New York City Workforce Data Portal

Blenderbox Proposal: Data Portal Design and Build

APRIL 20, 2018

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Executive Summary

“The purpose of visualization is insight.”

As recognized by the Careers Pathway Initiative, the current economic and employment landscape of New York City is overly focused on job placement, as opposed to job training and career readiness. This lack of coordination between training and hiring trends means that the needs required by employers are not being developed, which in turn affects the earning potential and economic mobility of New Yorkers, as well as the growth of enterprises around the city.

NYC Opportunity and WKDEV have therefore planned for a reassessment of the workforce system and creation of new models for skill development, in order to broaden opportunity and improve stability for both employers and employees. To this end, as Mayor de Blasio acknowledges, the government cannot act alone, and will need to collaborate with multiple industries and partners to achieve the steps outlined in the Initiative. The design and implementation of the prospective Workforce Data Portal therefore requires an engagement with a vendor who is not only capable of providing the technical and practical deliverables, but who understands the motive behind the mission, and has experience building insight-driven solutions for state agencies and large organizations.

Blenderbox is a woman owned interactive digital design agency based in Williamsburg, Brooklyn, and specializes in government, education and non-profit. We have worked with NYCDOF, NYCDOE, NYCEDC, The Mayor’s Office, and numerous other city agencies, and are eager to partner with you in developing the Workforce Data Portal in a manner which will provide actionable insights to improve current workforce programs within NYC.

Our solutions always strive to serve a purpose and solve problems. Whether we are building an admissions system for the students of New York City and the Department of Education, or developing a streamlined payment process system for the Department of Finance, design thinking is our tool of choice. As a partner in this initiative, we will ensure that both our

visuals and online database and portal present your data in a comprehensive and organized manner, thereby allowing for more informed policy decisions surrounding workforce and employment programs.

Throughout our engagement, we will keep your goals and the data you provide us with at the forefront of the design process. Our solution will rely on open source technologies, consistent user testing, strategic and user-centric navigation, and visual representations which will both engage and inform the viewer.

We look forward to presenting our ideas and capabilities in the following proposal, and welcome the opportunity for further questions and communication regarding this project.

02

Organizational Experience & Capacity

A. Company Overview

B. Staff Organization & Resumes

C. Case Studies: Example Projects

A. Company Overview

Blenderbox is a women-owned business founded in 2000 by designer/developer duo Sarah Jeffries and Jason Jeffries. Their goal was to create a full-service digital agency, combining quality design, strategy, branding and development services. For 18 years, we've been helping clients of all sizes with a variety of interactive projects. We are based on the border of Williamsburg and Greenpoint in Brooklyn, New York.

We are a team of 25 designers, project managers, developers, and interactive strategists – all eager to come up with great ideas which will support your admissions goals.

Our CEO & CoFounder, Jason Jeffries, provides non-billable oversight for every project, and will be on meetings/calls in key stages of the engagement. Four of our team members work remotely from Los Angeles, Florida, Texas and Philadelphia respectively, while the rest of our team is based at the office here in Brooklyn.

An agency is only as good as its people, and we place great emphasis on the overall culture of our company.

Core Ethos

At Blenderbox, we believe that digital communication spreads beyond website visuals on a screen. It includes the user, the learner, the educator, the visitor — in short, a whole experience. This is why we as an agency specialize in UX design, and choose to apply our skills to the realms of education, nonprofit, arts and culture. Acting as a collaborative link, partner and catalyst, we craft strategies which address our clients' challenges and goals, in order to bring their vision to life and allow them to realise their full potential.

We understand that a website is the first point of contact between visitor and organization, the premier medium of communication between user and organization. Our solutions focus on how we can convert curious prospects into convinced candidates, leveraging the power of digital and content strategy, thereby attracting quality potential and interest to our clients' missions. We are passionate about creating seamless experiences, achieving unity and structure through design, and strive to provide information in an easily accessible format.

We solve problems through innovative and creative thinking, always guided by your goals and core values.

We like to see both humans and technology as involved in the ecosystem of the web, so we build websites that can engage and interact with their surrounding elements. New and emerging technologies have become vital components in how we communicate, disseminate and record information. At Blenderbox, we are leading the field in areas of design, development and UX, while constantly working with these changes. An understanding of every client's individual identity, story and aesthetic also informs our every technical move and creative decision.

Design exists to express identity. Our visuals serve a simple purpose: express the mission of the client, speak to their brand, and warmly welcome their audience to a site which is

instantly identifiable as belonging to the organization. Our clients' websites serve as infallible support systems and repositories of knowledge and stories, and our decisions, approach and designs are always influenced and informed by each organisation's unique digital experience principles, brand identity, history, ethos and mission statement.

Core Business

At Blenderbox, we place great emphasis on specializing in interface design, strategy and development for industries and clients whose values are in line with our own. This is why we strive to hone our experience in the areas of government, education, nonprofit, and arts and culture, and have worked with leading organizations and businesses in the past. We constantly strive to work with clients and businesses who seek to leverage the digital sphere in order to spread their mission, take action and make a lasting impact.

As a company we understand the crossover between nonprofit and education, learning and teaching, innovation and action, inspiration and change. The core of our business focuses on ways in which we can seamlessly communicate a sense of value and identity into our websites, while providing the functional tools necessary for sharing knowledge and providing resources.

Mission-driven organizations make up 74% of our clients.

Service Expertise

Blenderbox provides end-to-end interactive services for a range of companies in diverse industries to execute forward-thinking digital products. Our core service offerings span the gamut of UX and Information Architecture, Visual Design and Production, and Development.

UX

- Product Research & Testing
- Peer analysis
- Analytics review
- Analytics configuration
- Product strategy
- User research
- Stakeholder interviews
- Accessibility audits
- Usability & A/B testing
- Content Strategy
- Discovery findings
- Content audit
- Sitemap
- Personas
- User experience maps
- Specifications & Design
- Functional Requirements
- Wireframes
- Content Model
- Redirect Planning
- User manual writing

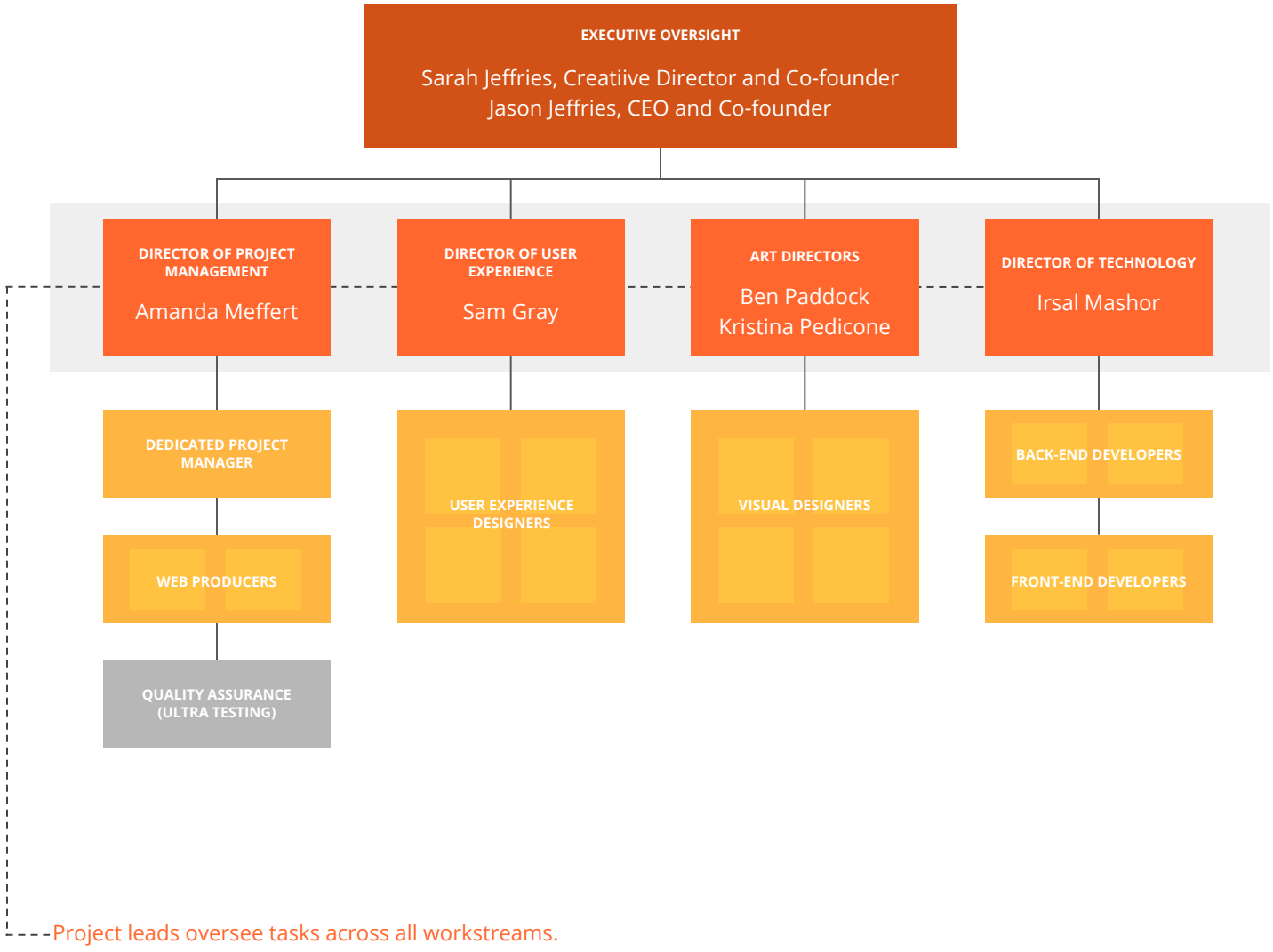
VISUAL DESIGN

- Creative Abstract
- Logo design
- Branding
- Mood boards
- Initial concept
- Template design
- Production design
- Data Visualization
- Infographics
- Photo Art Direction
- Creative Briefing
- Campaigns
- Collateral design

DEVELOPMENT

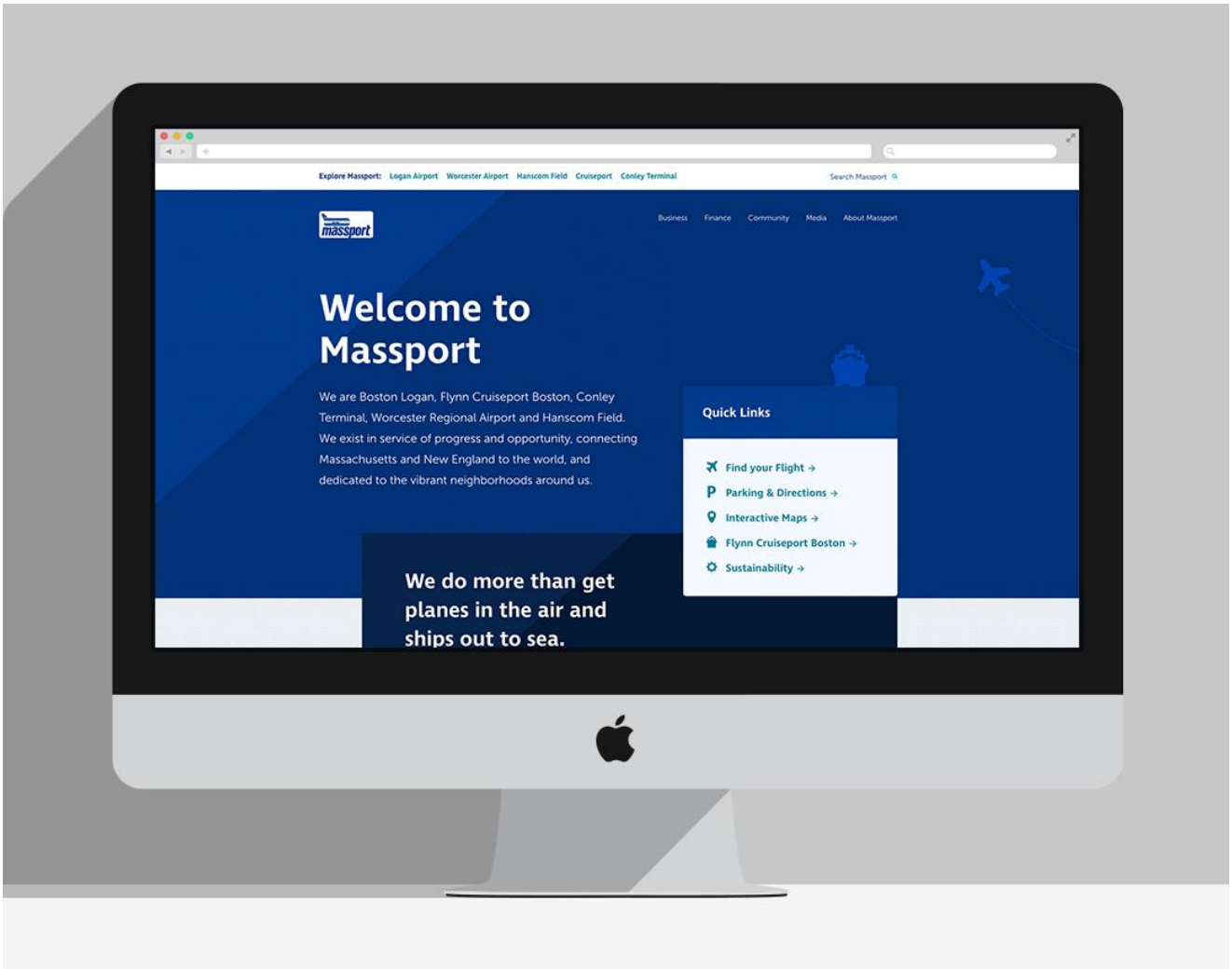
- Front-end development
- Content management systems
- Learning management systems
- Mobile design
- Complex Integrations
- HTML/CSS/Javascript
- CRM integration
- Student Information Systems
- E-commerce

B. Staff Organization & Resumes



C. Case Studies

1. Massport
2. WeTeachNYC
3. Critical Ecosystem Partnership Fund
4. Carnegie Corporation
5. NYC Department of Finance
6. NYC Economic Development Corporation
7. Andrew Mellon Foundation



THE CLIENT

Massport

Massport.com

Massachusetts Port Authority encompasses a group of high traffic facilities including Boston Logan International Airport, several regional airports, Flynn Cruiseport, and Boston's busy Conley Shipping Terminal. Its work revolves around issues of sustainability and responsibility. The company holds a rich and symbolic place in national history due to its location in East Boston, where travelers and immigrants arrived from Europe by sea. Their dedication to modern modes of transport aims to remain authentic to this tradition, while advancing and improving the economy of Massachusetts.

THE CHALLENGE

Many Departments, Many Audiences

Massport needed a reliable, multifunctional website to provide quick and user-friendly access to their services online. The old website did not take into consideration Massport's diverse audience - neither was the design reflective of their brand identity. We needed to be nimble and flexible in our approach, as they were switching their parking system and their flight data system concurrent to our work.

THE VISION

Mobile and Logan First

While the majority of traffic concerns Logan Airport, the new website also needed to serve Massport's several other regional airports, as well as the shipping terminal and content for other departments such as capital projects, and to incorporate these locations on the website in an organized and comprehensive fashion.

THE RESULT

A Gateway New England Deserves

Strategic Discovery: An important part of the discovery process was researching the Massport target audience. As well as travelers and prospective passengers, the website would also be visited by various stakeholders, vendors, businesses and investors. Competitive analysis and user research data guided us in our understanding of the different agendas and goals of Massport's website users, which in turn informed the design process.

Content Audit and Migration: We worked with the client team to inventorize and organize existing content, and provided a baseline structure which encompassed SEO best practises in order to assist their team in crafting editing content. For larger sections that required no major editing, we ran scripted migrations (for sections such as news, press releases, and other content dense areas of the website). Once revised, we assisted their team in

formatting the new text to best display within the new design context, by providing examples of type hierarchy, uses of page plugins, images and videos as necessary.

Usability Testing: We scripted and carried out usability testing among the website's main users, and applied and tested user-centered design principles which aided us in evaluating how intuitive the site was to use and navigate.

Content Strategy: Content organization takes into consideration the varied audience pathways, and we structured the website content in order to deliver an optimal end-user experience.

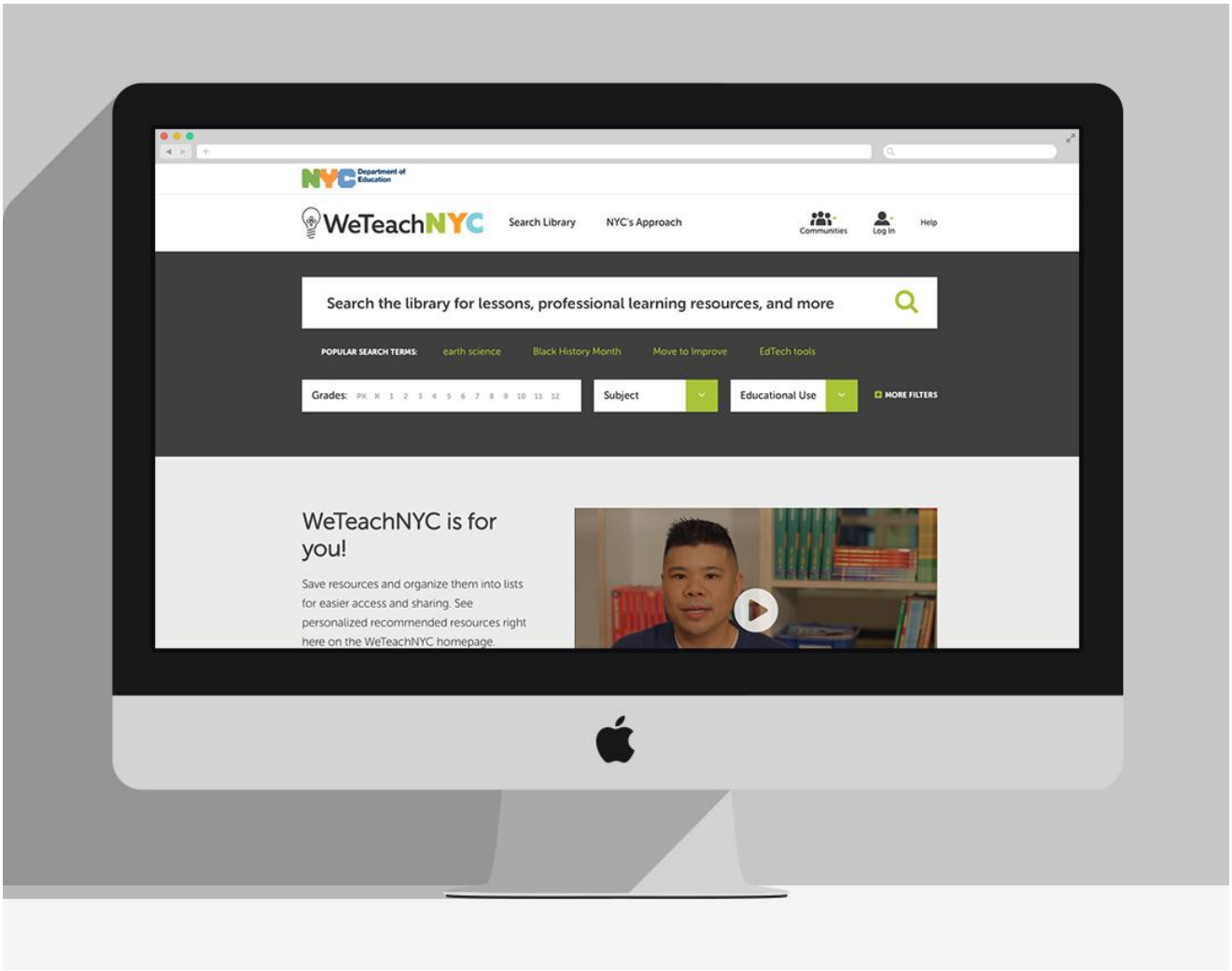
Responsive: We followed a mobile-first design approach based on an in-depth analytics review, while carefully considering how every design decision affected all screen sizes. The new website is responsive across all major browsers and is suitable for tablet, mobile and desktop navigation.

