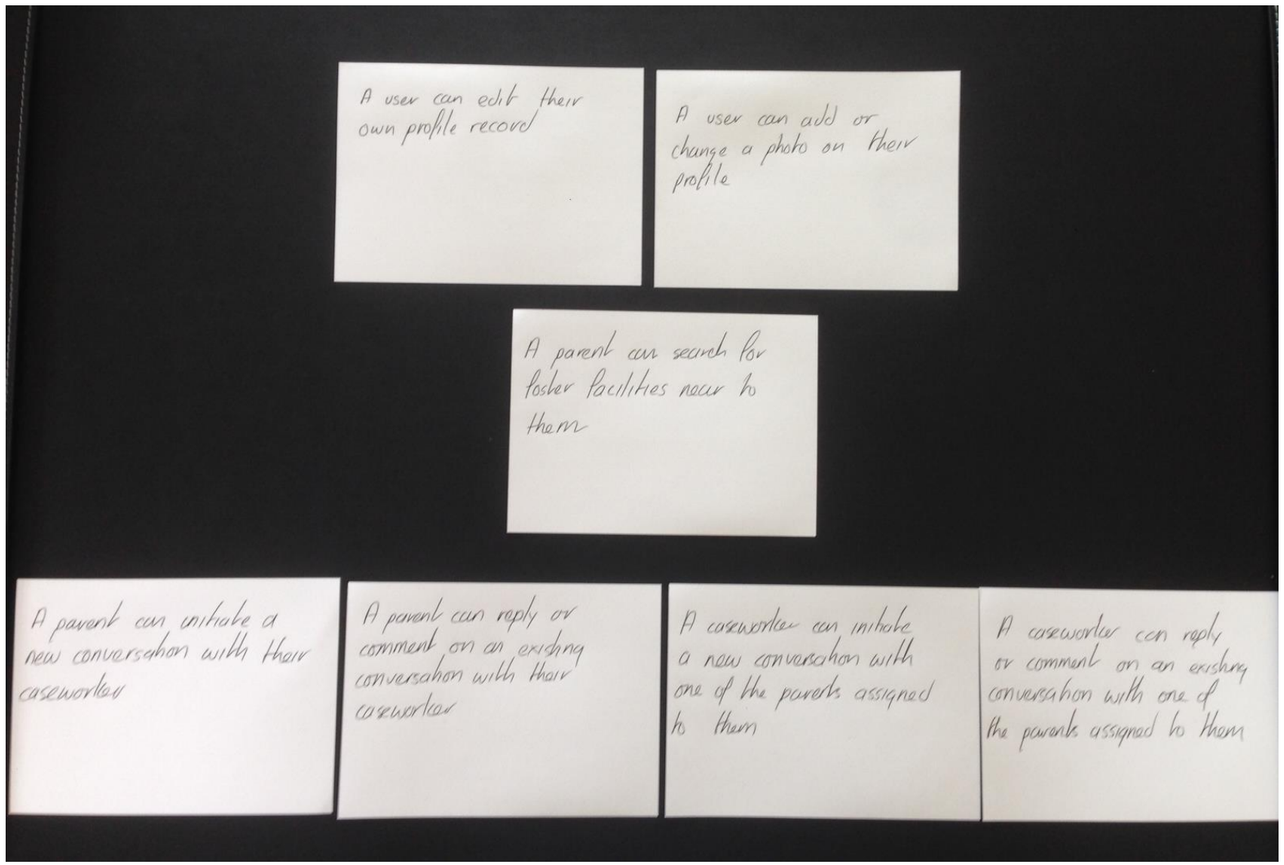




Widest possible combination of viewpoints

Agile coach helped to keep everyone focused and on track

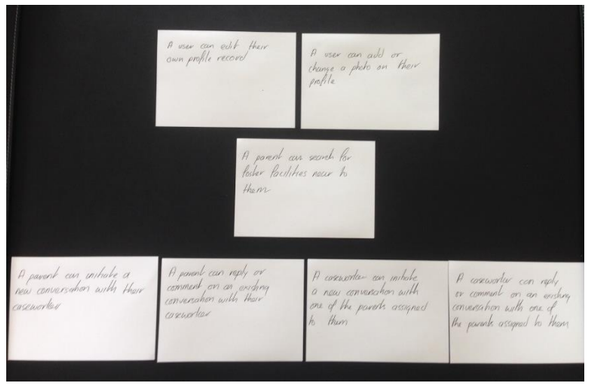
Journeys inform user stories

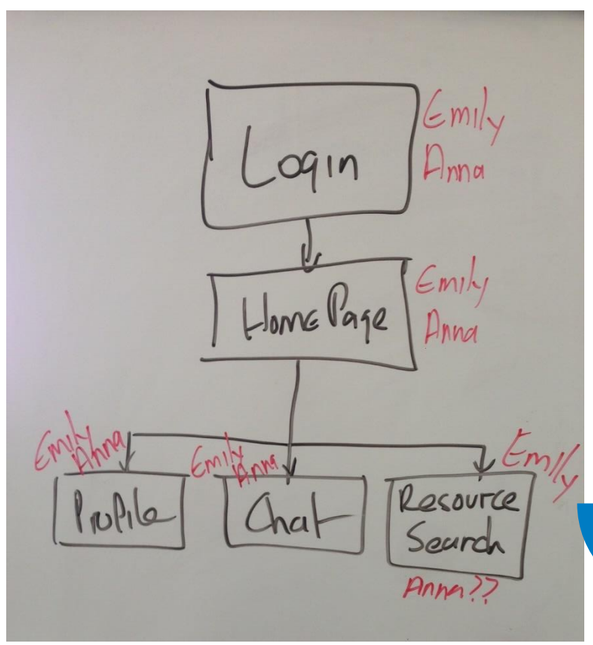


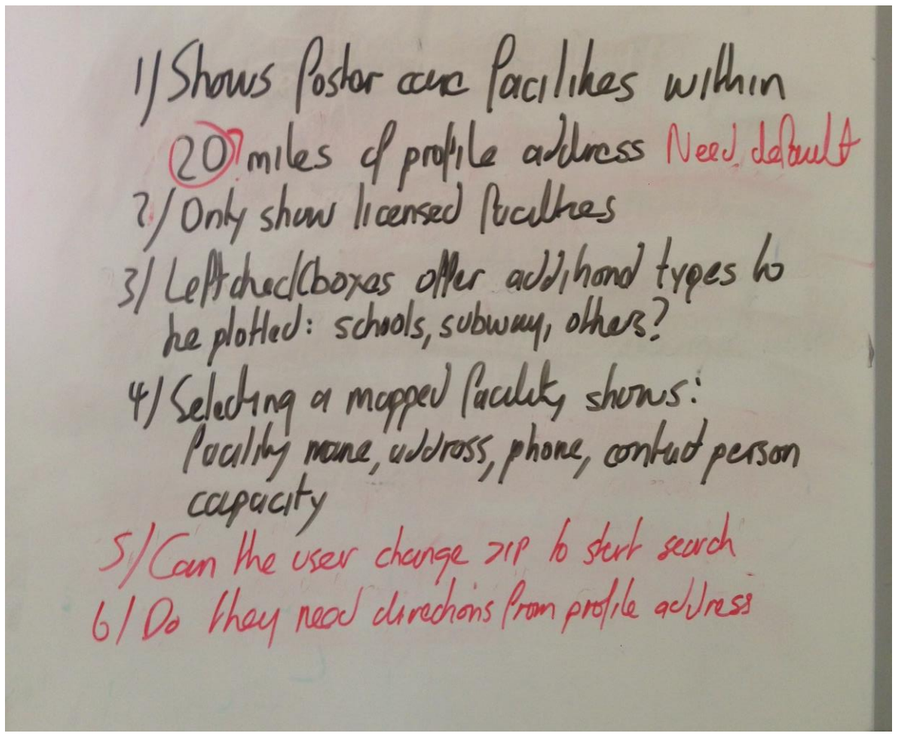
We initially identified seven user stories falling under three broad categories