System Integrations: The site integrates with over 17 distributed systems and third party applications, including a flight tracker, parking and weather information. We established the method of integration early in the process and set up proof-of-concepts, before designing how the data would be presented on the new site.

THE IMPACT

A National Transportation Authority

The transformation of their digital presence has established Massport as a leading national transportation authority. The new website provides visitors with a user-friendly, accessible, and organized interface which allows them to find the information they need, easily and quickly.



THE CLIENT

WeTeachNYC

WeTeachNYC.org

WeTeachNYC is the NYC DOE's online library of lessons, plans, activities, videos and information aimed at professional development. It provides an online community of blended learning and allows educators keep up to date with curriculum options. instructional practices, NYC's Vision for School Improvement, and ways to support professional learning in schools.

THE CHALLENGE

Search, Connect, Learn, Interact

The NYCDOE wanted to connect over 80,000 teachers and principals with high quality professional development and instructional resources, and provide a platform which would allow them to interact in peer communities.

THE VISION

The One-stop Solution for NYC Educators

The NYCDOE sought a website redesign for wetechnyc.org which would provide additional functionality and an improved user experience, transforming it from pilot project to a long-term, sustainable online resource repository for education and professional development.

THE RESULT

An Online Repository of Knowledge

Django CMS: The new Django powered website is custom-built for NYC DOE's users and content. As an open-source technology, Django is highly flexible and customizable, allowing for simple editing from the front-end so their team could customize the core experience. It also allowed for a clean and pragmatic website design.

Learning Management System: The portal integrates with various third-party systems including a Learning Object Repository (LOR) and the commercial Learning Management System (LMS) Saba. This LMS plugin supports online learning and allows the team to administer, document and track educational and training programs, which in turn allows the instructor to deliver material and tests to students.

SSO Authentication: Django allows for a highly flexible permission and authentication handling. Permission and access can be applied to custom groups, as well as single users.

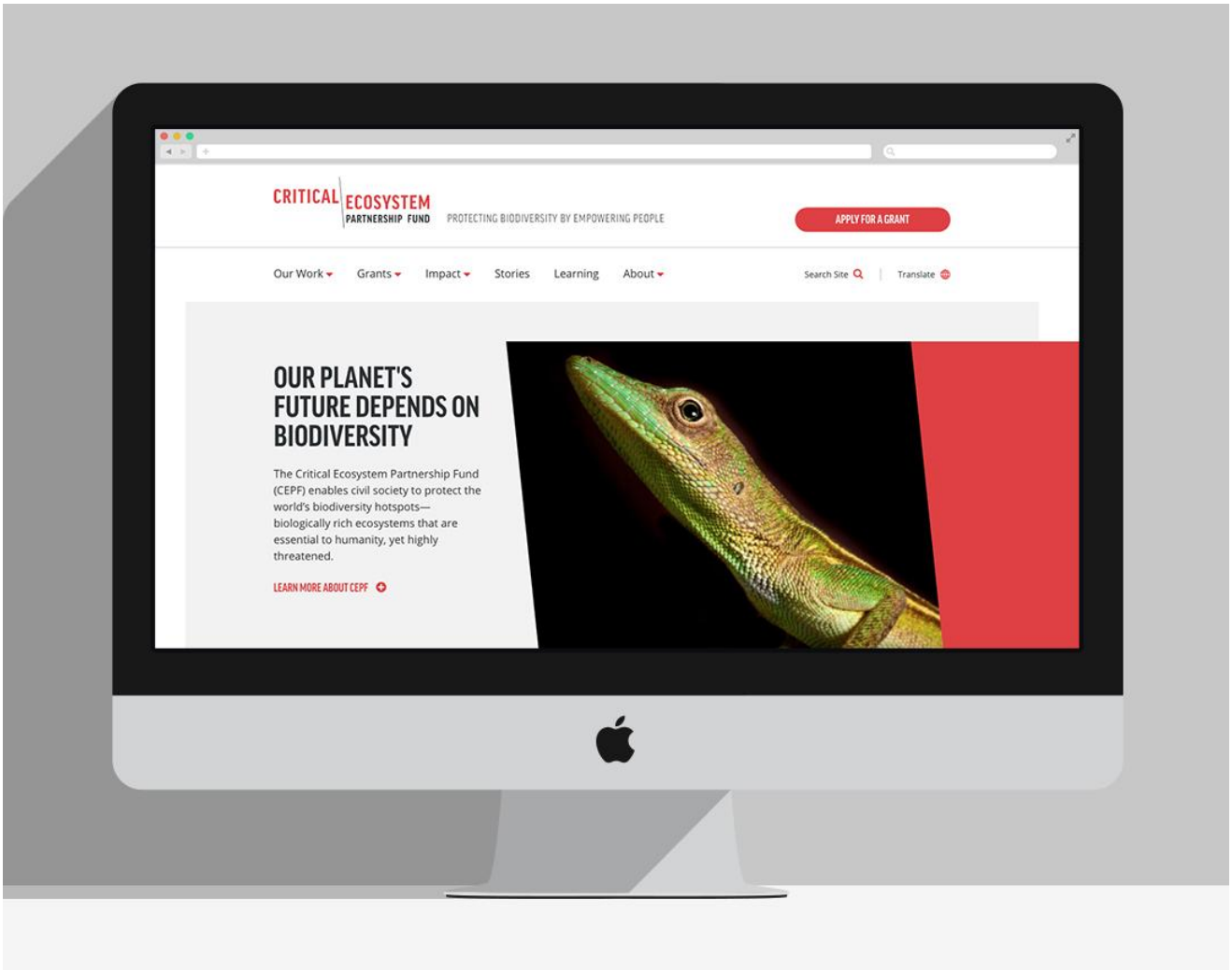
We built administrable access rights for the entire department.

Open Repository of Knowledge: While a restricted area exists for Department of Education use, the website's central repository of resources is open and available to the public, who can easily search and find information by entering keywords into the website's search bar and by using filters to refine results. The site is content rich, and professionals turn to the site as a source of knowledge and to share information.

THE IMPACT

Teaching with a Difference, for Difference

The newly available online programs provide an innovative form of instruction, as they contain carefully constructed and tested problems that support students in gaining a conceptual understanding of various topics. Teachers can take inspiration from the structure of curriculum programs, and then decide how to best modify and refine particular curricular components. This means that programs can be adapted to meet students' specific needs, offering significant opportunities for differentiation and introducing multiple methods of problem solving.



THE CLIENT

Critical Ecosystem Partnership Fund

CEPF.net

CEPF is a global organization which has been carrying out conservation initiatives since 2000, providing grants and funding to non-governmental organizations working in biodiversity conservation. Their mission to conserve species on the Red List of Threatened Species and protect Key Biodiversity Areas has taken their grantees' work to 24 out of 36 of the world's biodiversity hotspots.

THE CHALLENGE

How can we show the world their work while attracting people to learn?

It had been 10 years since CEPF's last site refresh. The old website was visually weak and failed to reflect the organization's brand identity, or do justice to their status in the fields of philanthropy and biodiversity. The site contained a mass of content which was neither organised or accessible, and all of this had combined to create a frustrating obstacle for CEPF in reaching their target audiences.

THE VISION

Share Compelling Stories

The client wanted to connect with their target market, create an interdisciplinary community and promote learning between grantees and those interested in their work - all while conveying a connection between people and biodiversity. The new site would therefore include the creation of an online, digital database, packed with knowledge and information which could be collected over time.

THE RESULT

An Interactive Repository or Projects and Knowledge

The Learning Section: An invigorating hub of resources and information offers an extensive array of materials and case studies from grantees, in the form of downloadable pdfs.

Project Database and Interactive Maps: Users can explore and filter over 2,000 grantee projects, while colour coded maps allow for a playful and visual learning experience.

Brand Identity and Partnership: The new site reflects the brand identity and status of the organization, highlighting their partnership with with prominent donors. Negative space ensures the content is easily digestible, without leaving a sense of emptiness or gaps in the site design.

Responsive Design and Multimedia: The new website is designed for tablet, mobile, and desktop, and appears especially impressive as the screen is filled with a wide range of multimedia, from video to rich photography and engaging visuals.

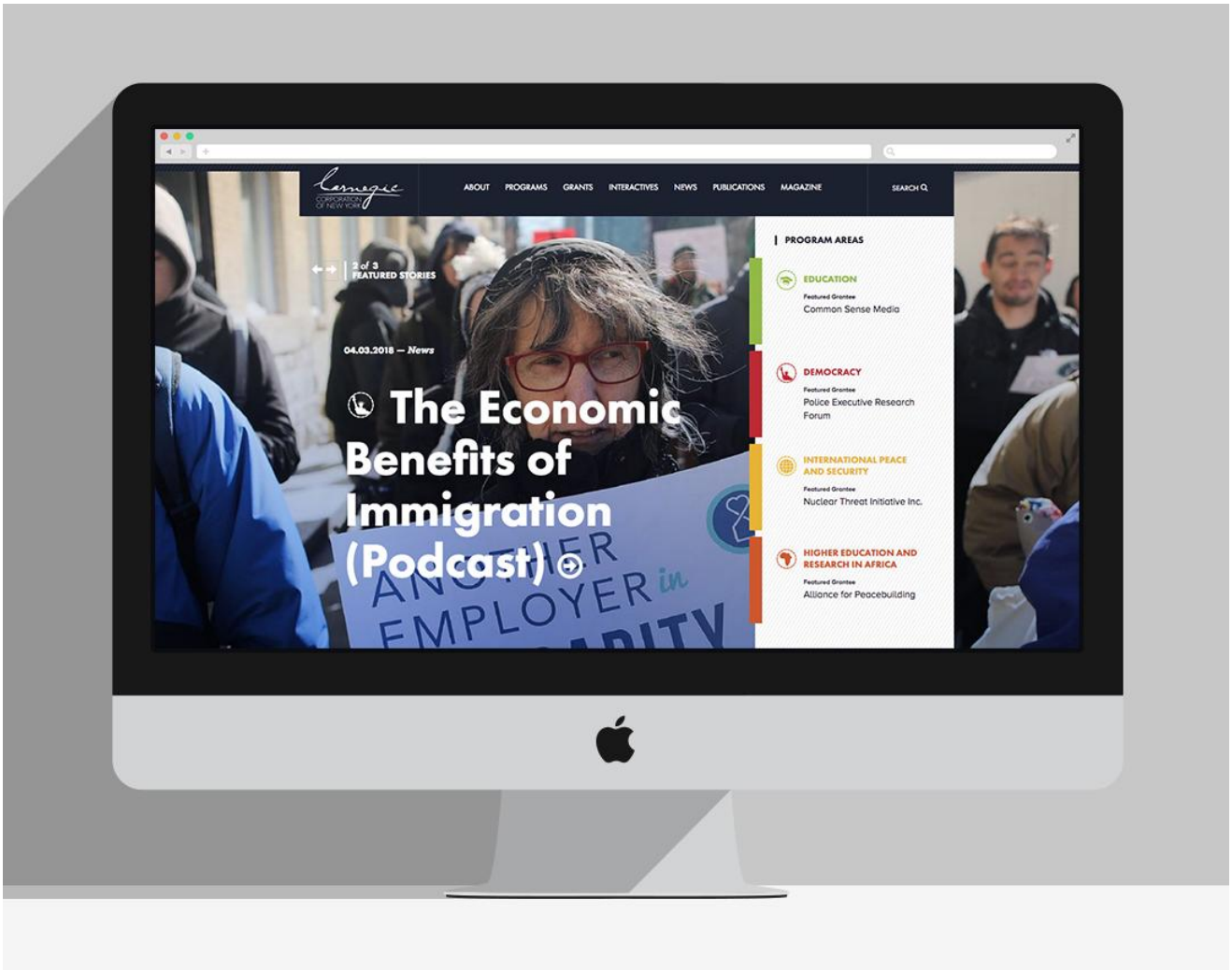
Multilingual & Compliant: Multilingual capabilities maintain the site's inter-cultural flair. Furthermore, the CEPF site has been designed and tested for WCAG 2.0 AA, ADA and Section 508 compliance. This means users who are visually impared or who navigate the web with screen readers are ensured a consistent and good experience through out the website.

Systems Integrations: The CEPF project required a grants management database integration, which we implemented using foundationConnect.

THE IMPACT

"As well as being a space for marketing their mission, the website itself has the potential to scale CEPF's impact." — Ashley Scrivner, UX Designer at Blenderbox

Our work with CEPF has given the organization the tools to grow the site in the long-term. Their main audiences can now find them online, as a result of best SEO practices we incorporated into the website build, and CEPF.net (which was just launched last week - exciting!) is an example of how a unique, pioneering and inspiring organization can reflect its status and message on a digital platform. This will allow the organization to increase global recognition of their efforts, reach a wider audience, and thereby grow their membership and grantee applications with its user-friendly online experience.



THE CLIENT

The Carnegie Corporation of New York

Carnegie.org

Carnegie is the oldest grantmaking philanthropic foundation in America. Their programs cover areas of international peace and security, the advancement of education and democracy, as well as research in Africa. While their initiatives address the problems of today, they do so with the intention of benefiting the future, while being guided by the past.

THE CHALLENGE

Corporate, reporter, results.

The client sought a partner to research, design and subsequently support its public-facing website hosted at carnegie.org. The current website was outdated in its design, messaging and technology, and in need of an overhaul and site regrouping, in order to better represent and categorize the Corporation's main areas of expertise.

THE VISION

"A Diffusion of Knowledge and Understanding."

The words of Andrew Carnegie upon his foundation the Corporation in 1911 still stand strong today, and embody the core mission which drives all of their programs, grants and initiatives. Carnegie also sought to manifest "real and permanent good in this world," and this is exactly the message which motivated and guided the creation of the Corporation's new website: to create an archive of knowledge and information, which would be accessible on a digital and permanent platform through online publications, while giving grantees and the public the opportunity to support and learn about Carnegie's programs.

THE RESULT

American Philanthropy Gains a Digital Home

Content Strategy: The website's content needed restructuring, and the site needed to be grouped between Carnegie Corporate, Reporter, and Results. The organization of content now reflects a multidisciplinary Corporation.

Search Capabilities: The Reporter consists of a magazine of ideas, while the Results section examines grantee outcomes. Users can browse the database and explore the archives, filtering by keyword, year, type and program. The Reporter consists of a magazine of ideas, while the Results section examines grantee outcomes. Users can explore the archives and filter by keyword, year, type and program.

Grants Management Database Integration: Carnegie.org uses MicroEdge GIFTS Grants Management System. A whole section of the website is dedicated to grants related information, including a searchable database, information for prospective grantees, and FAQs.

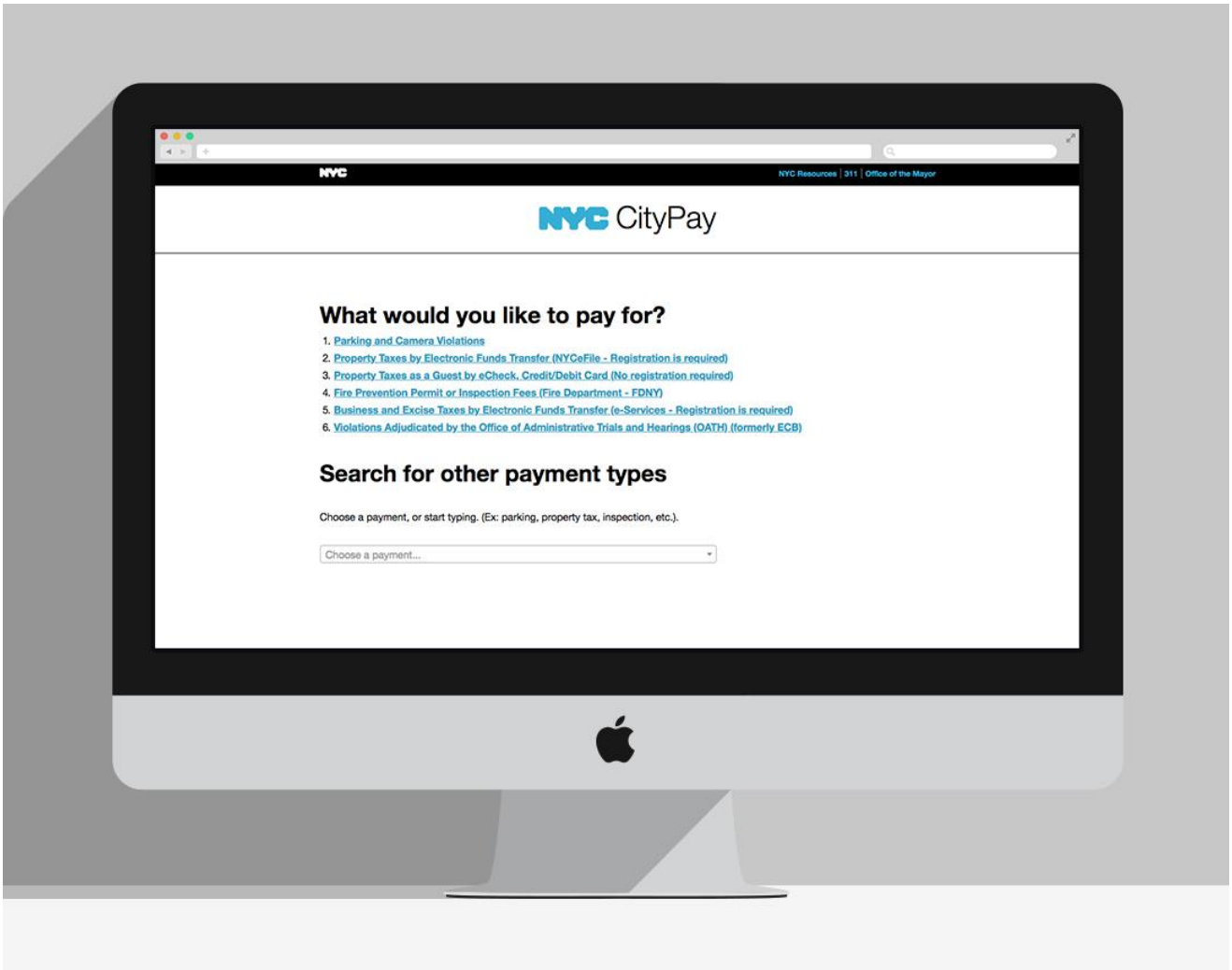
Information Hub: The Carnegie Reporter is an organized amalgamation of news, articles and information.

Visual Dynamism: We made sure to accommodate for the inclusion of a variety of multimedia, from interactives, to infographics and videos. This, along with social media integration and a clear, bold navigation style, prompts user engagement and encourages learning.

THE IMPACT

Mission Facilitated

Carnegie's needs for the website going forward revolved around enabling their team to update editorial, news, grant and press content. The new website has given them the tools to do so, as reflected in the impressive website content over ten years after launch. Carnegie has gained a platform and the expertise to facilitate its own mission, and can continue to assist grantees by leveraging their use of web technologies to help "diffuse knowledge and understanding." We continue to work with them on website enhancements.



THE CLIENT

NYC Department of Finance

The Citywide Payment and Receivables Program (CPRP)

http://a836-citypay.nyc.gov

The New York City Department of Finance is the revenue service, taxation agency and recorder of deeds of the government of New York City. The Citywide Payment and Receivables Program (CPRP) is an initiative within the New York City Department of Finance which sought to overhaul and greatly improve the method through which city agencies can process online payments for their various constituents.

THE CHALLENGE

Overcoming Payment Limitations and Inefficiencies

When we began the project, there was no single payment process employed online on the NYC DoF's website. Their original system, hosted by Citibank, presented numerous limitations and constraints. It was essentially a closed, black-box solution which was unwieldy to manage, expensive and time-consuming to modify, and did not offer a flexible end-user experience.

THE VISION

Simplified, streamlined.

The Department of Finance CPRP team, working with internal IT resources, wanted to greatly simplify the process by which user payments are accepted. By allowing customers to query CPRR data for payments owed via a simple web interface, the payment process was to be streamlined significantly. We were engaged to process payment information collected from the user, and return the unique ID passed for the transaction and the appropriate status code for the transaction (approved / declined / insufficient funds / etc.).

THE RESULT

Pay for anything you want, when you want, wherever you want.

Payment data is bundled and relayed to the payment processor via an .EDI file that standardizes metadata. Through this process, the payment processor can relay metadata along with payment outcome messaging.

By pushing the payment collection data component on the opposite side of the wall from where metadata is housed, the .EDI file was an essential solution for relaying data that is ultimately required by each agency as they recognize revenue and close out invoices.

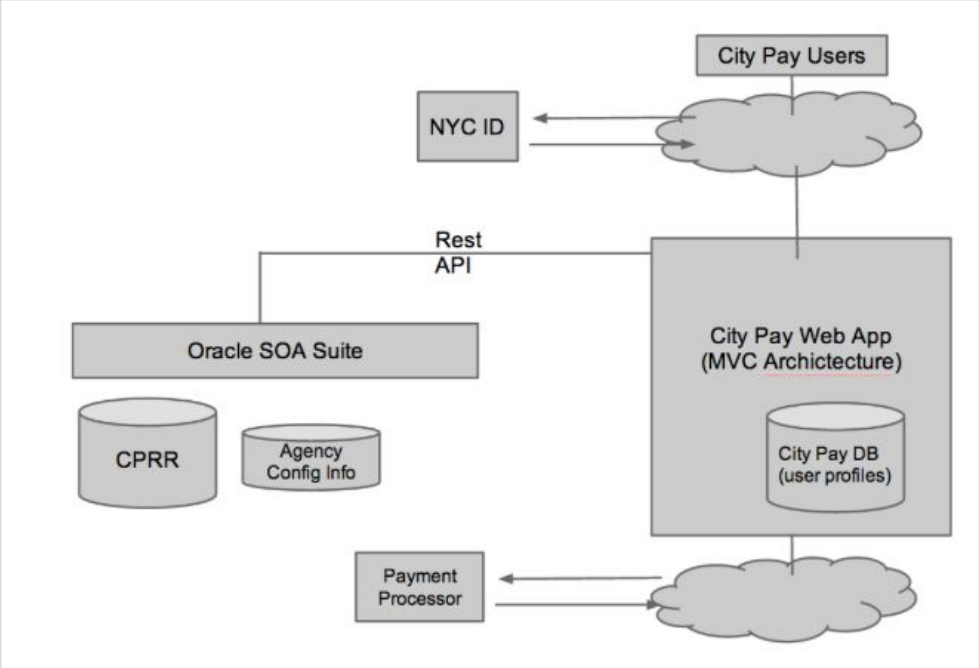
The new system gives as much control as feasible to the Department of Finance teams, without requiring significant work by a third-party to collect user inputs and relay the

appropriate data. Users themselves have a mechanism to easily create an account to track payments they're responsible for, and the ability to pay via desktop or mobile device.

The revamped system reduces costs associated with changes to interface screens, since the DoF have access to display new database fields as warranted, and adapt front-end screens to accommodate new agencies as they're on-boarded into the City Pay system. To that end, the full onboarding process for agencies has been streamlined, lessening the burden on agencies and providing a clear path to incorporating agency-specific requirements.

Such a flexible platform ensures long-term growth and interaction within the platform. Essentially, City Pay lets users pay the city for anything they want, however they want, and whenever they want. The interface provides a good experience on any device, with visual continuity during handoffs from one system to another. In-line tips provide validation of data long the way, so that a user isn't left confused by the process. Smart email notifications will be incorporated, alerting users with payment reminders.

This diagram outlines core architecture that supports the City Pay system:

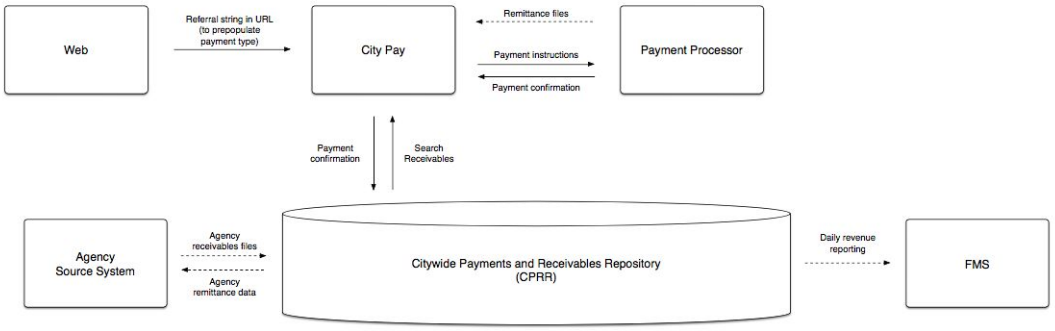


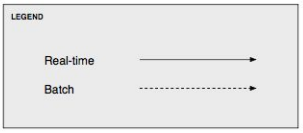
Data Model

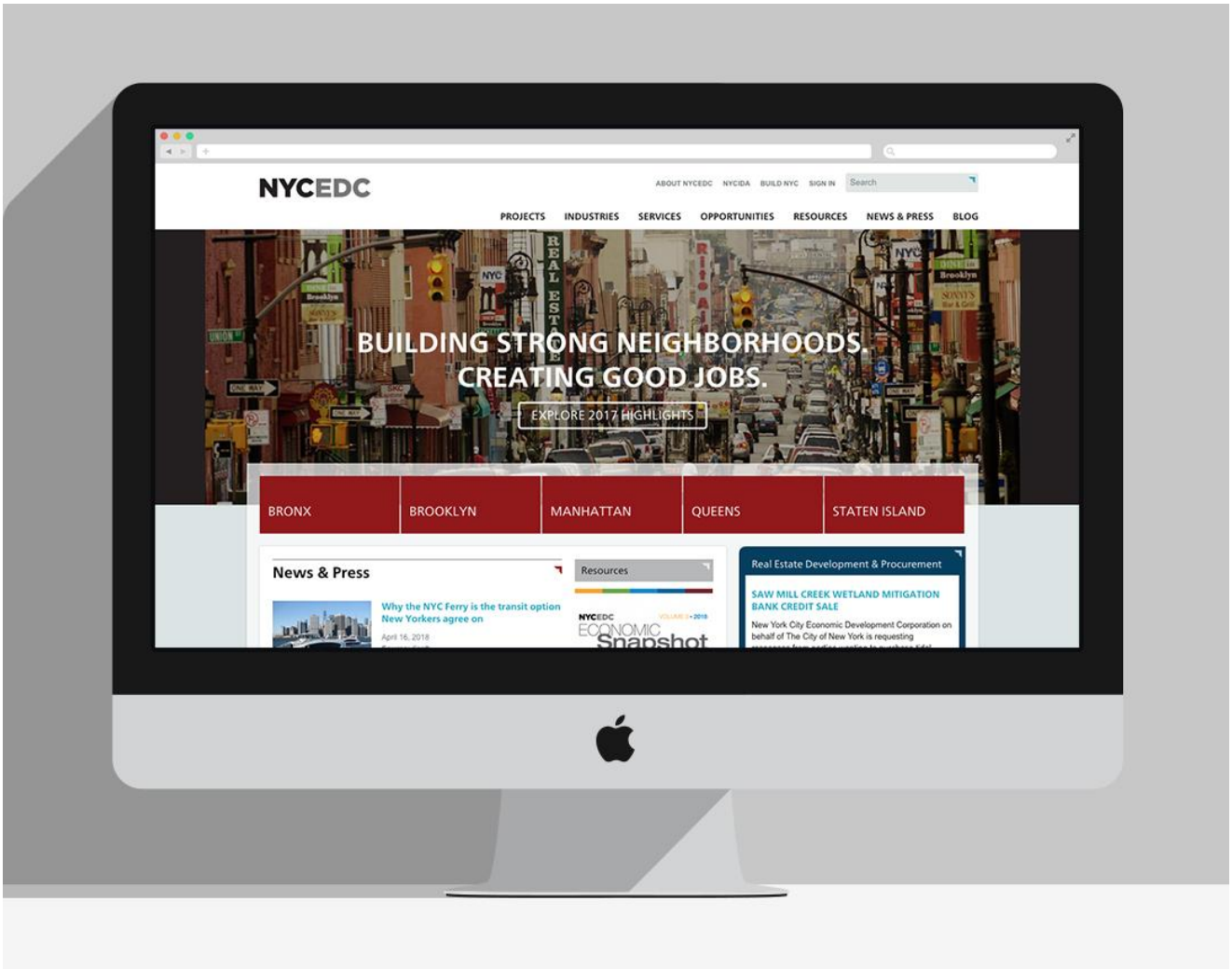
INTRODUCTION

Infrequent receivables, without login

For users who make scheduled, receivable payments on an infrequent basis, we want to retain their able to pay without remembering a login and password.







THE CLIENT

NYC Economic Development Corporation

nycedc.com

New York City Economic Development Corporation is a non-profit organization that promotes economic growth across New York City's five boroughs, by strengthening the city's competitive position and facilitating investments.

THE CHALLENGE

How do we spread the news of our endeavors?

The corporation was struggling to come up with an organised, efficient and effective way of marketing, raising awareness of and spreading information about their upcoming projects and investments. In particular, the corporation was facing the challenge of a voluminous amount content, as well as the need to accommodate their multiple audiences which range from government and policy-makers, to investors and potential contractors.

THE VISION

Raising Awareness

The project needed to focus on raising awareness of the current and upcoming projects in which the corporation was investing at that time, both for the purposes of soliciting responses from interested developers and subcontractors, as well as to introduce locals to projects throughout the five boroughs.

THE RESULT

For Business and Community

Discovery and User Research: We began the project with NYCEDC with an extensive interview process, including both internal and external users, augmented by an in-depth analytics review. User personas for their various audience members - entrepreneurs, contractors & subcontractors, the general public and the media - were used to ensure that users could self-identify and find what they needed without difficulty.

Content Migration Strategy: During discovery, we met with each department and its content authors to understand the type of content they produced for various audiences. We created a top-level site map, which we worked with content teams during the design process to flesh out to the 4th-tier. Content teams determined which components could be migrated programmatically, versus where an updated content strategy impacted our ability to map 1:1

with new pages. In many cases, outdated or confusing content was pruned, restructured, and/or rewritten to best serve their users.

Informed by content: The site's information architecture and design were determined after a lengthy discovery process and content strategy. We helped the organization craft and implement a content governance plan and subsequently trained their staff on the use of Drupal for workflow and approval queues. The back-end takes into account various permission-based users to the corporation's 70+ content editors.

Management and Planning: Weekly meetings with stakeholders on the NYCEDC side were key in managing multiple moving parts, and we scheduled breakout sessions with teams as needed. We ran tracks in parallel, so that post-discovery we could hit the ground running with front-end design work while we worked in tandem with content teams to plan content according to the content strategy developed during discovery. Planning-wise, coordination with their internal IT team for the web services, security, and deployment was the biggest item to contend with in planning. We maintained a project plan which we reviewed each week, ensuring that deliverable targets were met and any issues reviewed in a timely manner. Contingency options were also reviewed.

Functional Design and Mapping: On the front-end, the clean, sophisticated design highlights a wealth of data that is stored on the back- end—from robust economic data reports which utilize Google Charts, to interactive Google maps which ingest data pushed from the internal GIS team within NYCEDC.

Businesses apply here: Our developers built a robust application process for businesses to apply to become NYCEDC vendors. Applications are collected in the CMS, reviewed and either approved or rejected.

THE IMPACT

A Portal of Resources and Opportunity

With this relaunch of NYCEDC, we provided the city with its own portal for introducing

entrepreneurs, contractors, the general public and the media to capital projects planned for New York City. The website surfaces these ideas and opportunities to participate early-on, providing significantly greater transparency surrounding the goals of these projects.

03

Proposed Approach

A. Project Management & Methodology

B. Portal Design

C. Portal Build

D. Backend Database Development

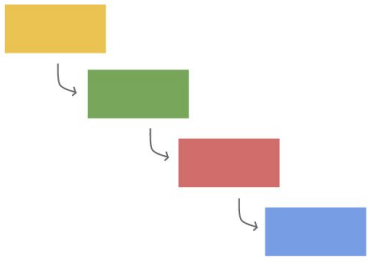
E. Design and Technical Documentation

A. Project Management & Methodology

Most projects generally follow a waterfall, agile or 'agile-fall' development methodology. During the project kick-off, we discuss the process and decide together what approach to deliverables and scheduling will work best for your team. From there, we create a detailed project plan outlining key deliverable dates throughout all phases of the project. We typically employ a waterfall methodology throughout the design process, in order to design interfaces and functionalities which will meet your requirements and fit into your project budget. We then switch to an agile methodology in development to more rapidly build and test, sharing updates in a development environment as we go. A concise and appropriate methodology will therefore be established during the discovery process in conjunction with your team.

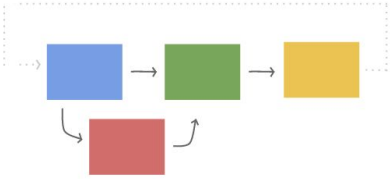
Waterfall

Each department finishes their work before the next one starts. For example, the client approves wireframes before we begin visual design, and approves visuals before we begin development. We typically employ this methodology in the discovery and design phase, where deliverables are highly depending on feedback from the previous round.



Agile

Features are created in shorter cycles of UX>design>development. For example, we research, design, and build a search feature early in the project so that we can test it as we continue work on other features. We typically employ this methodology in the development phase, or for prototyping discrete features or integrations.



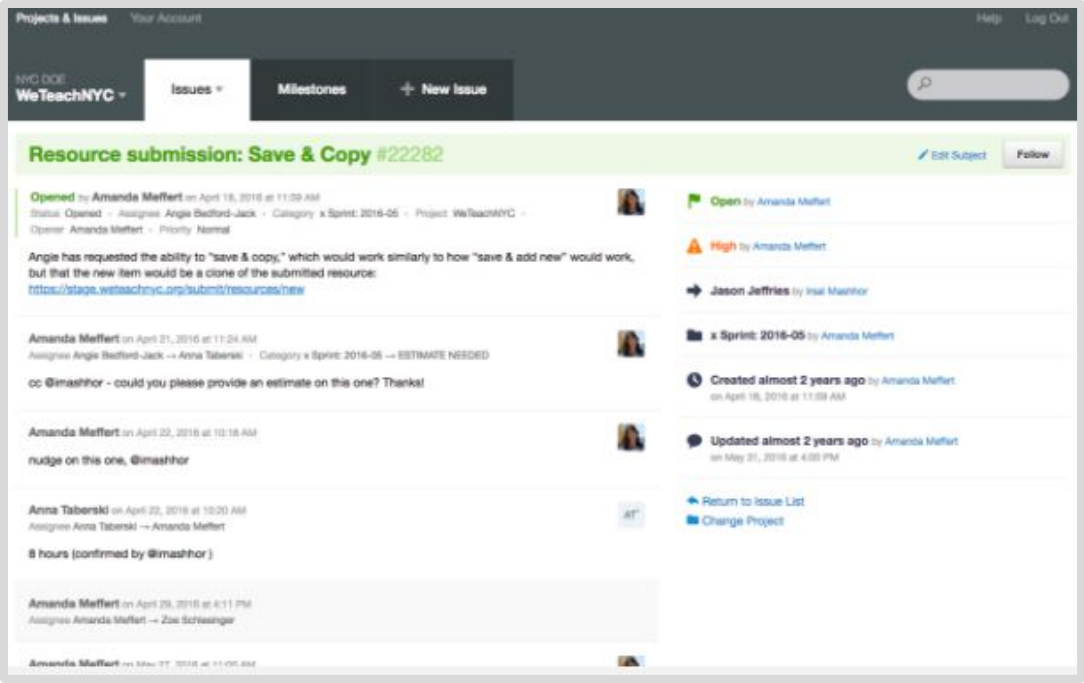
Where feasible and effective, we will introduce parallel tracks of work. For instance, by working on moodboards and user journeys in tandem, we can build on a pattern to enrich future work.

To plan projects, we use Mavenlink, a robust tool that supports setting detailed project plans, creating dependencies and critical paths, and Gantt charting. All projects are overseen by our department heads, with directors of Project Management, User Experience, Visual Design and Development participating in weekly internal reviews, along with the core team working day-to-day within a project.

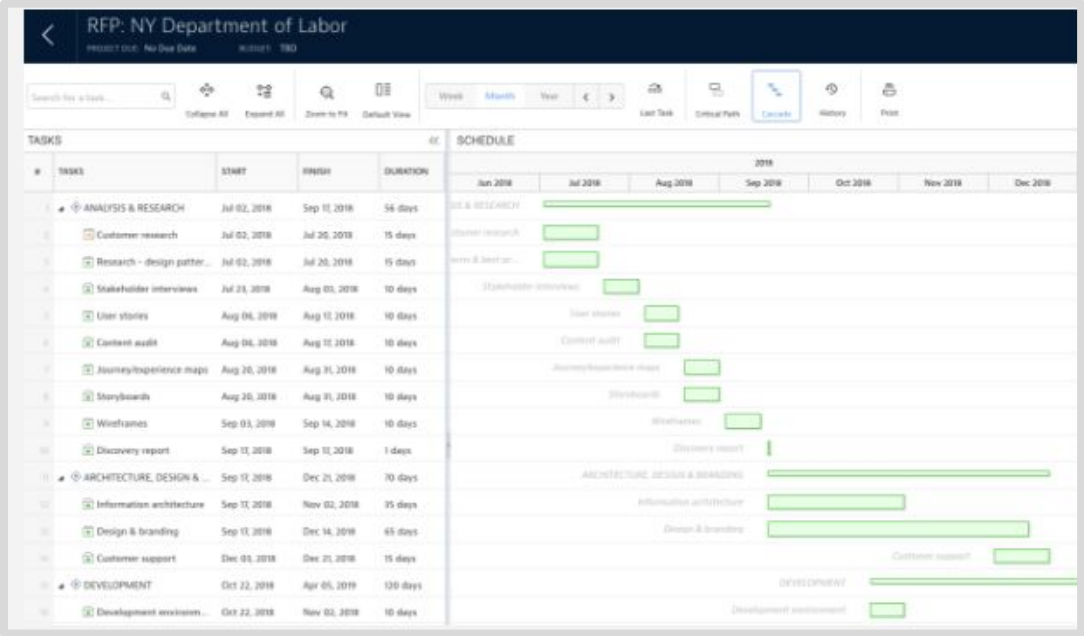
The core project team meets weekly with your stakeholders, with our project manager and your primary point of contact, communicating directly and personally to schedule meetings, track project progress and milestones, and relay critical information as needed. During key deliverable reviews of the research and design phases, this meeting might be scheduled for 90 minutes, and would include any stakeholder on your team who could provide key input.

Once deliverables are approved, this would be a 30-60 minute meeting to track progress and facilitate regular opportunities for our technical teams to connect and share progress. To facilitate communication, we use Basecamp, Sifter, Zoom.us conference lines, and tools such as Invision to streamline essential information.

We also want to understand how your team works together if the opportunity arises to schedule our deliverable reviews the morning of a regularly scheduled meeting for your team. This ensures that feedback loops remain tight, enabling your team to discuss and prepare consolidated feedback with rapid turnaround. We also welcome senior management to join meetings early and often. The more they are able to attend and participate in our process, the less chance of a change order late in the process.