Editing a user profile, searching for facilities and conversations between the parent and case worker

User stories informed product flow, wireframes and features



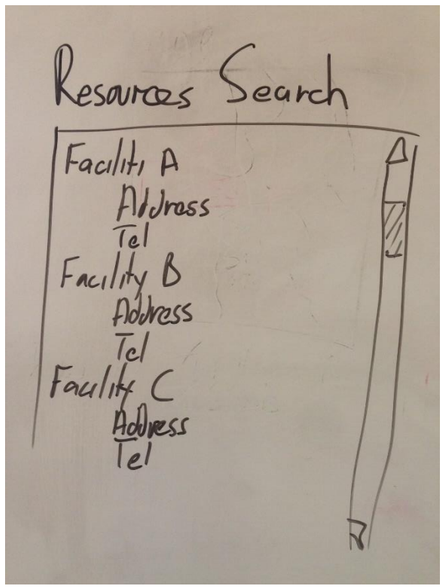




Each user story generated multiple product features

All user stories and requirements are captured with experts and user representatives, then transferred to Taiga tool

Survey A/B testing used to select between feature alternatives



Option a – the list
Search results displayed in a table
Search results based on zip code
No geographical context

Option B – the map
Search results displayed graphically
Search results based on geocode – not zip code
Nearby useful locations also displayed

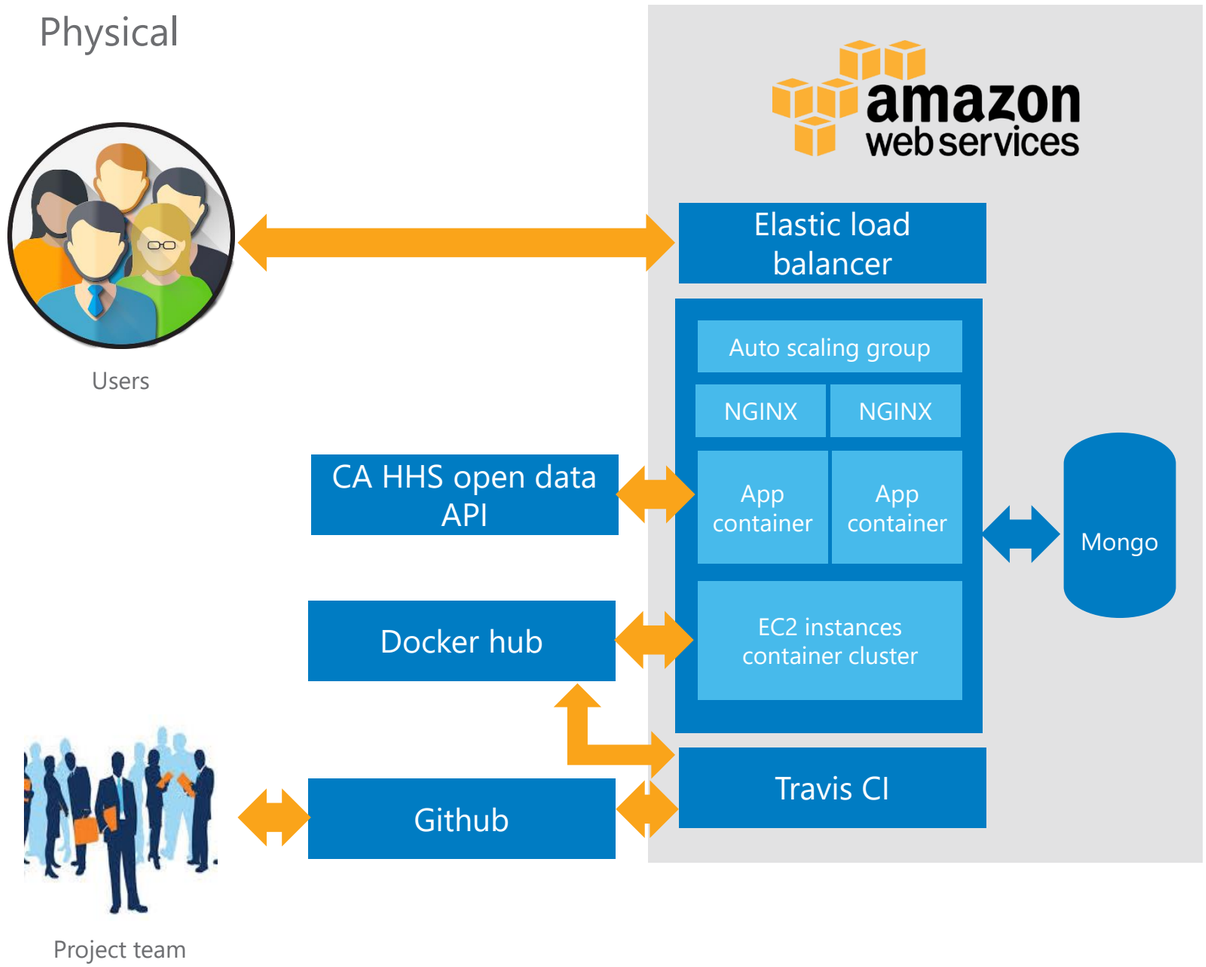
We selected the map approach for this feature

Our survey suggests this is the preferred presentation method for geographic based data

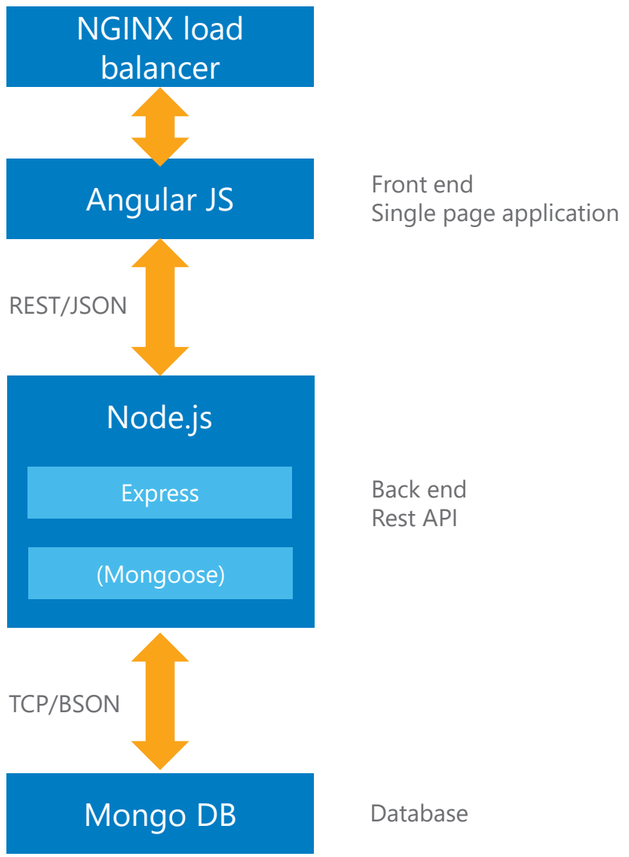
See Appendix B for additional details regarding our feature set survey

Define technology stack

Physical



Logical



We selected a modern and open stack

Our selection aims to support easy integration between disparate components

Product selection

Tool	Function	Rationale for selection
Mean.js Framework Mongo DB (v 3.2.6 April 2016), Express.js, Angular.js, Node.js (v 6.2.0 May 2016), SuperTest.js	Database plus front end and middleware frameworks	Single open source tool stack: REST-JSON API, No-SQL database Improved separation of concerns, to promote reuse and maintainability
Github	Cloud based source code control	Open source Aligns with CA RFI technology direction
Travis CI	Continuous integration engine Automated unit testing execution Cloud based	Open source Synchronizes with GitHub Deploys to AWS Automated test script execution
Docker	Application container	Open source Eliminate environment inconsistencies
Taiga	Agile project management tool Cloud based	Open source
Google Analytics	Web analytics	Widely used analytics tool Supports A/B testing
New Relic	Application performance monitoring Cloud based	Deep application and transaction monitoring Easy integration with node.js framework
Amazon Web Services hosting	Cloud based hosting infrastructure	Scalable, elastic and secure Proven cloud infrastructure
Pencil (v2.0.5 2012)	Wireframe development tool	Open source
Mocha	Back end test scripting tool Cloud based	Open source Integrates with Travis CI
Karma	Front end test scripting Cloud based	Open source Integrates with Travis CI
Survey Monkey	Survey creation, capture and analysis Cloud based	Ease of use Ability to poll anonymous users for generic questions

All but one software tool (New Relic) are available as open source and/or free licenses

Every tool selected meets your definition of modern

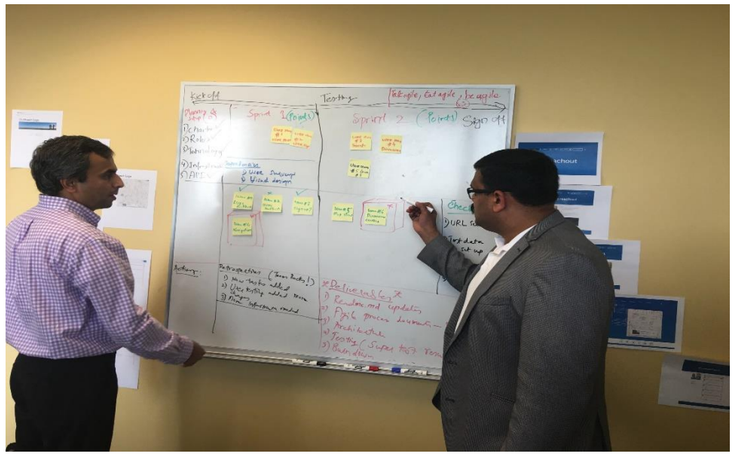
Style guide

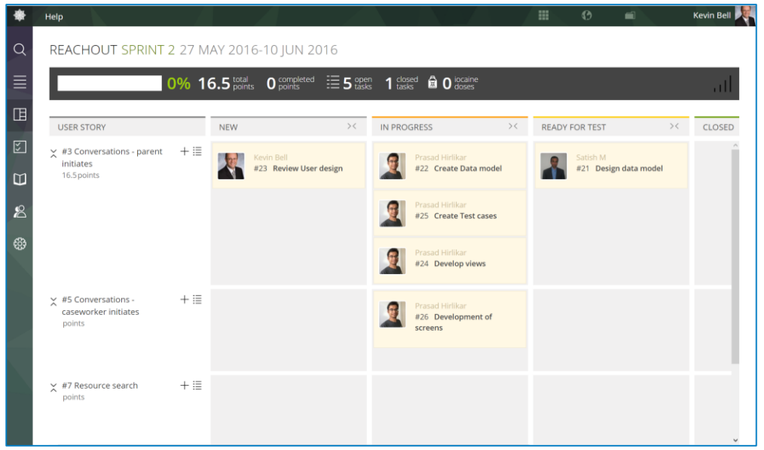
https://uspto.github.io/designpatterns/index.html

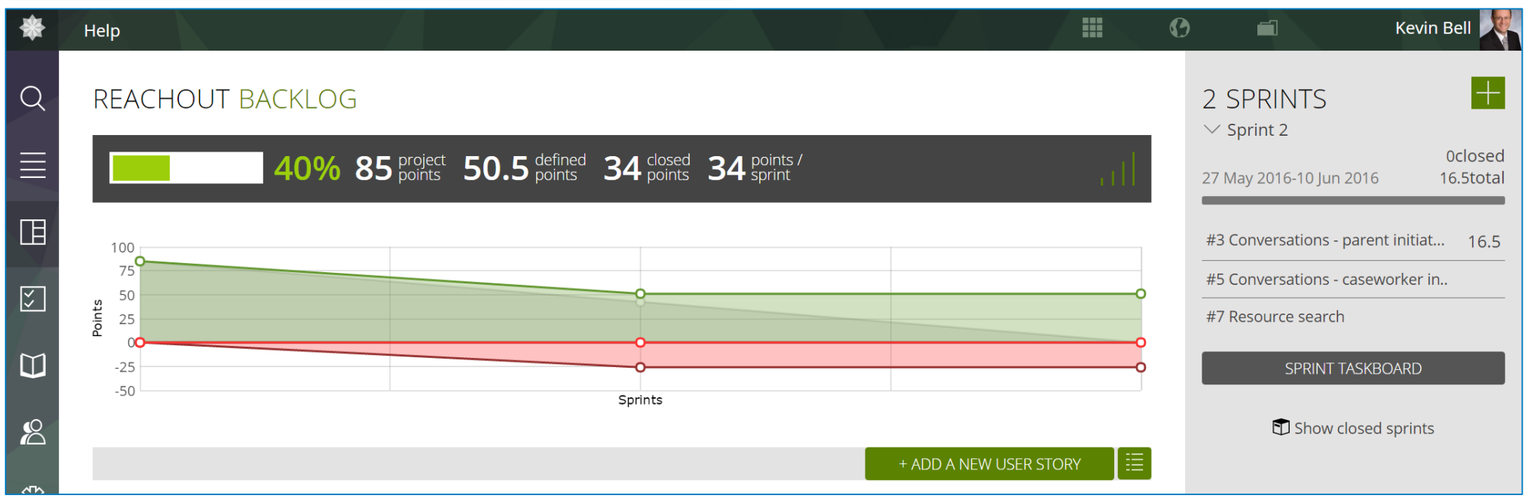
USPTO UI Design Library is an open source library designed for use in governmental applications