Screenshot from Sifter, project QA tool



Screenshot from Mavenlink, project planning tool

Project Management

Blenderbox will assign a project manager and/or producer as primary contact for the Client account. Your project manager will circulate a detailed project plan at the start of the engagement, tracking progress and ensuring that any blockers or risks to timeline are identified.

Blenderbox prides itself on its thorough and diligent Project Management. Speak with any of our clients and you'll undoubtedly hear about how our team goes out of their way to provide top notch customer service in every phase of the project! Our Project Managers have the uncanny ability to see around corners, anticipate challenges, and overcome them with a combination of grit and strategic thinking.

Your PM will work closely with you along the way, regardless of the stage of the project. This person will coordinate meetings and train your team, but more importantly, provide continuity between project phases as an internal advocate for your goals, your requirements, and the ultimate success of your project. The project management team oversees all project tasks and deliverables, and provides you with a detailed project plan outlining key scope, milestones, feedback loops and delivery dates. Upon implementation of technical specifications, the project management team will provide a combination of written and in person training sessions to onboard your team into the system. We use a variety of management tools to provide efficient and organized communication channels. Below we've listed a few of our favorites, but our team is also open to using a platform your team is most familiar with if preferred.

B. Portal Design

UX Design

The role of our User Experience Design team in the design and build of your online portal will be centered around user testing, user journeys, content organization (including all the content areas outlined in your RFP, p 3), and ensuring that the online portal employs best practices in user-centric navigation.

We understand that the main components of the new online digital resource will focus on data visualizations, and a centralized metadata repository where this data is presented. This project is all about making complex and large amounts of data accessible, and translating complicated problems and data into bite sized, understandable infographics and charts. How users navigate their way around the portal relies on the work carried out by our UX designers, which is also important for presenting the complex data.

The online portal therefore needs to provide audiences with the resources they need in a quick, efficient, and convenient manner. Blenderbox has extensive experience in creating online experiences for informative purposes, and it is imperative that we provide optimal and superior services in the field of user experience design.

This understanding informs our whole design and build process, from the practicalities of information architecture to the aesthetics of visual design, and ensures a flawless, uninterrupted experience between device (whether mobile or desktop) and individual. We will make sure that the new website focuses on bringing the portal's data and resources to the forefront of the visitor's radar, without distraction or unnecessary search confusion.

Furthermore, since the majority of our work has been for government and nonprofit, mission-driven organizations, delivering WCAG 2.0 AA+ solutions is part of our standard

operating procedure. We have the experience and the means to test for all manner of compliance and accessibility requirements, and consistently meet or exceed required standards.

Discovery

Having undertaken many similar projects, we know that the first step of a website redesign is to meet the team and establish a common approach and division of responsibilities. We call this phase "Discovery," and it is essentially a requirements gathering exercise, which allows us to establish actionable tasks for both teams.

To do this we will undertake the following activities during Discovery:

- **Kickoff Meeting:** We will begin the project with a face-to-face immersive information gathering session to orient both our team and your team. The agenda will include making introductions, setting project goals, defining roles and responsibilities, discussion of future implementation, and identification of next steps.

- **Content Audit:** Blenderbox will perform a thorough audit of your existing content. By gaining a deep understanding of what you have, we can make smart recommendations about how best to cull, modify, and redesign your content. Most importantly, we will be looking at all of your content through the lens of the end-user. We'll also assess what content is missing that would be helpful for core audiences and help craft a plan for how you might create and maintain this moving forward.

- **Data Audit:** Separate from the content audit, we will also perform a thorough audit of the data we will be working with.

- **Stakeholder Interviews and Surveys:** Our UX team will schedule and carry out interviews with stakeholders to discuss specific portal and database goals. This will help us to understand the inside perspective and navigate complexities. We'll connect these findings in order to begin to form plans for how to effectively balance user needs with internal goals.

Information Architecture

With the research deliverables above as a guide, our user-experience team will begin to create structured wireframes (like "blueprints"). We will begin with core taxonomy, navigation, and organization, developing a proposed sitemap followed by a growing deck of wireframes, beginning with the homepage, and drilling down into each of the core sections of the site.

- **Sitemap:** One of our preliminary deliverables will be a proposed sitemap for the dashboard, infographics, and content areas, with emphasis placed on strategic content organization, informed and influenced by the user's perspective and behaviours. This map will display every page to be included in the new site, along with the interconnection and navigation which unites them.

- **Wireframes**: A deck of wireframes will be presented which will convey the overall organization of content as well as the navigation and page structure. These wireframes will be annotated with information that indicates how content is structured and how any interactions or modules may operate within a page. Some of this approach may also be "prototyped" with a tool like Invision, so that your team can actually click on the wireframes and better understand the recommended structure and interactions.

- **Content Strategy & Organization:** One of our most valuable deliverables to you will be a re-envisioned content organization which will serve all of your audiences. The content strategy we undertake together will ultimately result in an expression of new site taxonomy, navigation and structure. The goal is to avoid redundant navigation such as "Quick Links," and to instead deliver the most intuitive and "customer-focused" presentation of content. We will explore and develop pathways and content for your desired content areas, in order to provide a digital solution which presents all of your information - whether about the Career Pathways Initiative, city programs, particular aspects of the data - in a user-friendly and digestible manner.

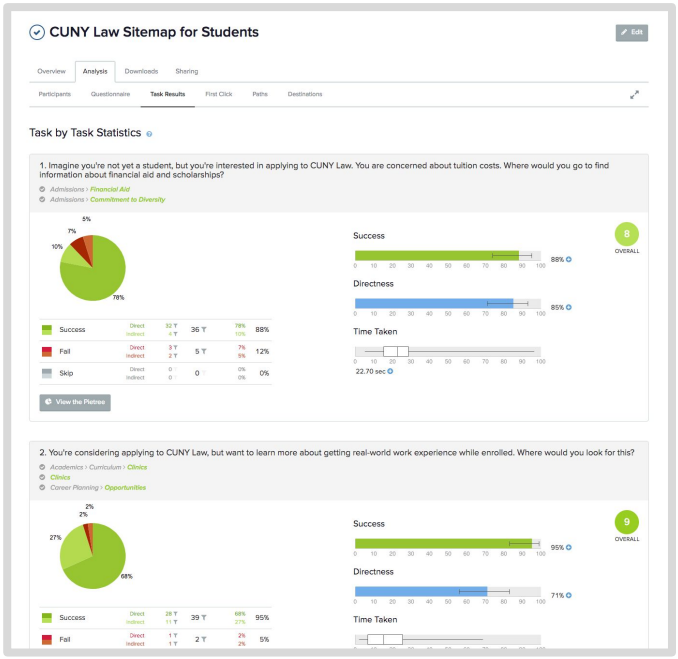
Sample Deliverables

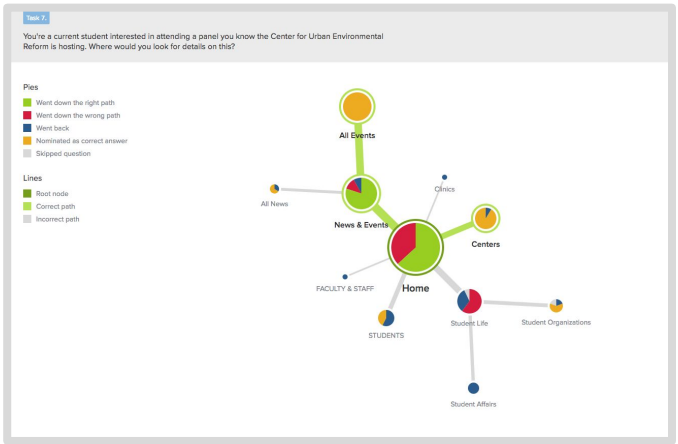
The sample deliverables on the following pages demonstrate instances where we have fulfilled the UX Design deliverables and requirements outlined in **III. Design and Technical Guidelines**, in your RFP. This includes:

- Content Areas
    - About Us
    - Initiative & Program Information
    - Ongoing project updates
- Searchable, easy to navigate databases
- Filters
- Downloadable Material
- User-Centred Design
    - Simplicity
    - Informative
    - Clear & intuitive navigation
    - Content strategy & organization
    - Making data accessible
- Usability Testing

Sample User Experience Deliverable: CUNY Sitemap Testing Results

These screenshots show whether test users were able to find what they were looking for using a tool called Treejack.



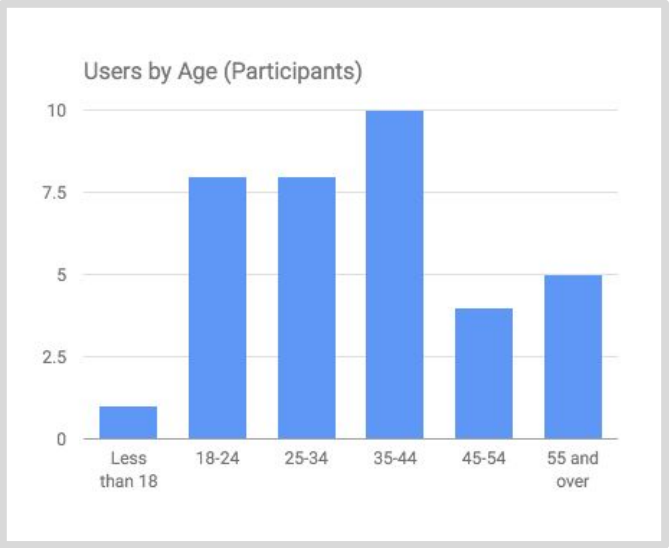


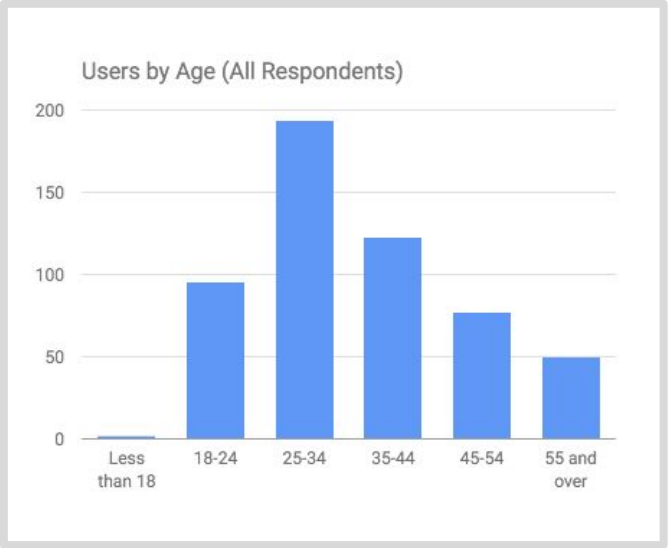
Sample User Experience Deliverable: Usability Testing Results for Massport

The following charts and infographics represent the results and recommendations of usability testing we carried out for key workflows as part of the redesign of Massport.com. The goals of this usability testing were to establish a baseline of user performance, validate user performance measures, and identify potential design concerns to be addressed in order to improve efficiency, productivity, and end-user satisfaction.

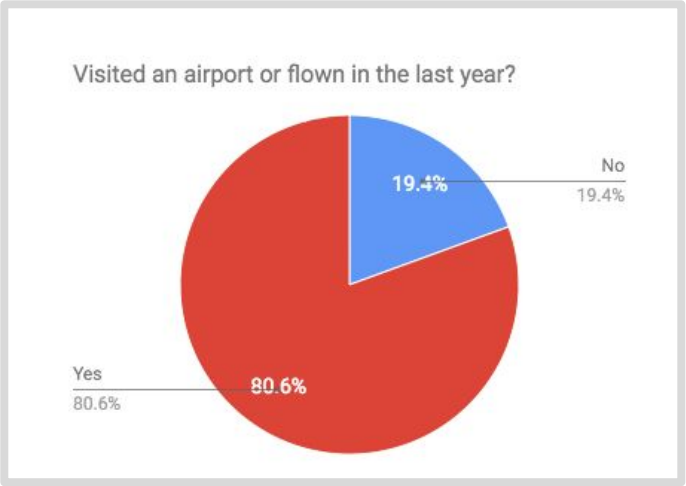
This is an example of our comprehensive UX research process, as well as our ability to not only work with and understand data, but to present our findings in a visual format which is both informative and insight-driven - and most importantly, to act on the results in order to improve our solution.

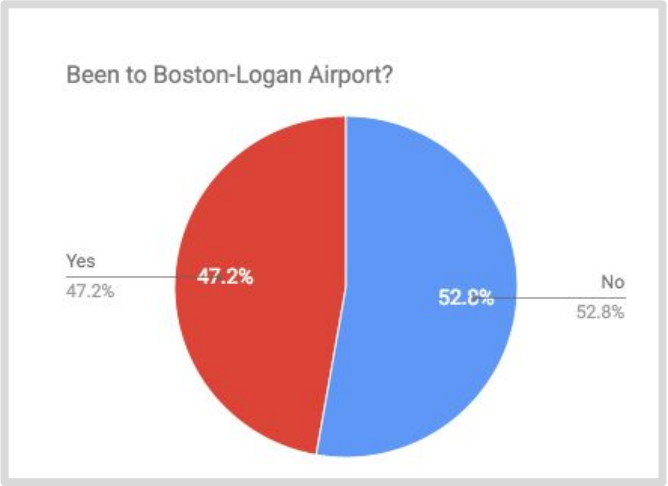
We recruited users with a screener questionnaire to ensure diversity by age, experience, and tech savvy. From 542 responses, we tested 36 participants. For the oldest and youngest age ranges, we achieved the best representation our sample set would allow. We deliberately sought higher representation from users under 18 and over 55.

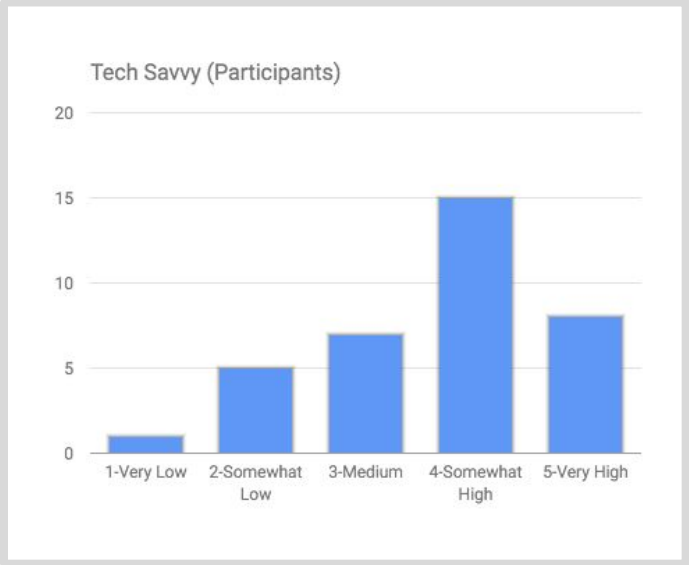


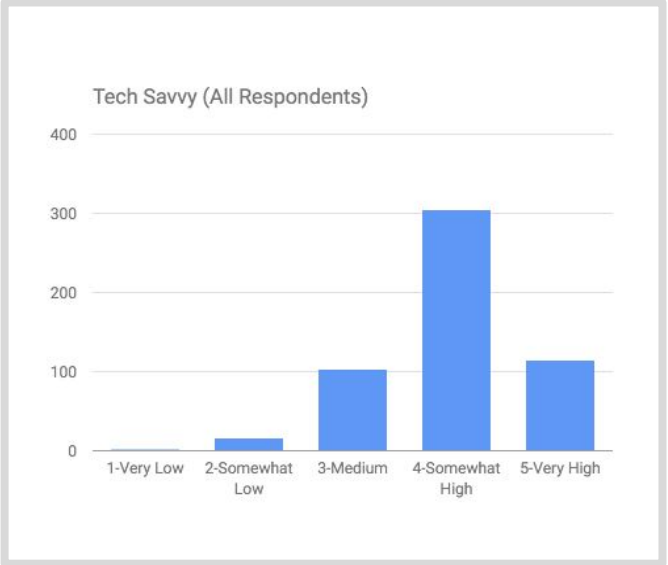


Sample User Experience Deliverable: Usability Testing Results for Massport, continued





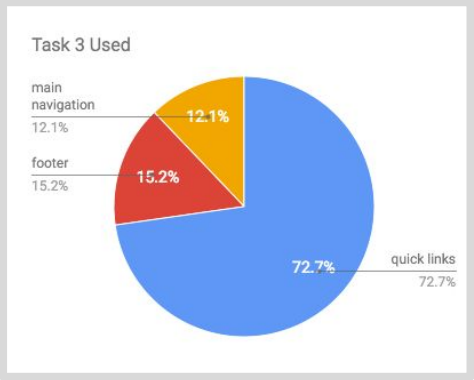


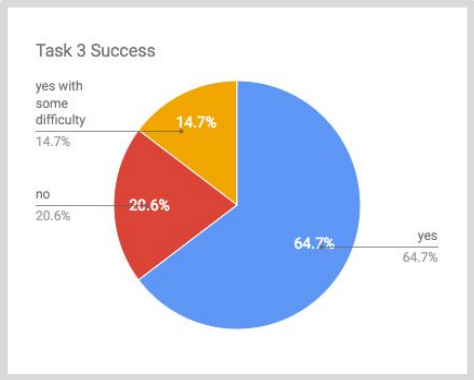


Sample User Experience Deliverable: Usability Testing Results for Massport, continued

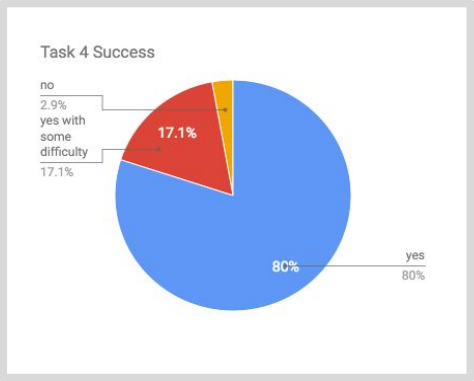
The charts below represent and measure user responses to various tasks and questions. By visually representing their responses, we could uncover a variety of navigation patterns.