Contains a style guide, pattern library and Bootstrap theme

Sprint planning and management



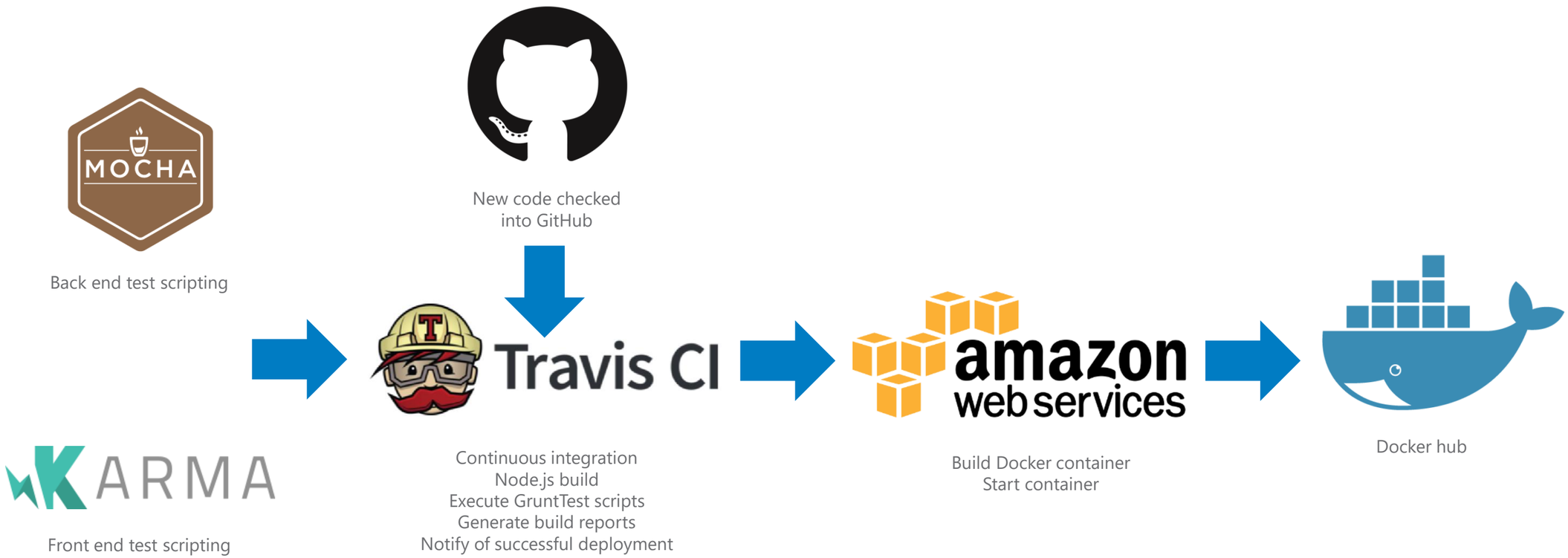




Taiga was used to document and manage all project development activities

Taiga status used to manage scrum meeting agenda and retrospectives

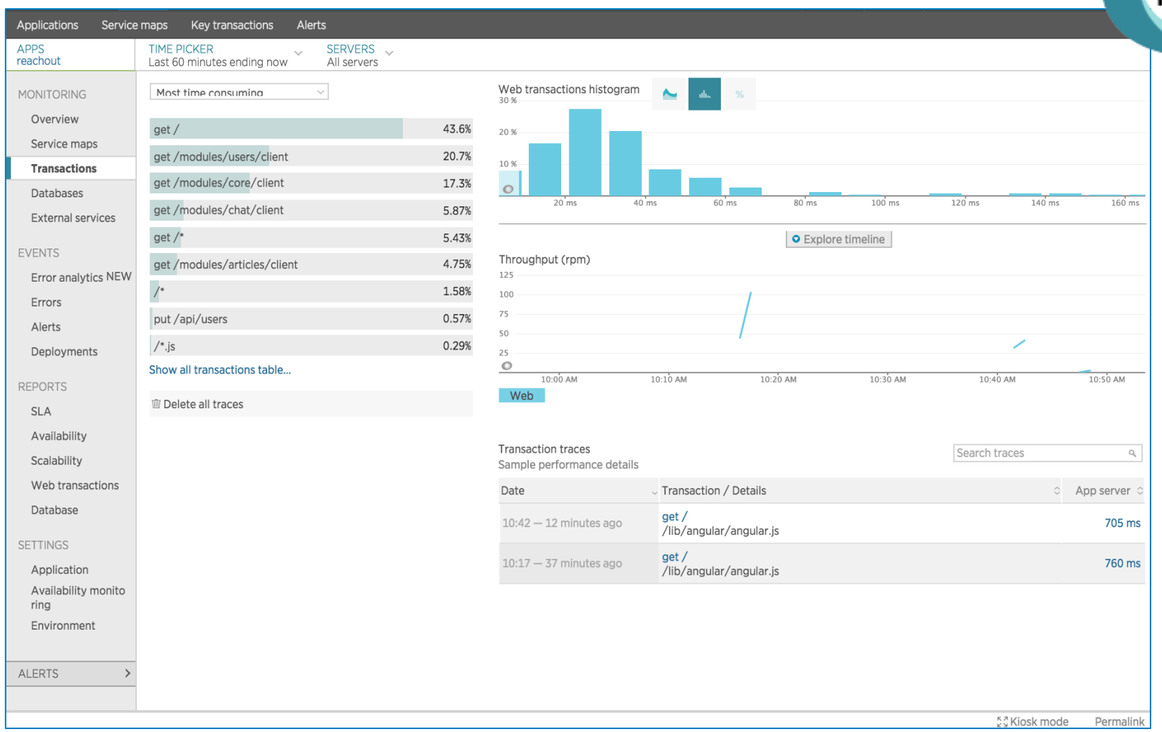
Continuous integration, automated unit testing, containerization



When new code is checked into GitHub, Travis CI automatically conducts a build

Unit test scripts are automatically executed and, if successful, the code is deployed to AWS within a Docker container