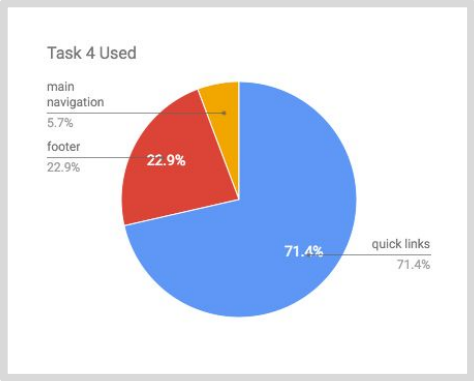
a) Finding the link to parking tickets



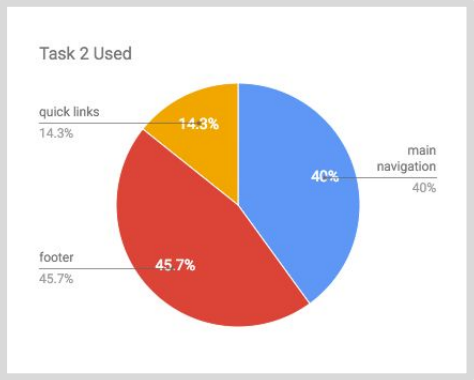


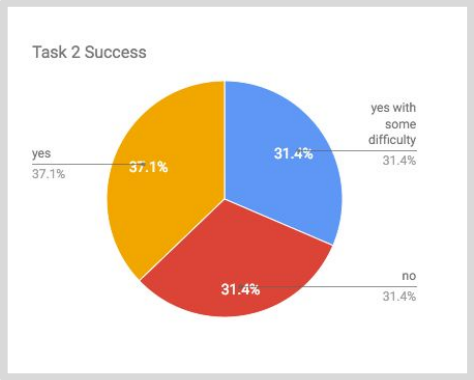
b) Finding the Dining & Shopping page





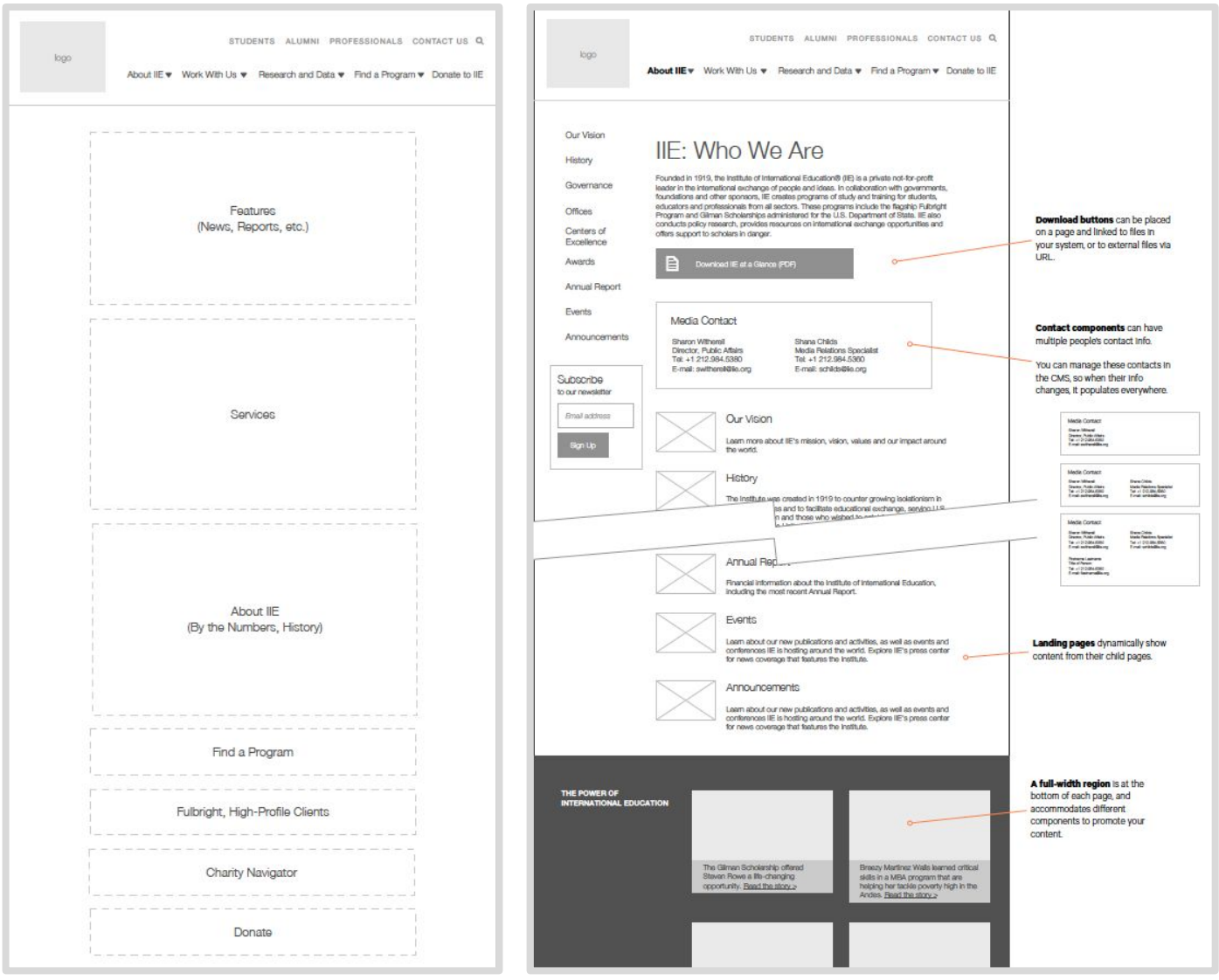
c) Finding the Delta phone number on the Airlines page





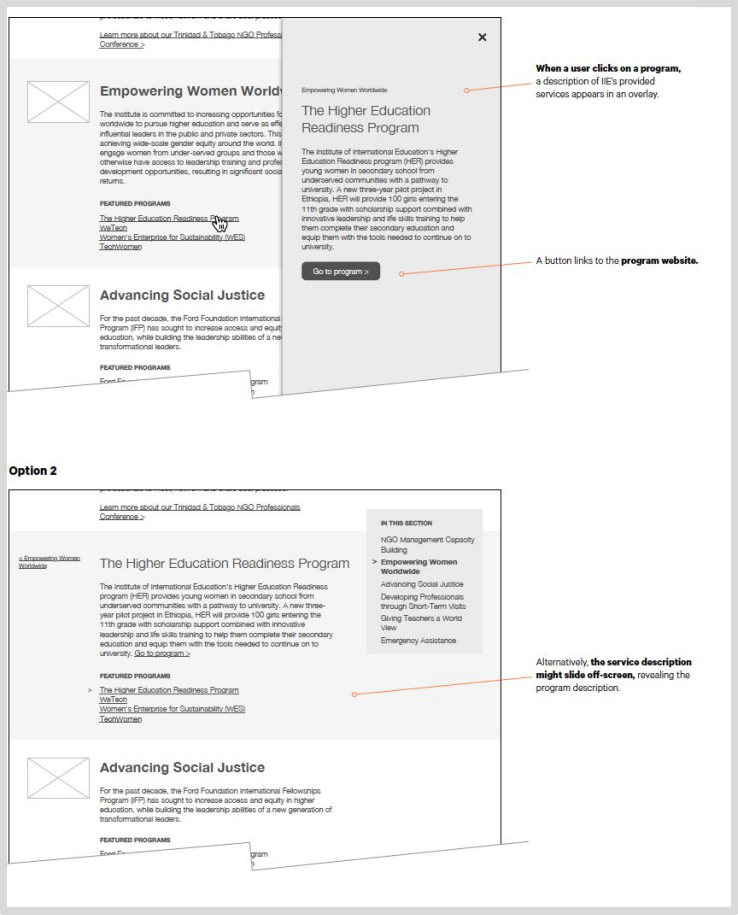
Sample UX Deliverable: Content Strategy & Organization for IIE

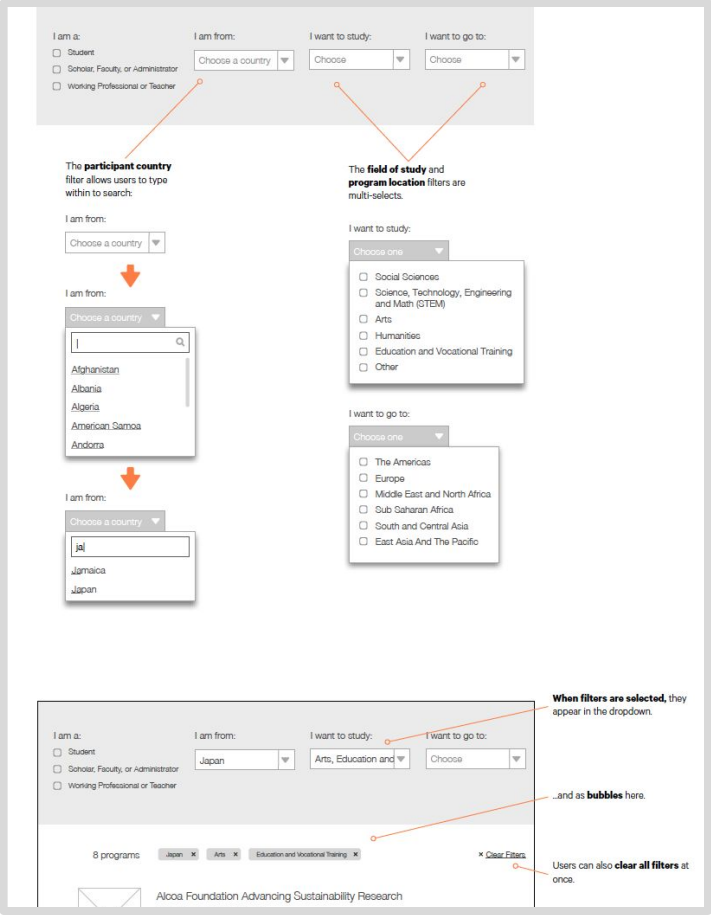
It's imperative that every organization arrange their content according to the end needs of the target audience, however varied, and a strategic content hierarchy is of central importance when creating a seamless and satisfactory user experience. We will work with you to determine the most efficient layout of content for every element of this project. The following, for example, showcase the homepage content hierarchy and the content organization of an interior page for IIE.org.



Sample User Experience Deliverable: Wireframe elements with notations for IIE

After identifying a content strategy and developing a sitemap, individual templates and their unique functionalities are produced. Below are sample wireframes which, for example, outline filtering and navigation, as well as efficient methods and categories for browsing information on IIE.org.





Sample User Experience Deliverable: Wireframe elements with notations for IIE

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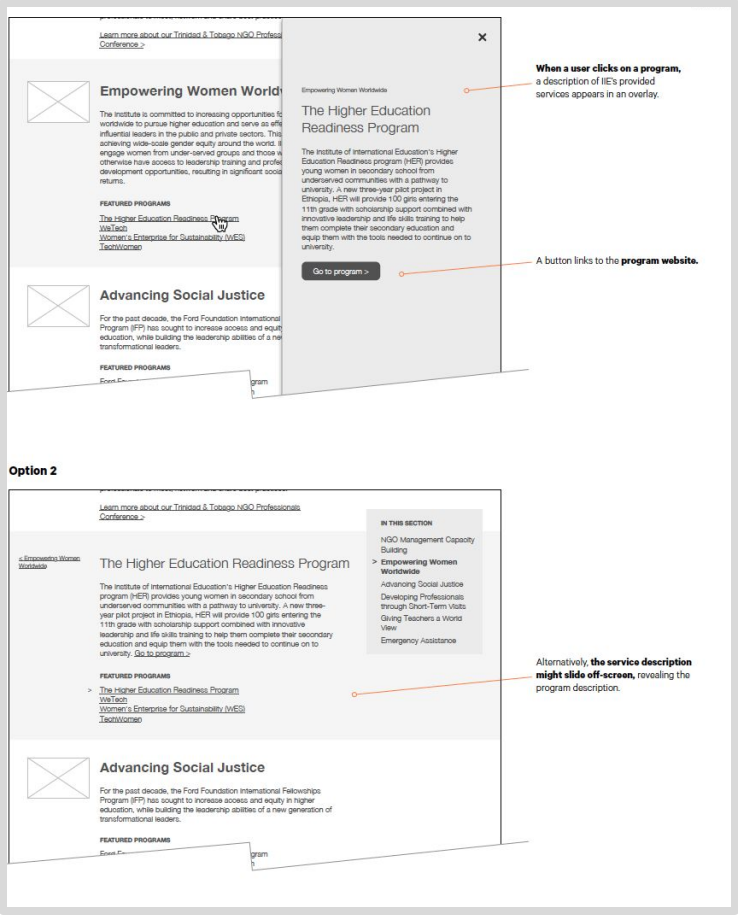
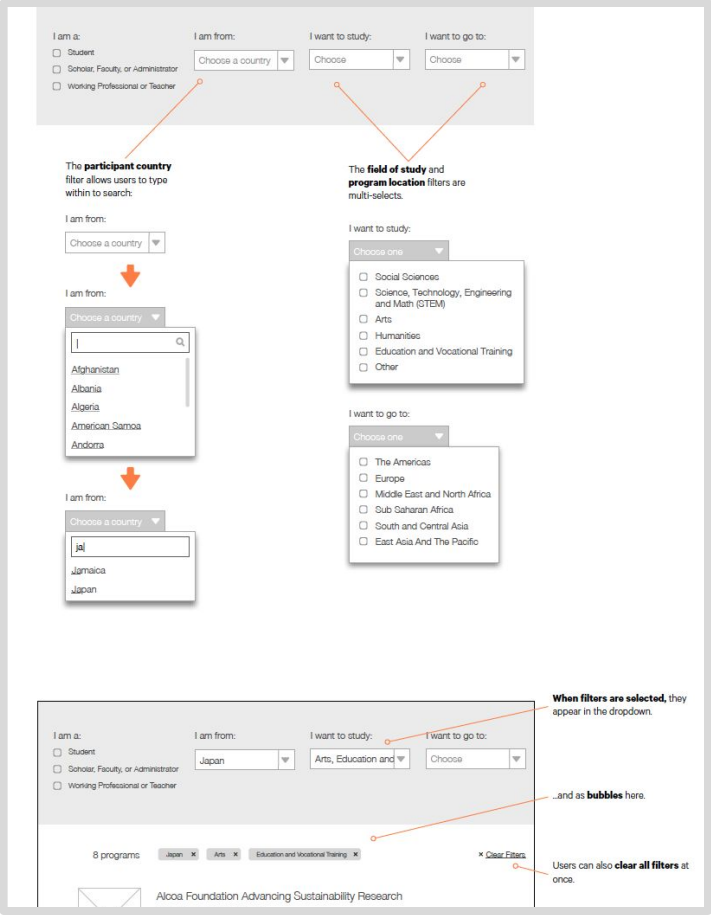
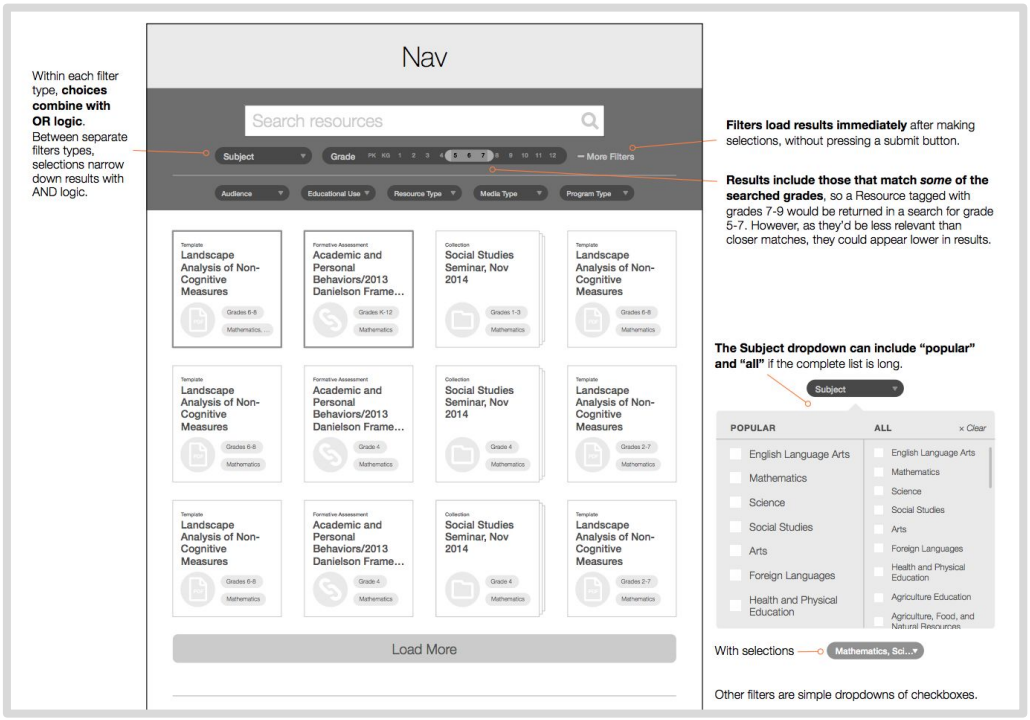
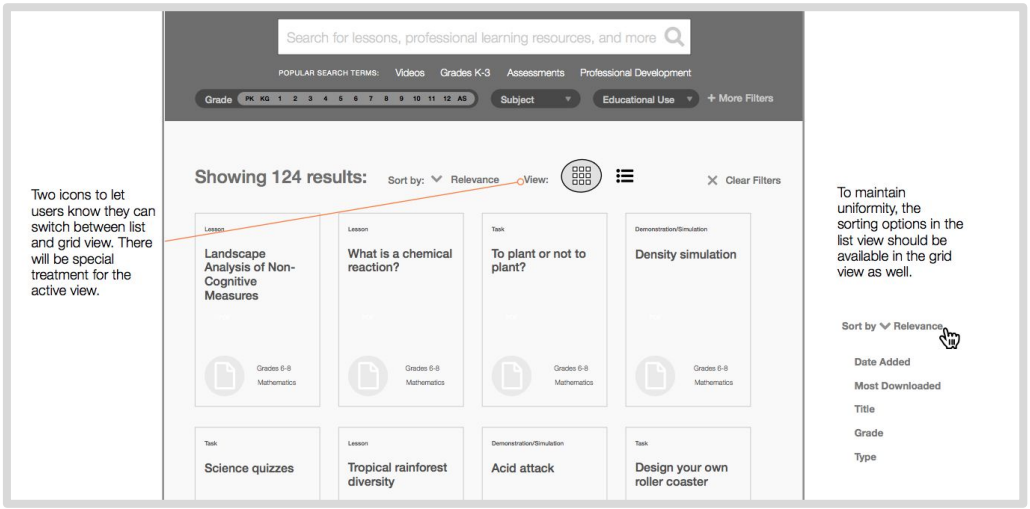




Sample UX Deliverable: WeTeachNYC Search & Filter Navigation

We know how important it is for a website or database which offers a large amount of information and data to provide the user with helpful interface elements, so that that they easily navigate the content. Effective ways of guiding the user include: Clear URL structure, site search functionality, tagging and relating content, allowing browsing and sorting by date or theme. We make sure that all of our search features, however customized to the client's product, are clearly visible and accessible on all of our websites. The following wireframes document search and filter functionality for WeTeachNYC.





Visual Design

A data portal is all about providing access to public information. While our UX team will take care of the usability of the portal, our design will address the visual engagement of your target audience with the data. Ultimately, both of our teams work together to ensure that users will enjoy interacting with the new platform.

- **Discovery:** The creative process will follow the Information Architecture phase. We will begin by presenting distinct visual concepts informed by our Discovery and UX work. The design process will then begin with a data audit, as well as a branding review of your current assets, during which we will explore the overall look & feel, design, use of imagery/iconography, and other brand characteristics of the website.

- **Dashboard Design:** The initial infographic aesthetic concepts will logically follow approval of the wireframes, bringing them to life with creative design, color, layout and typography. The concepts will be presented and revised to accurately reflect the overall mission, brand and aesthetic of the website. We will also work on the dashboard wrapper.

- **Infographics:** Our deliverables will include 5-6 unique, flexible infographic components, including
    - Bar graph
    - Dot chart
    - Pie/circle graph
    - Table
    - Interactive map

  We suggest 16 or so different graphs using those 5 designs, likely toggleable between one or two formats, and will work on mobile adaptations for each. At this stage, we will also provide templates for miscellaneous pages (covering the content areas outlined in your RFP), as well as 404/504 pages.

- **Production Design:** While template design is meant to define all UI elements for your team's approval, production design is a necessary task for preparing all files for front end development. As part of this task, we'll prepare a style guide that outlines semantic web standards (section and H1-6 styles, button styles), fonts, and mobile elements to be used throughout the site.

  The deliverable will specify all unique design elements including icons, buttons, table styles, hover states, captions, illustrations, images, body content, and forms, so that a web development team can then implement all aspects of the design using the actual content within a modern CMS.

- **Quality Assurance Testing:** QA takes place after a development team has realized the new designs. Our QA teams insist on "pixel-perfect" implementation, so we can make sure all of the styles are implemented by the developers as intended. We can also provide a ticketing system where your team will be invited to monitor and participate in the testing process, as desired.