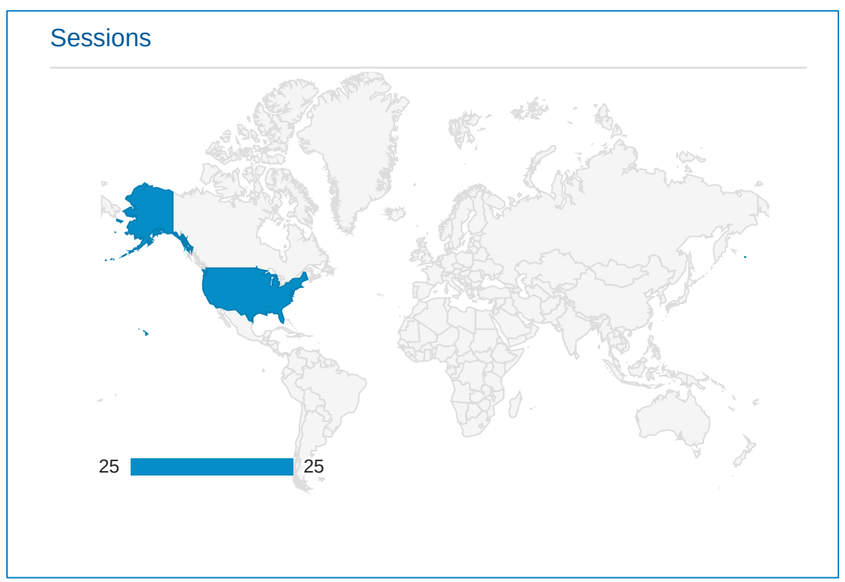
Continuous monitoring

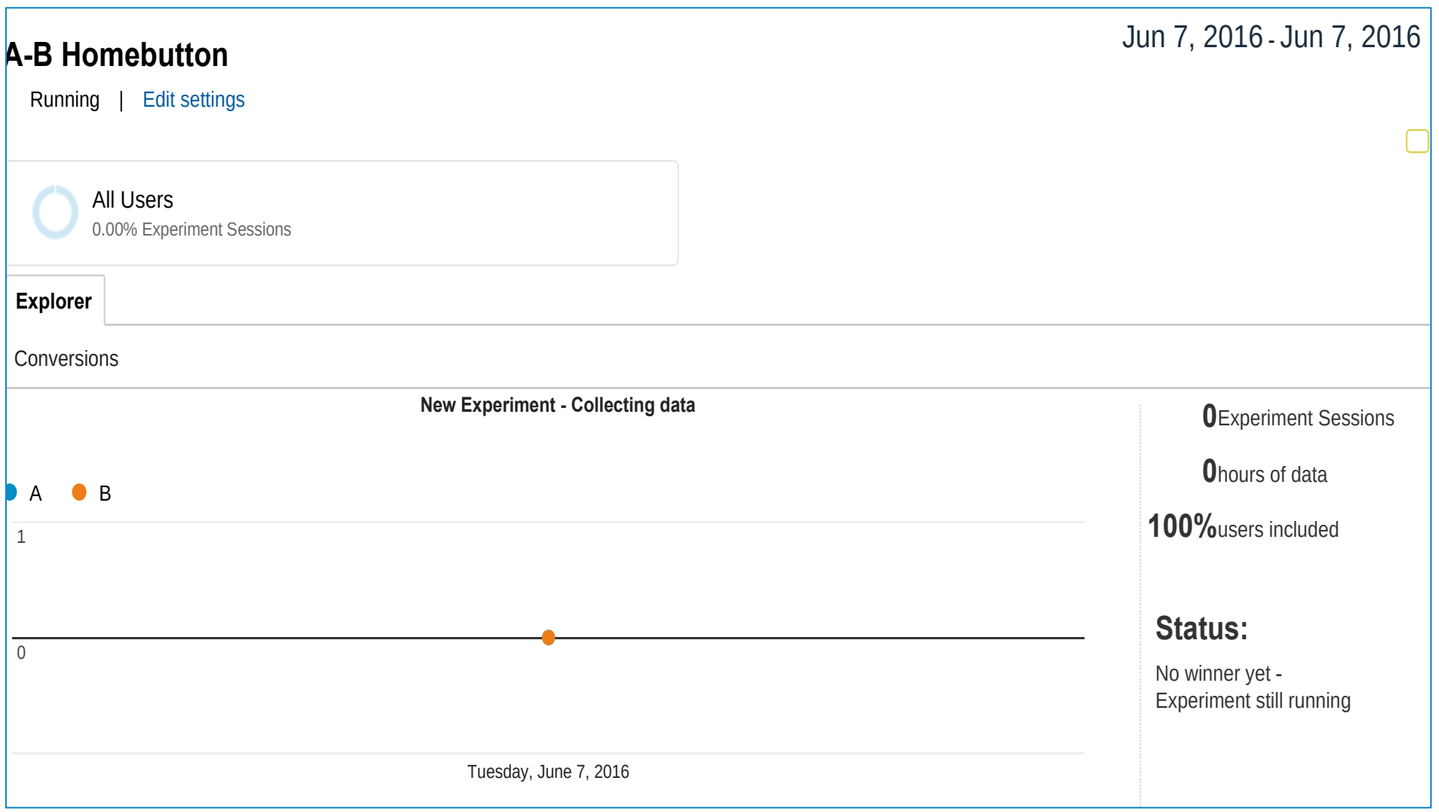


New Relic allows us to continuously monitor deployed *outreach*

Deep performance monitoring allows traceability down to the transaction level

User tracking and A/B testing

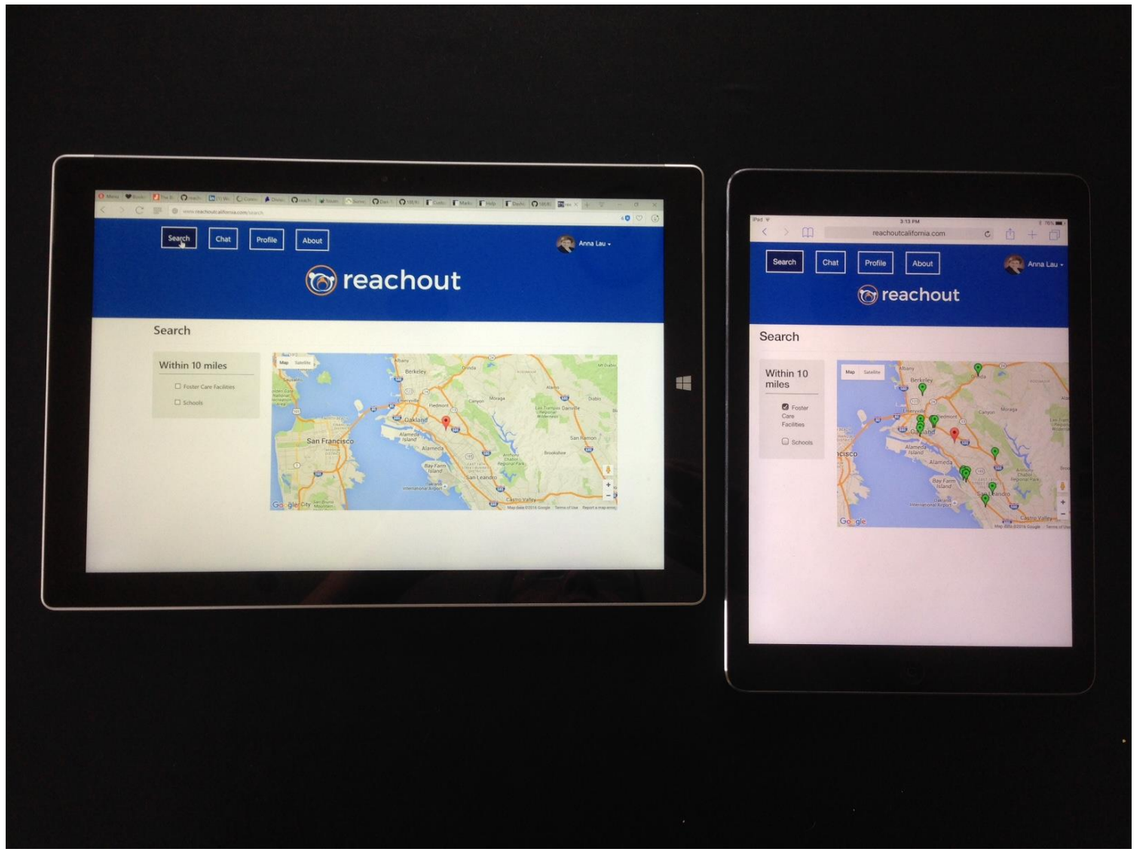




Google Analytics was selected for user monitoring

A/B testing was used to discover the optimal positioning for navigation buttons

Responsiveness, device and browser testing

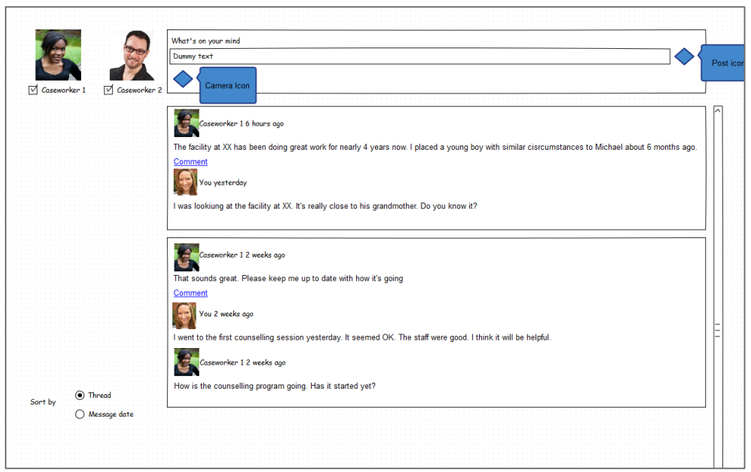


reachout tested on multiple devices: PC, Mac, Surface Pro, iPad and iPhone

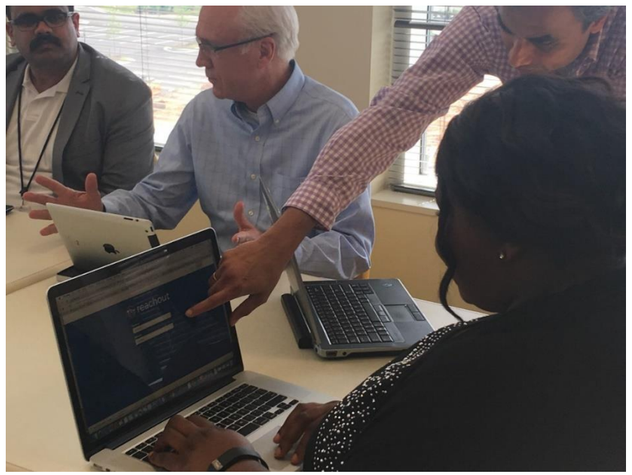
reachout tested on multiple browsers: Chrome, Safari, Opera and IE*

* IE proved incompatible with our selected image upload component. An issue was created and moved to sprint 3