Sample Deliverables

The sample deliverables on following pages demonstrate instances where we have fulfilled the Visual Design deliverables and requirements outlined in **III. Design and Technical Guidelines**, in your RFP. This includes:

- Visual Display of Data
    - Maps
    - Reports
    - Charts
    - Infographics
- Interactivity
- Hover Feature
- Design Style Guide

Sample Visual Design Deliverable: CODAP Data Display

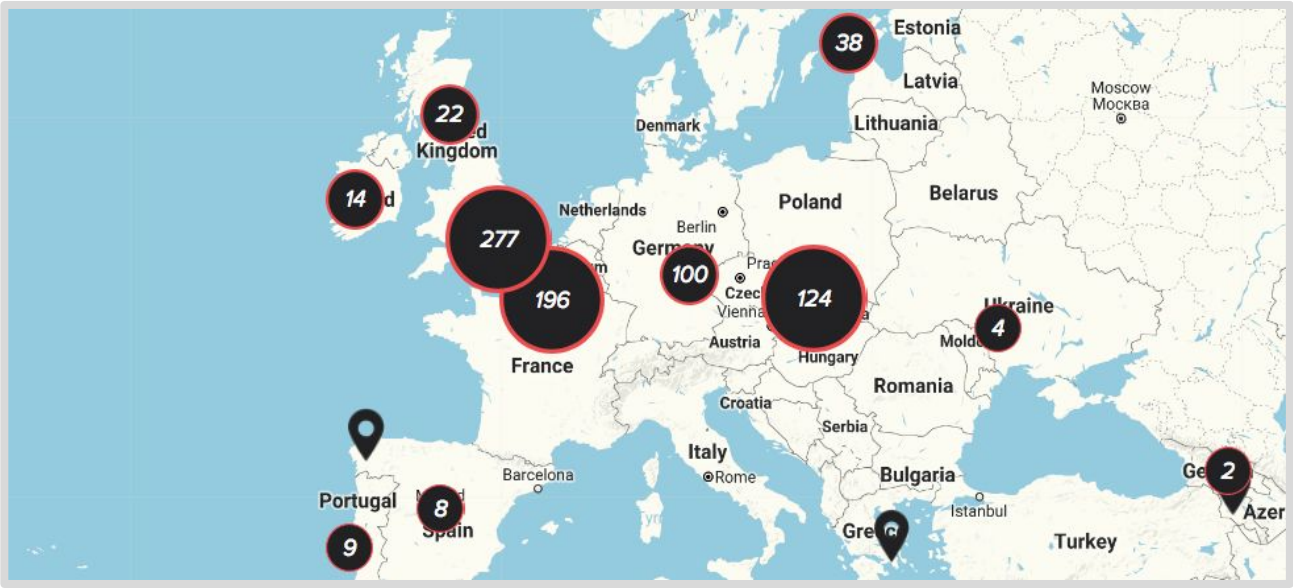
CODAP is a free web-based data tool and platform designed as a platform for developers and as an application for students in grades 6–14. The goal of the platform is to make data literacy accessible, and allows users to explore and learn from data in any content area. Blenderbox carried out both the UX and Visual designs for this project, and we are excited to perhaps produce similar work for your data portal. Utilizing D3.js, some of the features of CODAP include flexible chart systems, tracking, and highlighting of specific data.

See CODAP live at codap.concord.org

Sample Visual Design Deliverable: Mellon Foundation Interactive Mapping

Mellon's grants database is connected to an interactive map which allows users to browse and find information about their entire grantmaking history, using the map with filters for program area, amount, date and keywords.

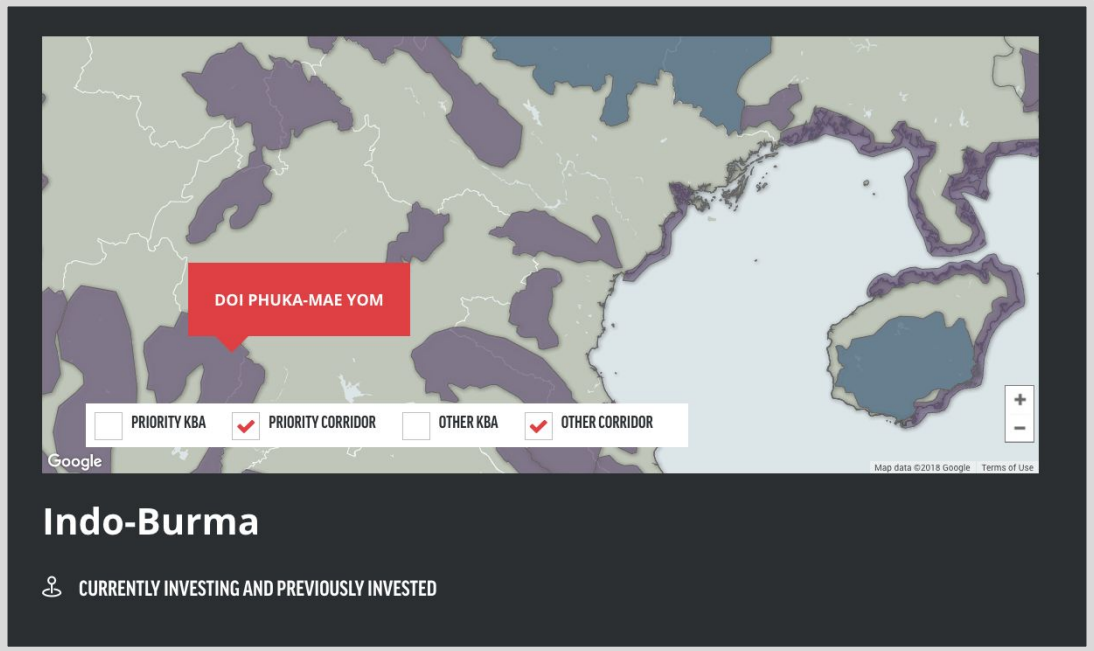
See Mellon's Grantmaking Database at mellon.org/grants/grant-database

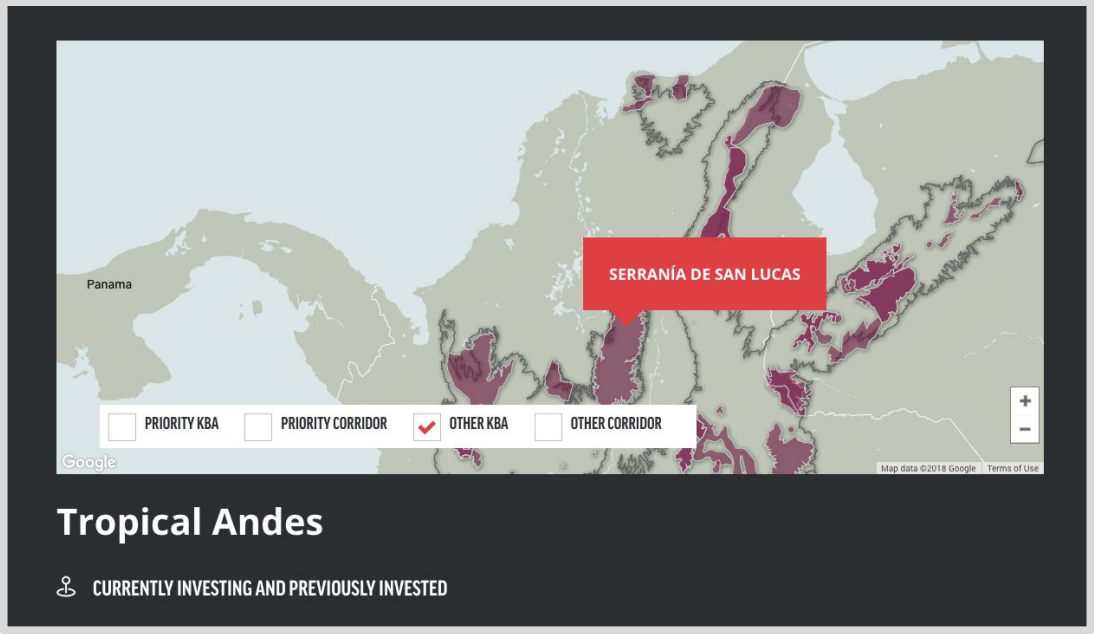


Sample Visual Design Deliverable: CEPF Interactive Mapping

Users can explore and filter over 2,000 grantee projects, while colour coded maps allow for a playful and visual learning experience. Colors change when different areas are clicked, and hovering features provide further information.

Explore CEPF biodiversity hotspots at cepf.net/our-work/biodiversity-hotspots

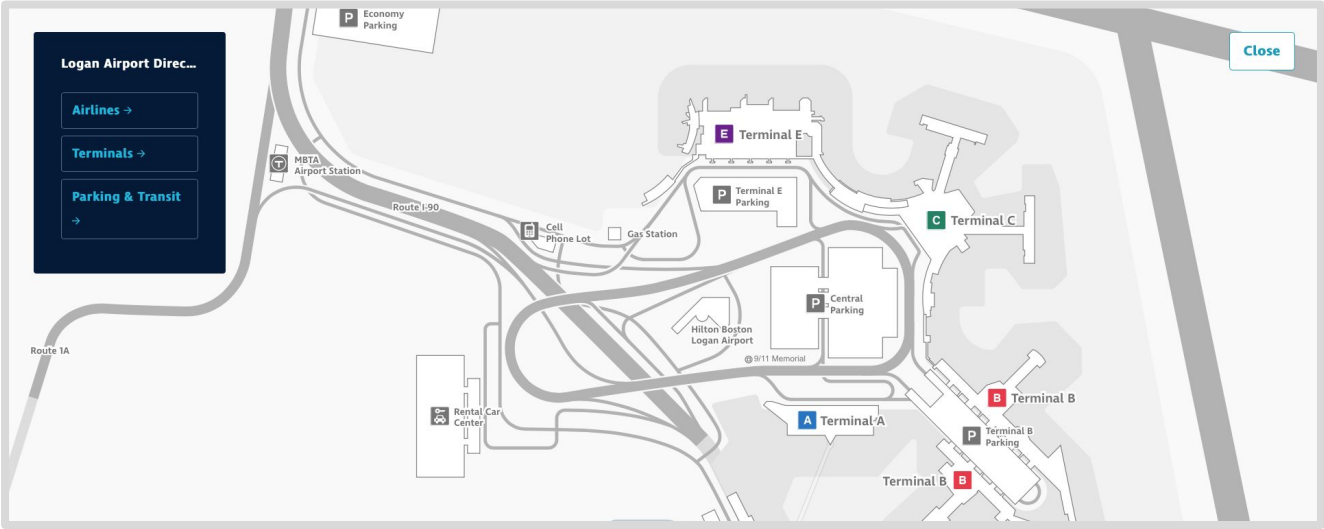


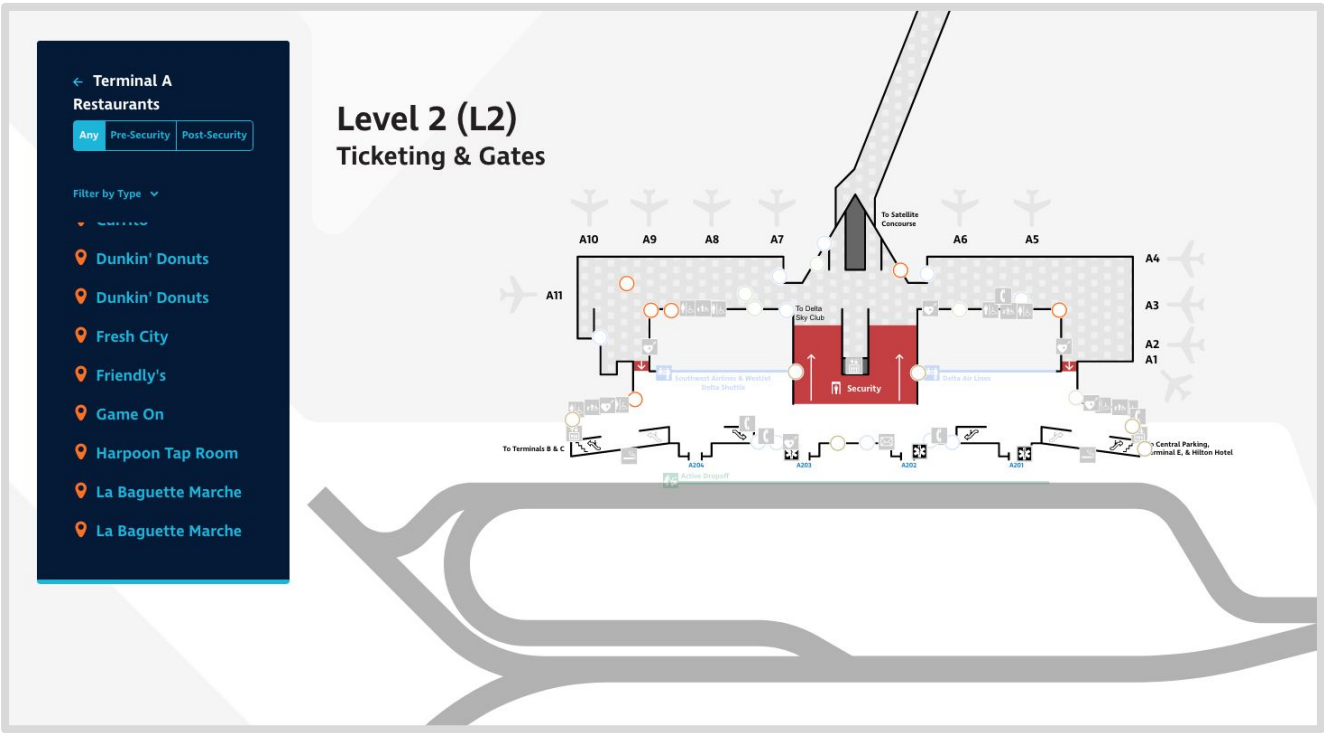


Sample Visual Design Deliverable: Massport Interactive Mapping

Hover features and color coding provide an animated and interactive experience to using Logan's Airport Directory. Highlighted areas are accompanied by segments of information which further clarify user requests and inquiries.

See live Logan Airport maps at maps.massport.com

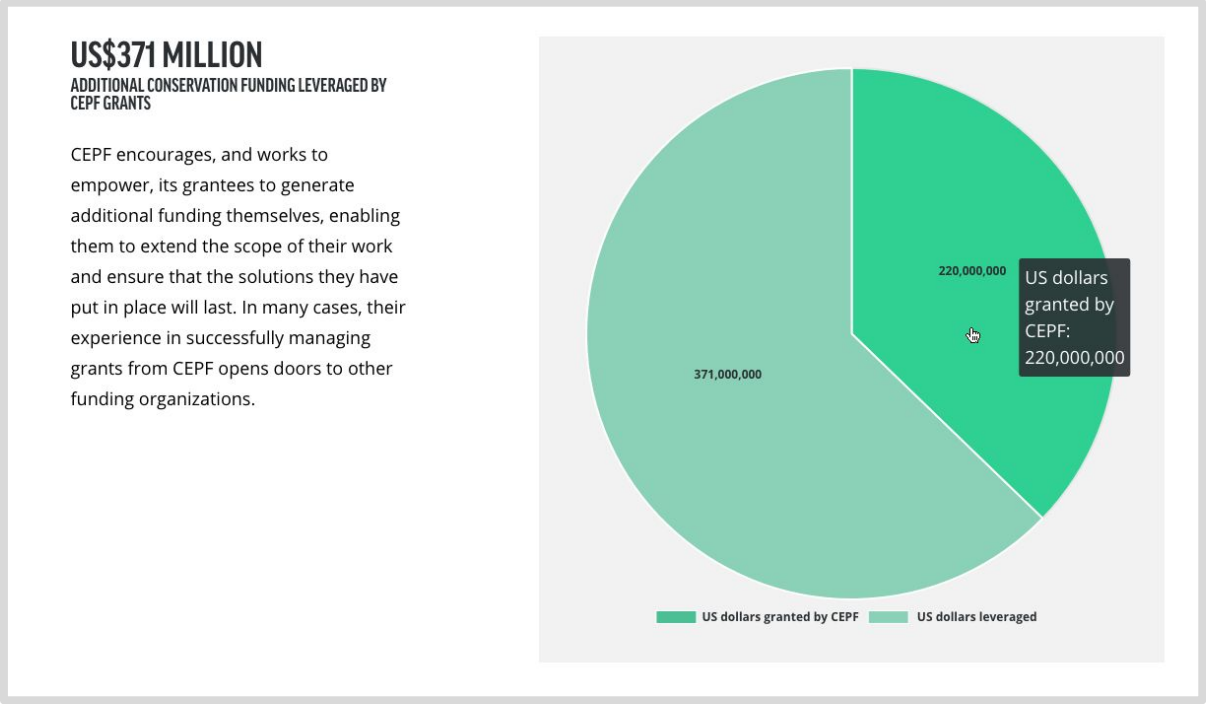


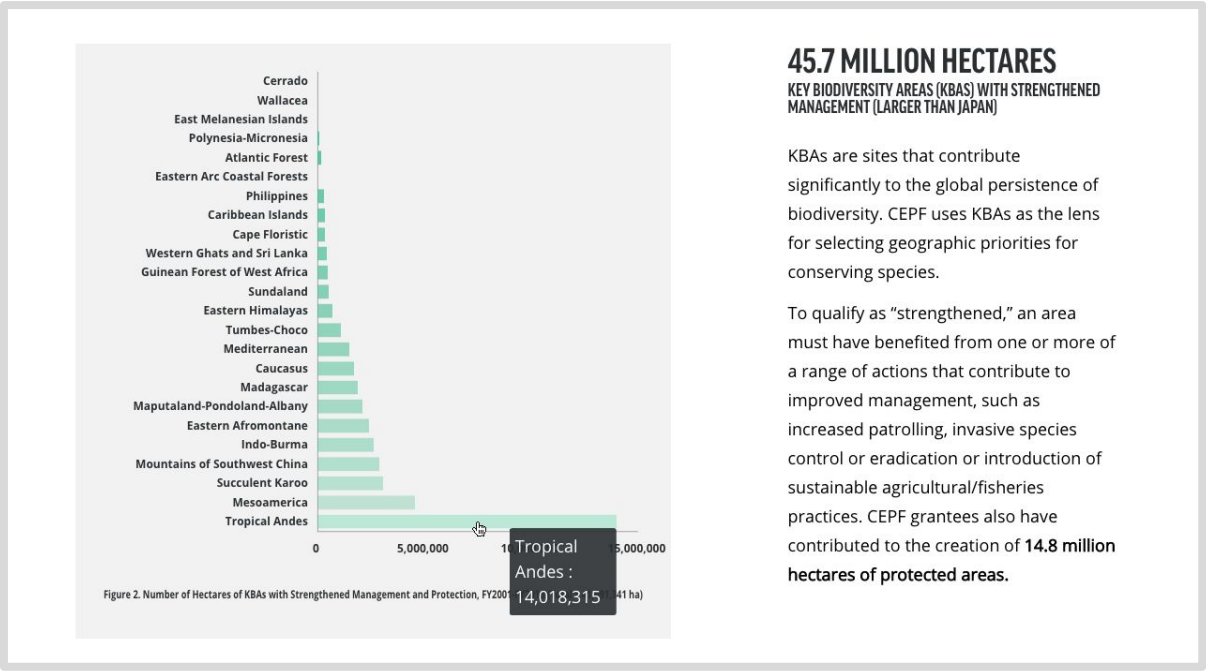


Sample Visual Design Deliverable: CEPF Impact Report Infographics

Utilizing Chart.js, we provided a flexible and interactive tool, skinned to align with CEPF's styleguide, that highlights their grantmaking impact and supports site content.