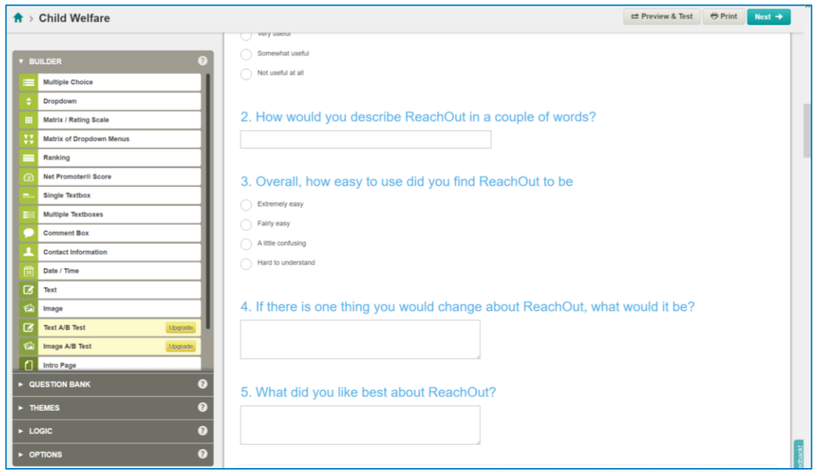
User testing approaches



Wireframe prototype testing with user groups



User group testing



User survey on prototypes

Internal and external stakeholders polled early and often

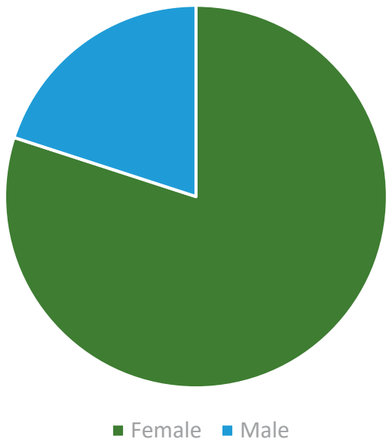
Multiple techniques are used to overcome user bias, statistical flaws,

See Appendix C for additional details regarding our user group reaction survey

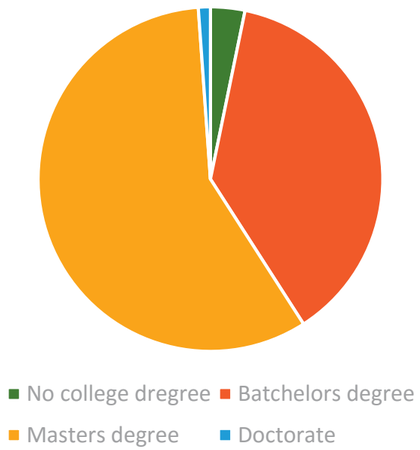
Appendix A – User Research

Learning about CPS social workers in California

Gender of social workers 2013 (Policy.Mic)



Education of California Social Workers 2012
(California Social Work Education Center)



Age of Social Workers 2012
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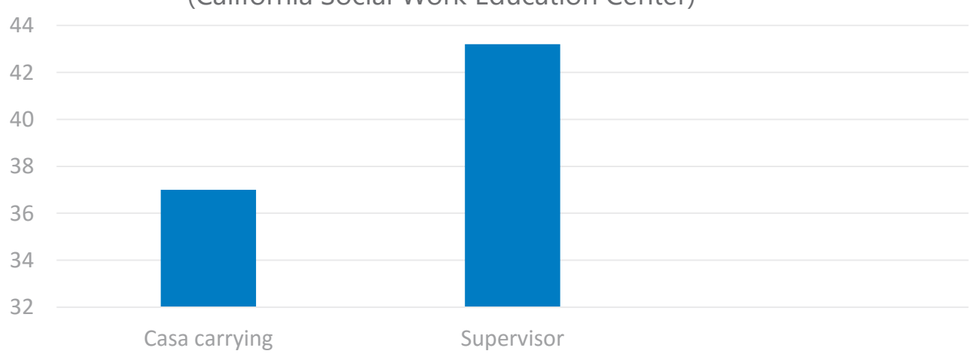
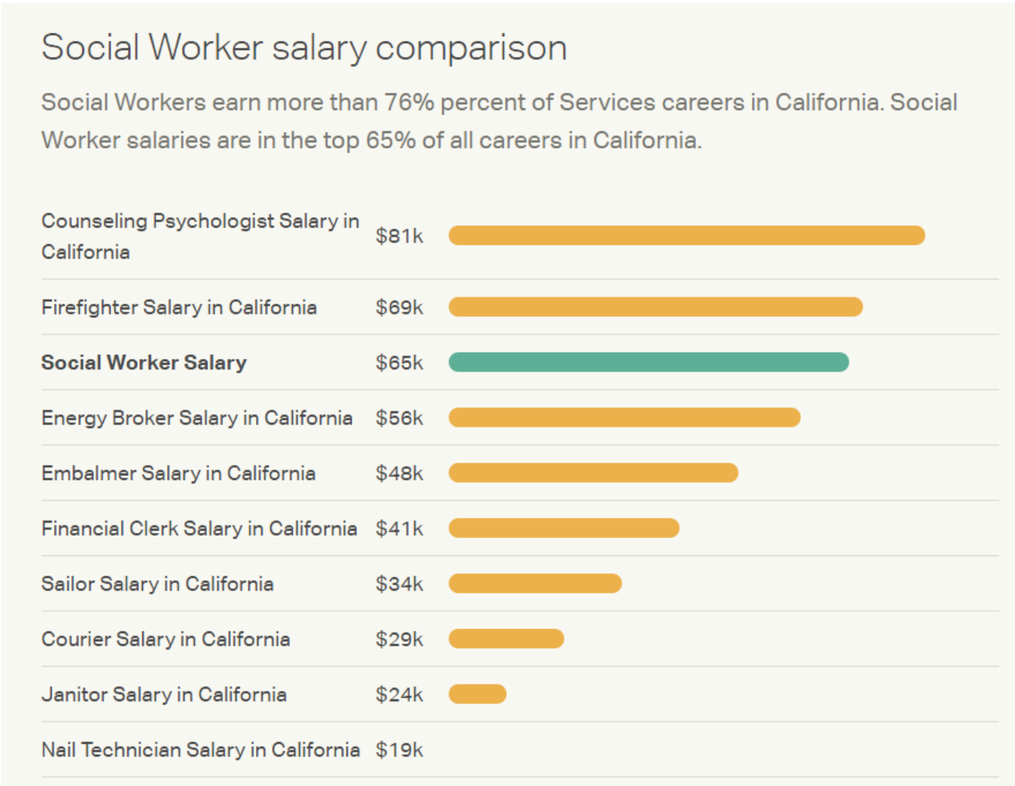


Social Worker Salary Comparison With Other Service Careers 2011 (Sokanu)

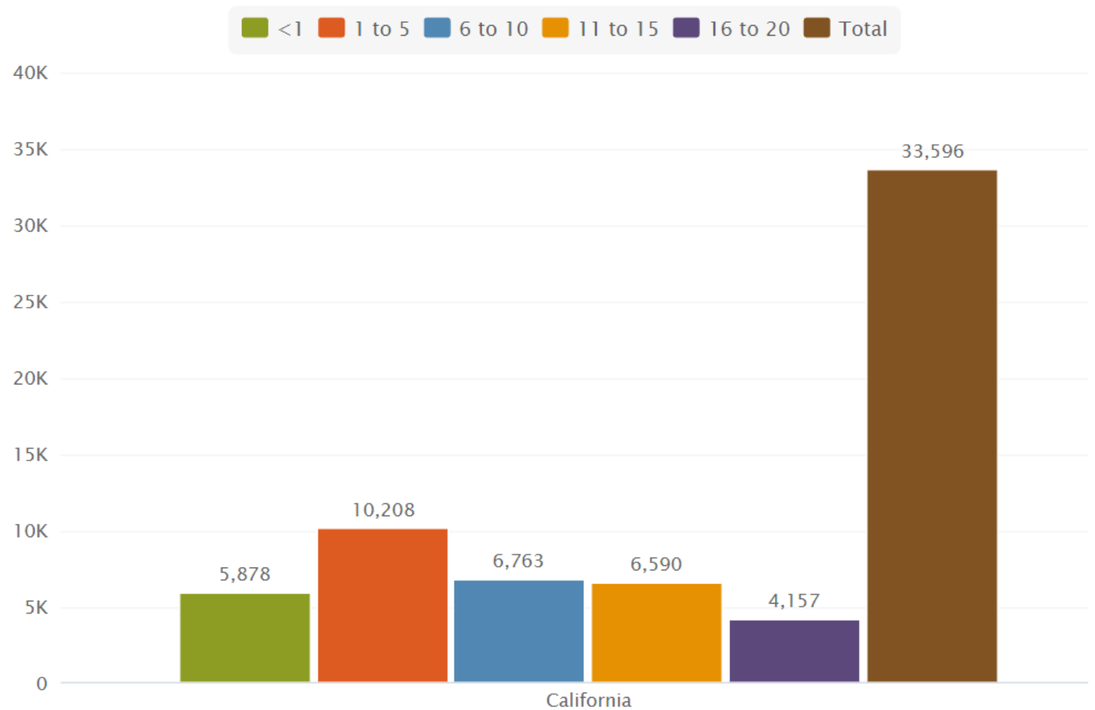


Most CPS social workers are female and in their mid-thirties

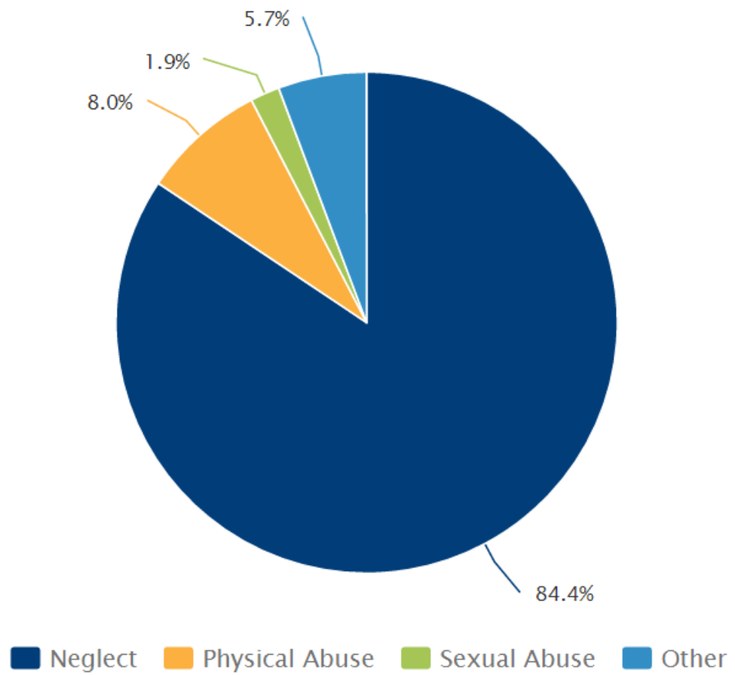
They are highly educated and compensated moderately well, but perhaps not in line with their education

Learning about children removed by CPS in California

Number of children removed 2013 (National KIDSCOUNT)



Reason for removal 2014 (kidsdata.org)



10,208 children in the 1-5 age group were removed in 2013

Most children were removed for reasons of neglect

Additional data points

"Average wait for CPS services in California is 16 days" – ACF 2012

"23% of unmarried mothers receive child support in California" – Annie E. Casey Foundation 2013

"Foster youth on average move schools two or three times per year" – CA OAG 2014

Once CPS is involved, it can take time to get things in motion – a critical and worrying time for the parent

Keeping the child on track at school is a challenge

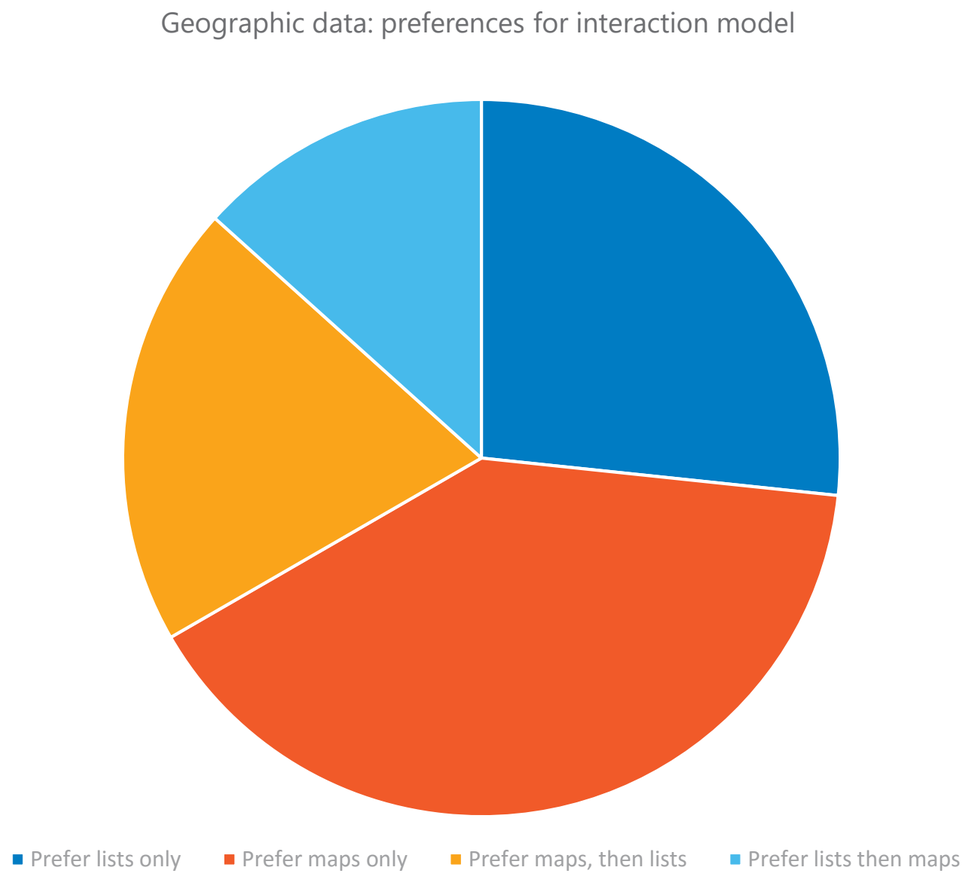
Appendix B – Brand Reaction & Feature Set Survey

Survey reaction to logo and *reachout* branding

Based on 51 responses from randomized individuals

‘Teddybear’ was a surprise inclusion, but given the context we decided it was a favorable association