See interactive infographics live at cepf.net/impact

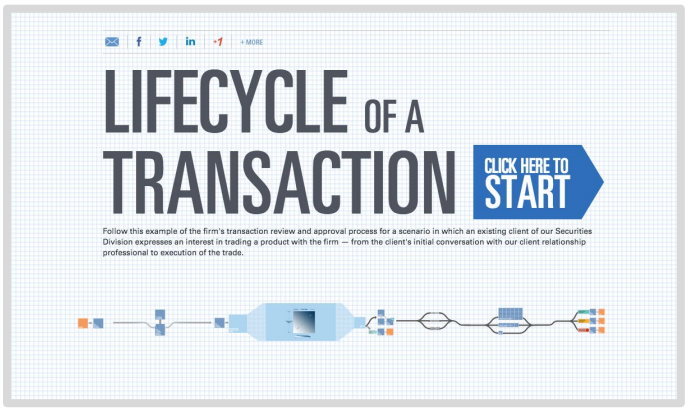


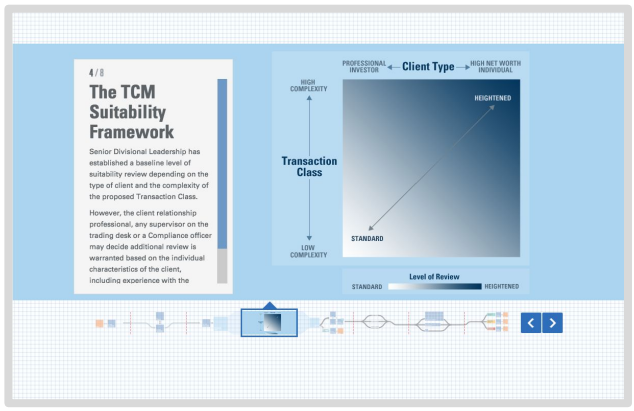


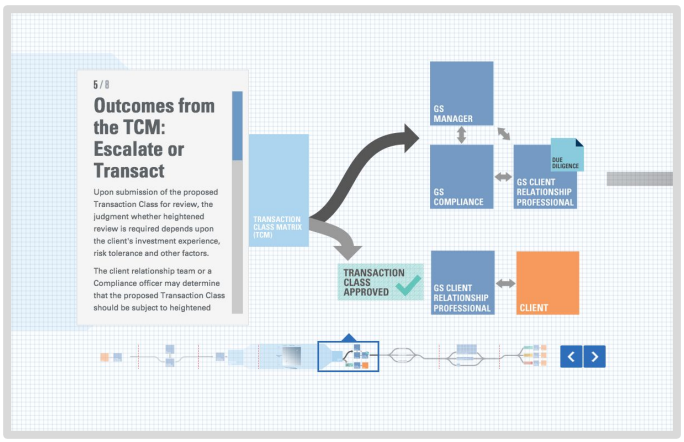
Sample Visual Design Deliverable: Goldman Sachs's Data Visualizations

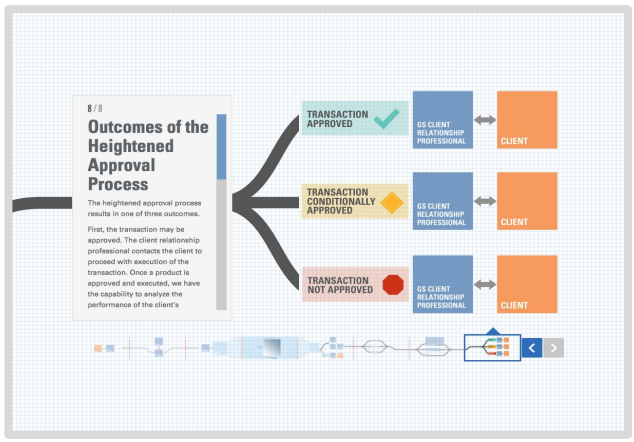
After all, the aim of your portal's data visualizations is to present information in a manner which is easy for the viewer to understand and parse. For Goldman Sachs, we translated a lengthy report on the impact of their business standards committee and created a one-page mini-site that addresses the highlights of the report, with a detailed and interactive timeline of infographics. This provides transparency into the mechanisms for oversight and approvals for any transaction moving forward.

See Lifecycle of a Transaction live at goldmansachs.com/s/bsc-2013







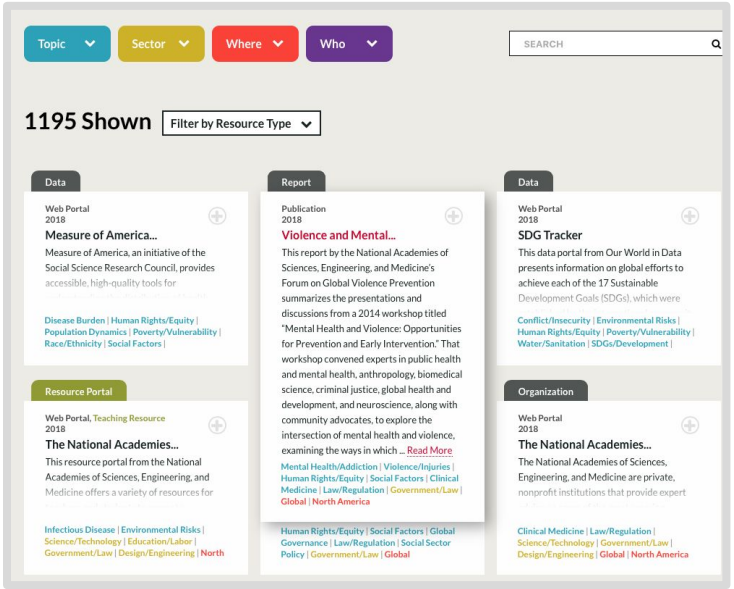


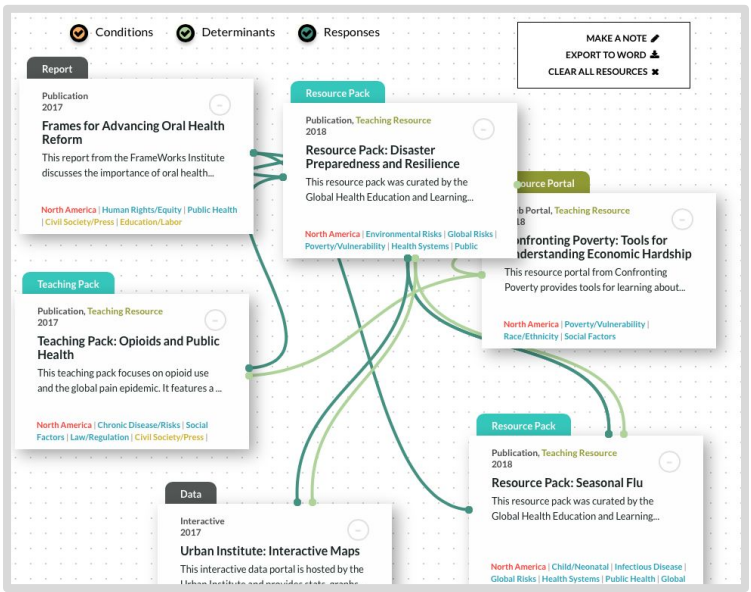
Sample Visual Design Deliverable: Harvard's GHELI Interactivity

The Global Health Education and Learning Incubator at Harvard University supports innovative learning, teaching, and dialogue about cutting-edge, multidisciplinary global challenges. The new platform provides the public with a collection of educational resources surrounding Global Health, and an interactive tool that illustrates the intersection between them through conditions and themes.

- Hover over icons which change color, and text which expands to provide information.
- Interactive features allow you to click and add reports and data to the Sketchpad.
- The Sketchpad is fully responsive, interactive and engaging, allowing you to drag and link corresponding data using color coordination and visuals.
- Filter by Resource Type, Topic, Geographic Location, and Sector.

See the GHELI sketchpad live at repository.gheli.harvard.edu





Sample Visual Design Deliverable: Opportunity Equation

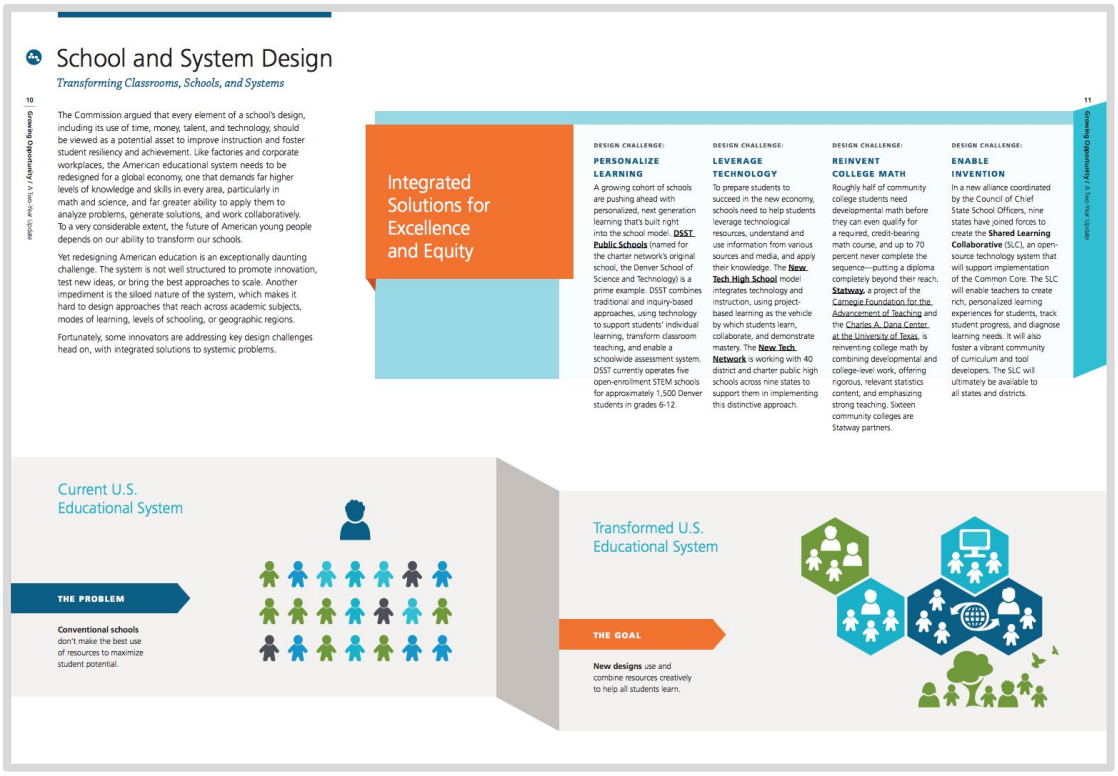
Opportunity Equation is a non-profit organization funded by the Carnegie Corporation and the Institute for Advanced Study that seeks to promote equity and excellence in mathematics and science education. The initiative was in direct response to the troubling findings of a report by the same name that shows that the United States is falling behind in mathematics and science on every level, and that there is an urgent need to transform the education system to address this failing.

We provided both the UX and visual designs for their website redesign project and the Opportunity Equation report, which helps to represent complicated problems and policies in bite size understandable infographics and charts, intended for policymakers

Their subject matter is challenging and the client was impressed that we didn't just hand them simple wireframes with our recommended approach - our wireframes truly indicated the extent of our listening and our understanding of the project's mission itself, which contributed to the success of the project.

Explore more at carnegie.org/interactives/opportunity-equation

Sample Visual Design Deliverable: Opportunity Equation, continued



School and System Design

Transforming Classrooms, Schools, and Systems

The Commission argued that every element of a school's design, including its use of time, money, talent, and technology, should be viewed as a potential asset to improve instruction and foster student resiliency and achievement. Like factories and corporate workplaces, the American educational system needs to be redesigned for a global economy, one that demands far higher levels of knowledge and skills in every area, particularly in math and science, and far greater ability to apply them to analyze problems, generate solutions, and work collaboratively. To a very considerable extent, the future of American young people depends on our ability to transform our schools.

Yet redesigning American education is an exceptionally daunting challenge. The system is not well structured to promote innovation, test new ideas, or bring the best approaches to scale. Another impediment is the siloed nature of the system, which makes it hard to design approaches that reach across academic subjects, modes of learning, levels of schooling, or geographic regions.

Fortunately, some innovators are addressing key design challenges head on, with integrated solutions to systemic problems.

Integrated Solutions for Excellence and Equity

DESIGN CHALLENGE: **PERSONALIZE LEARNING**

A growing cohort of schools are pushing ahead with personalized, next generation learning that's built right into the school model. **DSST Public Schools** (named for the charter network's original school, the Denver School of Science and Technology) is a prime example. DSST combines traditional and inquiry-based approaches, using technology to support students' individual learning, transform classroom teaching, and enable a schoolwide assessment system. DSST currently operates five open-enrollment STEM schools for approximately 1,500 Denver students in grades 6-12.

DESIGN CHALLENGE: **LEVERAGE TECHNOLOGY**

To prepare students to succeed in the new economy, schools need to help students leverage technological resources, understand and use information from various sources and media, and apply their knowledge. The **New Tech High School** model integrates technology and instruction, using project-based learning as the vehicle by which students learn, collaborate, and demonstrate mastery. The **New Tech Network** is working with 40 district and charter public high schools across nine states to support them in implementing this distinctive approach.

DESIGN CHALLENGE: **REINVENT COLLEGE MATH**

Roughly half of community college students need developmental math before they can even qualify for a required, credit-bearing math course, and up to 70 percent never complete the sequence—putting a diploma completely beyond their reach. **Statway**, a project of the Carnegie Foundation for the Advancement of Teaching and the Charles A. Dana Center at the University of Texas, is reinventing college math by combining developmental and college-level work, offering rigorous, relevant statistics content, and emphasizing strong teaching. Sixteen community colleges are Statway partners.

DESIGN CHALLENGE: **ENABLE INVENTION**

In a new alliance coordinated by the Council of Chief State School Officers, nine states have joined forces to create the **Shared Learning Collaborative** (SLC), an open-source technology system that will support implementation of the Common Core. The SLC will enable teachers to create rich, personalized learning experiences for students, track student progress, and diagnose learning needs. It will also foster a vibrant community of curriculum and tool developers. The SLC will ultimately be available to all states and districts.

Current U.S. Educational System

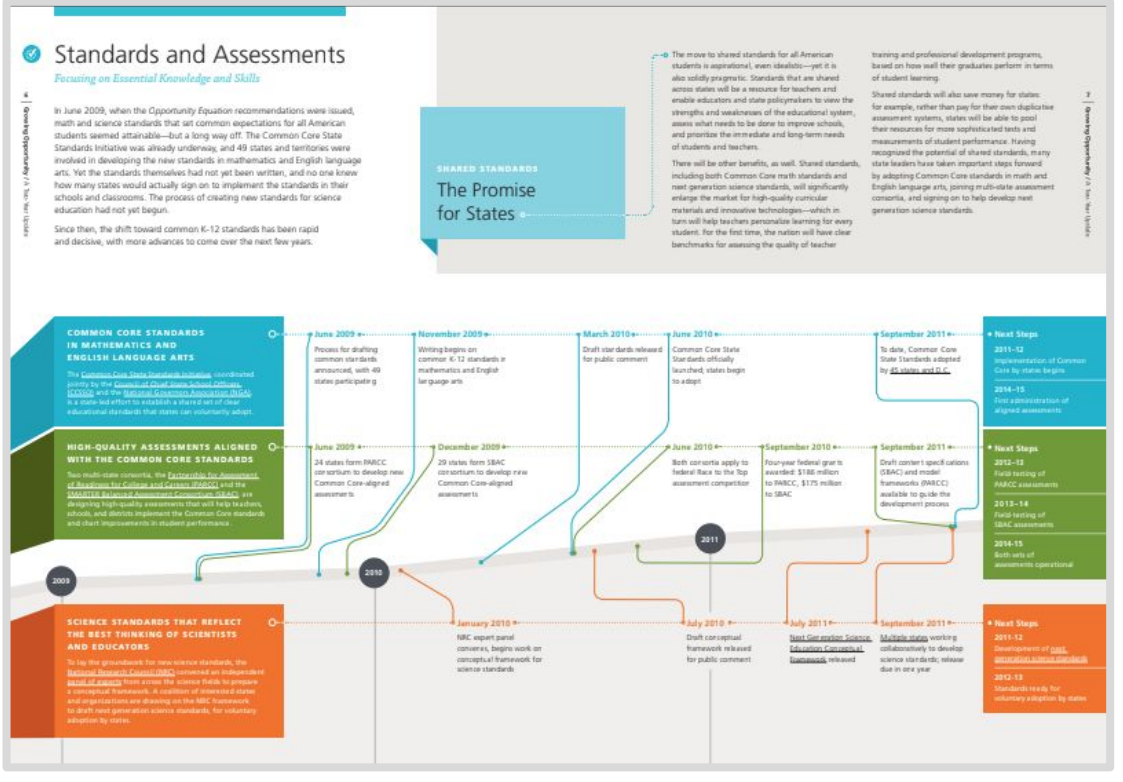
THE PROBLEM

Conventional schools don't make the best use of resources to maximize student potential.

Transformed U.S. Educational System

THE GOAL

New designs use and combine resources creatively to help all students learn.



Standards and Assessments

Focusing on Essential Knowledge and Skills

In June 2009, when the *Opportunity Equation* recommendations were issued, math and science standards that set common expectations for all American students seemed attainable—but a long way off. The Common Core State Standards Initiative was already underway, and 49 states and territories were involved in developing the new standards in mathematics and English language arts. Yet the standards themselves had not yet been written, and no one knew how many states would actually sign on to implement the standards in their schools and classrooms. The process of creating new standards for science education had not yet begun.

Since then, the shift toward common K-12 standards has been rapid and decisive, with more advances to come over the next few years.

SHARED STANDARDS

The Promise for States

The move to shared standards for all American students is aspirational, even idealistic—yet it is also solidly pragmatic. Standards that are shared across states will be a resource for teachers and enable educators and state policymakers to view the strengths and weaknesses of the educational system, assess what needs to be done to improve schools, and prioritize the immediate and long-term needs of students and teachers.

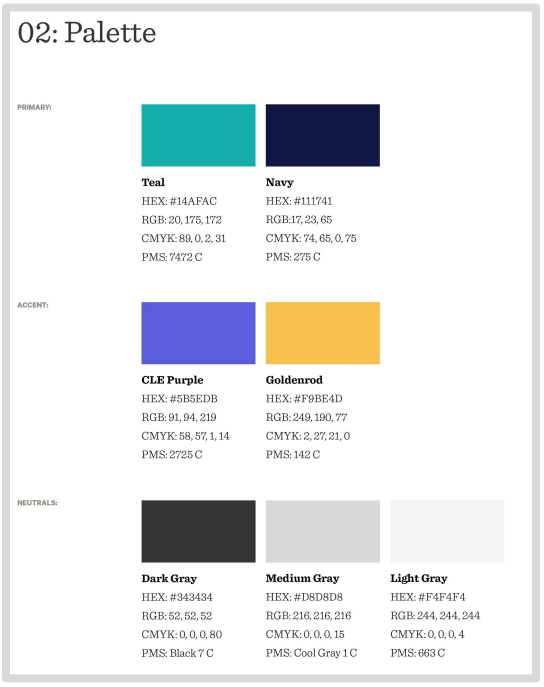
There will be other benefits, as well. Shared standards, including both Common Core math standards and next generation science standards, will significantly enlarge the market for high-quality curricular materials and innovative technologies—which in turn will help teachers personalize learning for every student. For the first time, the nation will have clear benchmarks for assessing the quality of teacher training and professional development programs, based on how well their graduates perform in terms of student learning.

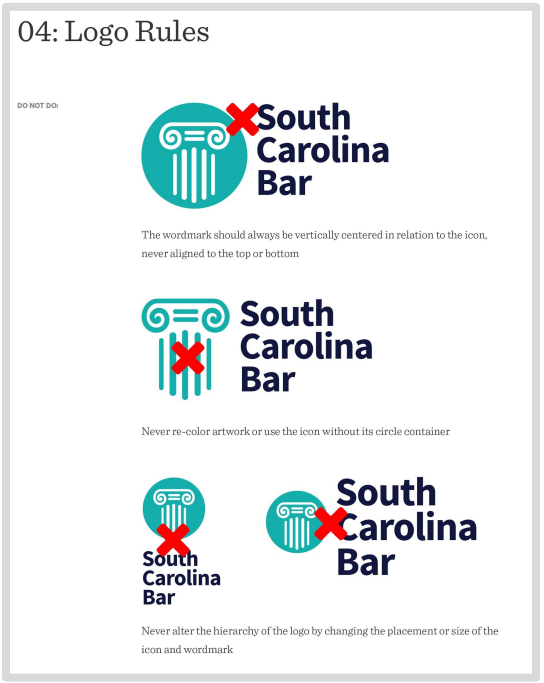
Shared standards will also save money for states: for example, rather than pay for their own duplicative assessment systems, states will be able to pool their resources for more sophisticated tests and measurements of student performance. Having recognized the potential of shared standards, many state leaders have taken important steps forward by adopting Common Core standards in math and English language arts, joining multi-state assessment consortia, and signing on to help develop next generation science standards.