Survey results for A/B testing on facility search feature

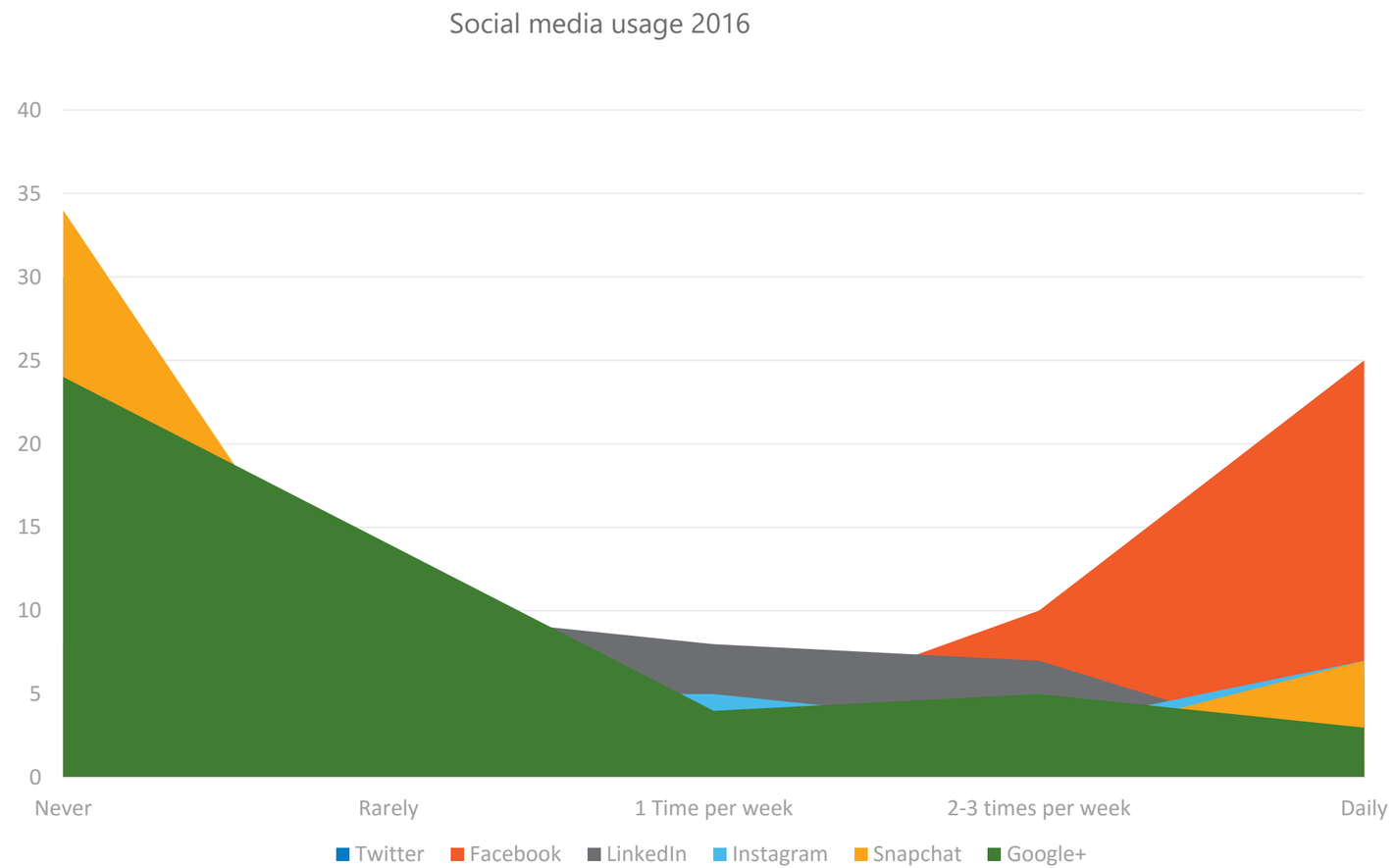


Almost 45% used maps only, to find a nearby restaurant
Almost 30% preferred not to use maps
60% led their search with maps

Based on 51 responses from randomized individuals, based on their use of Google maps to find a nearby restaurant

We wanted to base our foster facility search feature on how most people interact with geographic data

Survey results for social media usage



Facebook is clearly the most used social media tool
Almost 50% of respondents use it every day
Over 75% of respondents use it at least weekly

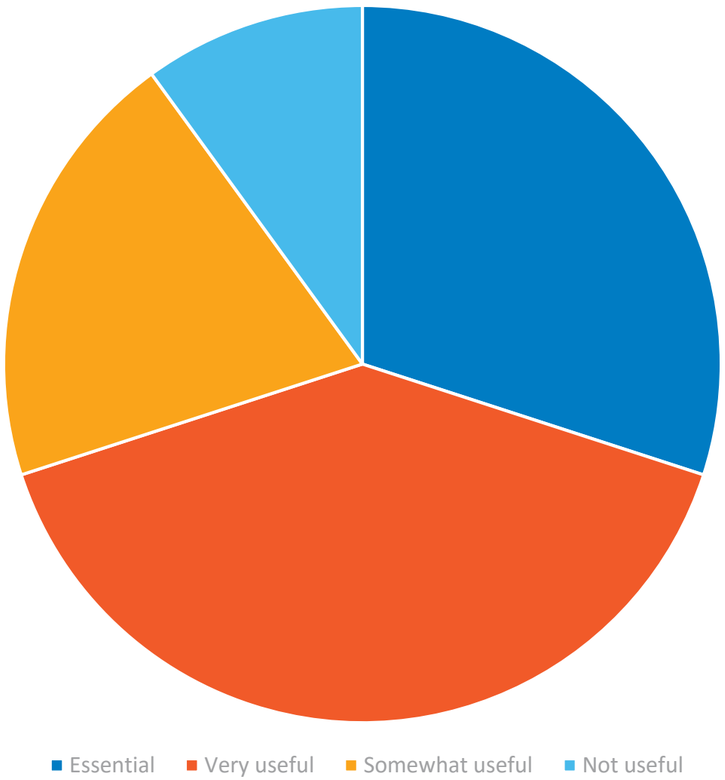
Based on 51 responses from randomized individuals

We wanted to base our caseworker communication feature on the most likely used social media tools

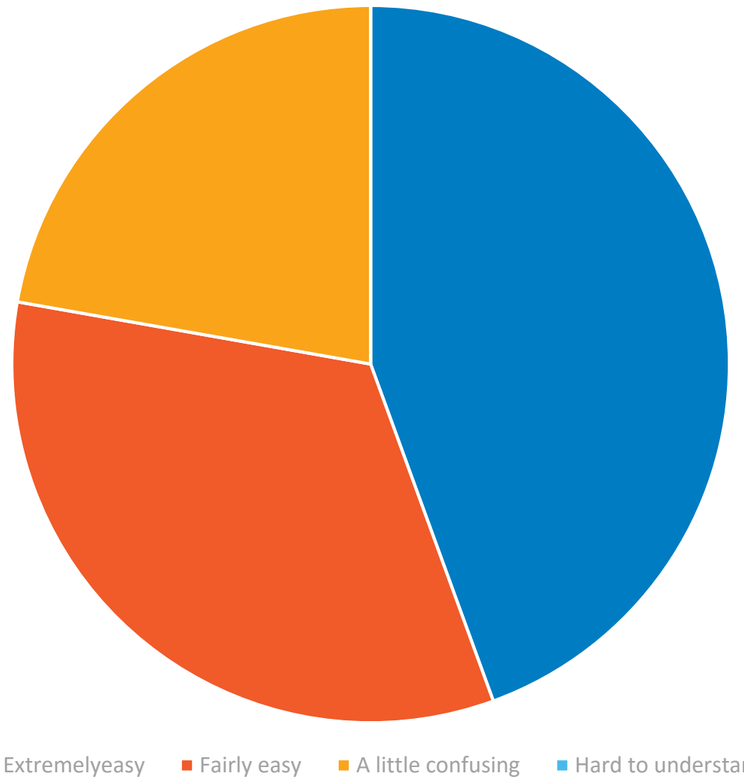
Appendix C – Prototype User Test Survey

Survey results for functionality and ease of use

How useful do you think *reachout* is for a parent?



How easy to use is *reachout*?



Based on 9 responses from user representatives who are parents of young children

reachout is easy to use and thought to be useful

User reactions to *reachout*

Things they liked

Using the map to locate foster facilities

Including the schools on the map

Immediacy of the chat feature, especially when the case worker was online

Online offline indication for chat participants

Use of photos to select chat participants

Inspiring story on the home page

The name *reachout*

Things they wanted to add or change

More info on each foster facility when clicked on – especially capacity and past performance

Change the search radius default – especially in a rural area

Ability to change the center of the search radius – perhaps they want to search around grandparents address

Ability to upload photos in chat

For caseworkers, a different way to juggle conversations with multiple parents

Notification via text message when a new chat message appears

Less scrolling on the desktop version

Overall, our user thought *reachout* a good and useful product

We have identified a number of backlog enhancements for future versions

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