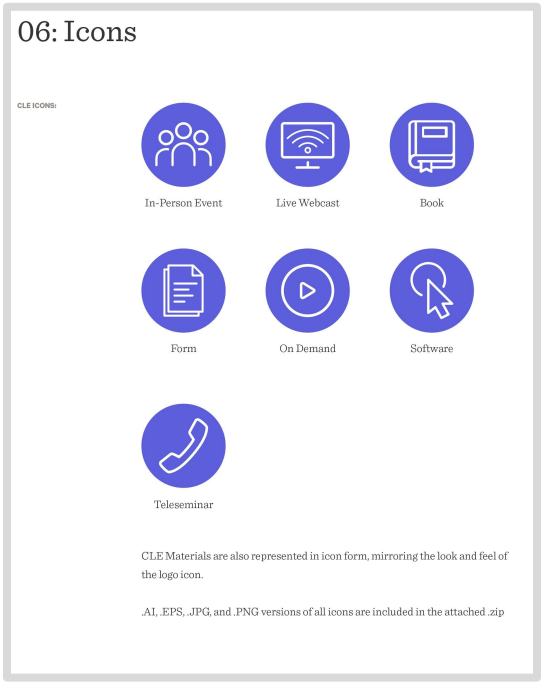
Sample Visual Design Deliverable: South Carolina Bar Identity Design

The following are pages from South Carolina Bar's brand guidelines

See the brand guidelines applied on the bar website at SCBar.org







C. Portal Build

Development Workflow

We have found the greatest success when working in an agile design/development workflow. Agile can mean many things to different people, but we focus on a few key ingredients:

- Work is broken into short, contained 'sprints', usually two weeks in length.
- A 'product owner' (client team member) who is responsible for defining and prioritizing the requirements for each sprint.
- A 'sprint planning' meeting at the beginning of each sprint where we discuss requirements (aka: user stories) and prioritization as well as estimate and assign tasks for the sprint.
- Regular, short 'stand-ups' throughout the sprint to communicate our progress and quickly identify any potential issues that may have arisen.
- A 'sprint review' meeting at the end of each sprint to show the completed 'user stories' in action. Only when we can actually see the solution working do we consider it complete. Once this is confirmed, we can then track our progress against the overall development effort.
- As we move through a site's design and development, this process allows us to complete the highest priority tasks (as defined by the product owner) before moving on to the next user story. This has many substantial benefits but also protects against the risk of getting to a point in the design/development process where everything is 75% done with nothing polished to completion. The overarching goal is that, should the client choose, we should be able to launch the functionality with any user story at its completion.
- Through this iterative process, we will inevitably learn a great deal in each given sprint which will influence and inform both UX and implementation decisions in subsequent

sprints. In a more 'waterfall' type of process, where the requirements are defined and locked up-front, we would forfeit the benefit of these iterative learnings.

General Approach

Our Team

All of our development is done by a team of expert developers who will be involved in the project from kickoff to launch. Our developers are versant in multiple technologies, and will code using the right technology for your needs. We use an interdisciplinary approach where our development team reviews UX and Design deliverables to ensure technical feasibility and optimal performance.

Interdisciplinary Approach

The development process will begin with a technical discovery, when any custom integrations or complex functionality are architected and prototyped at the outset of the project while the UX and Design phases are underway.

Technical and Functional Requirements

Once the UX phase is complete, the development team will prepare a list of technical and functional requirements based upon the interactions and page templates previously indicated in the UX wireframes. They will then prototype each of the page templates and modules that appear on the site and configure them so that they are manageable from with the CMS. The number and behavior of the modules are flexible and will be defined during strategy and planning.

Technical Expectations

Website Location: Integrating the portal and design into the website

We understand that the data will change over time, but that it is only updated monthly and is also culled as a series of aggregate tables from multiple sources using Oracle.

The design of our solution will therefore not rely on a live-link to the source or "system of record", rather we will design a "syncing" solution that can intake the data to a datastore which is dedicated to the portal. The exact process for this is detailed below in the functionality section of Section D: Back-End Database Development, p79.

From a high-level, we envision separating the Workforce solution into the public-facing front-end website, the content of which is all managed via CMS. The more business intelligence-focused Online Data portal which specifically implements and delivers the data visualization components will be divorced from context and content. This is analogous to what you can do with a tool such as Tableau embedding in a separate website via a CMS; however, for our purposes, unless we decide otherwise during discovery, we are envisioning building the data portal using open-source technologies where you will use admin tools to administer and configure all of the various charts and graphs, and link them to certain sets of data and tables and available.

By implementing the Data Portal slightly separately from the CMS, we'll be able to offer a great deal of flexibility in configuring where and how various charts (or sets of charts) are placed in context within content administered via the CMS. What's more, the data visualizations would subsequently lend themselves to being embedded in other places (blogs, other websites etc), should you wish to allow that. The underlying data and visualizations could even be offered open-source via an API.

More details are outlined below and throughout the remainder of our proposal, however the overall solution will be comprised of a data-portal that syncs with your Oracle DB and then feeds data visualizations into the Workforce Portal, managed via an open source CMS. The whole solution will be hosted on Amazon AWS infrastructure using a Python stack on Ubuntu.

Programming Language

Our recommended solution is a combination of Python, PostgreSQL, Django, and front-end frameworks and technologies, Javascript, React, Redux, Chart.js, D3.js, HTML5, and CSS3. These are industry standard web technologies which are currently used for some of the

web's most popular solutions, and should be easily supported by any capable web development team.

We will be providing your team with diligent and detailed documentation (this is incorporated directly into our development process via good programming methods, such as using docstrings directly in the code). Our New York City–based team is also accustomed to knowledge transfer and has even hosted internal development teams onsite as part of on-boarding and training. We anticipate working directly with the NYC Opportunity team to ensure a smooth handoff and transition and will make sure that your team will be well able to support and continuously maintain the solution we build.

Content Management System

While it would be possible for us to set up the CMS portion of this website with WordPress if your team desired, our preference and recommendation would be to use the same open source stack as the data portal which will be built with Django and Python.

For this solution we will configure Django CMS, which is a full-featured and highly configurable CMS that includes everything you need for content management capabilities. It is much more secure than WordPress or Drupal, and since it is highly configurable, it is very easy to customize specifically for your business context (as opposed to working with "posts" or "nodes" and then customized plugins and a theme).

Django is an open source web application framework, as opposed to a programming language, which means that there are conventions on setting up projects, which allow developers to work on the project without spending significant time getting familiar with the code base. It focuses on automating as much as possible and adhering to the Don't Repeat Yourself (DRY) principle.

Django features a readable syntax, dynamic typing, has high-level object orientation, introspection, easy interoperability, and supports cross-platform development. Additionally, there are thousands of open-source libraries available for use and testing is baked into the standard library. Also, it has an object relational mapper (ORM), built-in user authentication

sessions, syndications (RSS), a robust templating system, automatic admin interface, elegant URL design, a caching system, internationalization, mature documentation, and a stable release process.

If you're not familiar with Django CMS, we'd be happy to demonstrate Django CMS solutions we've built for other City Agencies as part of the procurement process.

Adherence to City Security Standards

Blenderbox has worked on numerous city government projects and we are quite familiar with its standards. Multiple solutions we have developed have undergone and passed the city's AppSec security scan process (appsec.cityofnewyork.us). We incorporate many of the requirements of this process, from good security practices in general to addressing specific vulnerabilities and threats related to SQL injection or Cross Origin Resource Sharing, into our websites as part of our our standard operating procedure, so it has become increasingly easier and faster for us to deploy solutions that meet or exceed the city's standards.

Code Storage and Version Control: NYC Github

All of our solutions are stored in Git, typically hosted with Github, so it will pose no problem to store the code repository in the NYC Github. As part of our agile process, we typically set up automated deployment using tools such as Ansible, as well as continuous integration using a tool called CircleCI which ensures that everything is built properly before deploying to one of the application environments (development, testing, staging and production).

Our development team follows a tried and true approach to code reviews and version control. Business requirements are broken down into tasks which are worked on during weekly sprints. When checked into github, they are named accordingly and no code is committed and merged into the master branch until there has been a Pull Request (PR), which has been reviewed and approved by a technical project manager.

Website Hosting

We envision setting up the solution on Amazon AWS infrastructure. We will used a tiered setup where there will be multiple EC2 instances. There will be a load-balancer in front of

one or more web application servers which then connect to a separate database service either on a dedicated EC2 instance or via Amazon RDS service.

The Amazon solution will be horizontally scalable should you need to scale up for traffic demand and availability. It will also be highly secured in a Virtual Private Cloud (VPC) specific to this project. Access will be completely locked down except for standard web ports (80,443), and access to the back-end will only be provided via SSH with public/private key access (to specific IP addresses) over a non-standard obfuscated port for SSH traffic.

System and performance testing for all features

Using the Django Framework, we will be introducing unit tests for all features which must be passed before code can be pushed into the main repository, built and deployed from development to testing, to staging and ultimately the production environment.

We will also be utilizing separate external hosted tools for cross-browser testing, load-testing, and WCAG compliance testing.

Technical strategy: Scoping of programming languages, content management system, and infrastructure

We are envisioning a 100% open source solution built with Python and a Framework called Django. For data visualization, we will choose between two open source javascript frameworks that our team is quite familiar with called Chart.js and D3.js. (D3 is better for interactive visualization, while Chart.js is better for standard charts and graphs that are displayed but with which you do not necessarily interact). We will also likely utilize a front-end javascript framework called React.js and a back-end framework called Django Rest Framework to connect various components of this system.

The CMS will be a highly configurable and versatile open source CMS library specific for the Django platform called Django CMS .

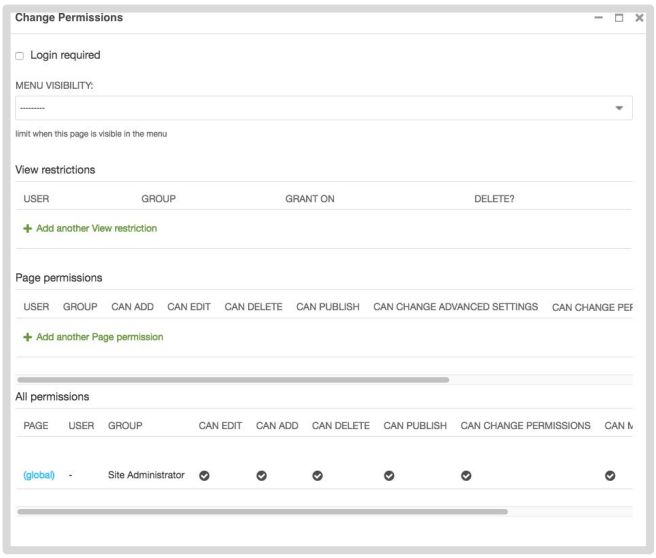
The database will be PostgreSQL which is as powerful as Oracle and fully open-source. All of these technologies will be bundled together on a linux distribution called Ubuntu.

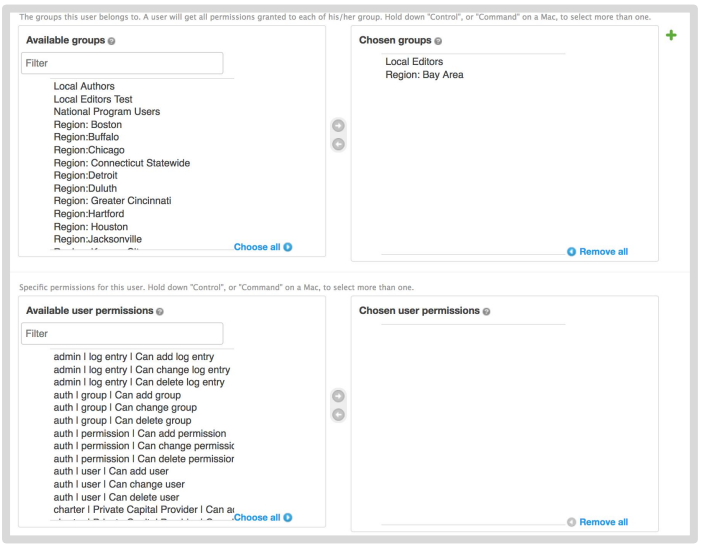
All together, this is the technology framework or “stack” for the portal solution.

We envision setting up a data portal that will provide all of the charts and graphs alongside the Workforce CMS, which will consume all of the charts and graphs as a service or embedded content. This will enable a high degree of flexibility where you can manage the data visualizations and the data separately from the content and context of the Workforce portal, thus allowing the data to be exposed via an API at some point in the future if you wish.

Limitation of content areas by user log-in

The only areas available to logged in users would be the administrative tools for managing the data portal and the CMS for content. These will be secure and password protected. We’ll provide a facility to manage users and groups and using Python with Django. Django offers robust permissioning so you will be able to administer exactly what areas of the site can be controlled (read/write/edit) and by which groups very easily. You can set up super admins, admins, and then content authors and editors, so certain groups will have access to only certain areas of the portal.





Sample Django permissioning settings

Easy and effective search functionality

Our CMS solution includes full integration with an excellent search solution called Elasticsearch. Elasticsearch is an open-source, RESTful, distributed search and analytics engine built on Apache Lucene. Since the first version of Elasticsearch was released in 2010, it has quickly become the most popular search engine, and is commonly used for full-text searches and in operational intelligence-use cases. It is highly customizable, and will ensure that the people and organisations who work in your fields of interest will quickly find content relevant to them.

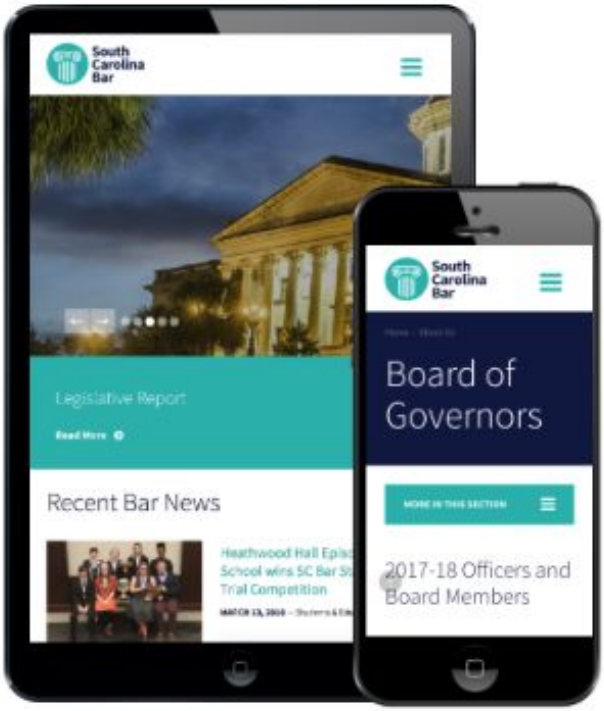
Using this solution will entail adding metadata about the various available charts and graphs and tagging them appropriately, which we will provide tools for as part of the CMS. By creating some context and content about the data in the portal, as well as tagging, the front-end can offer a powerful and streamlined search solution as an access point into the data.

Mobile Responsive

The data portal will be developed mobile-first and device-agnostic. We want to deliver the best experience possible to users, regardless of the device they use to visit the site. Part of delivering the best experience is prioritizing the content in a way that meets the needs of portal users when they are visiting your site from devices of various sizes. The implementation of this effort will be a continuation of the work that occurs in the content architecture phase.

We will be using a charting javascript framework, either chart.js or d3.js, each of which can be configured for the mobile context. The containing site will also be responsive, so when rendered on a phone or table, the page structure and layout will adapt and then the contained chart will adapt as well. On desktop, you'd likely see multiple charts in a dashboard in a manner similar to some of the other P20W initiatives you pointed us to in the Q and A document, on the phone however, these charts, while responsive, may either be stacked or indexed and then you can view one chart at a time on the phone and swipe or scroll through them.

IIE.org on a tablet and a mobile device



SCBar.org on a tablet and a mobile device

Compliance with all City requirements and recommendations on access for people with disabilities

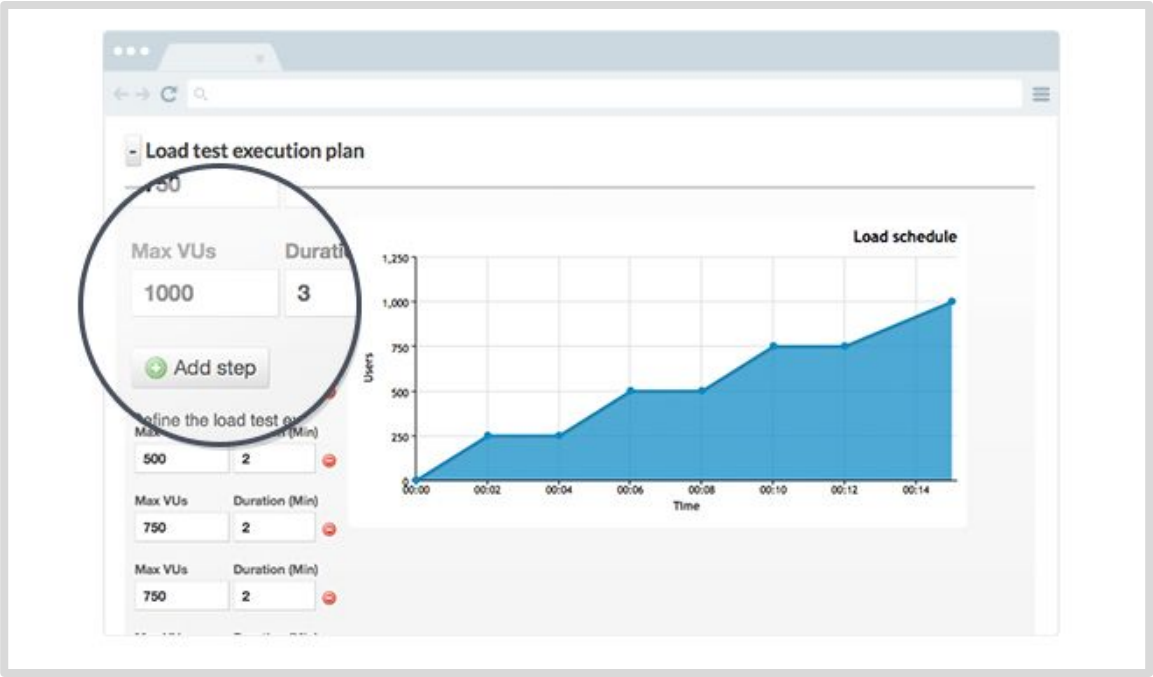
At Blenderbox, we have in-house expertise with WCAG Compliance. This means our designers know how to design for the visually impaired and consider when, how, and where color and contrast are used to convey information. The application of compliance standards will come into play during the execution phase, when the development team you engage must be careful to ensure that pages render well with screen readers and can be navigated by a keyboard (especially important when tabbing through tables or forms); however, it is equally important that the Design and UX team consider accessibility during the design phase of the project, and this is something we offer as a matter of course. We will ensure that everything is encoded in strict compliance, and we have a special team for testing and ensuring that the pages we have built are meeting accessibility compliance standards.

D. Back-end Database Development

Performance and user testing of Online Portal

Our web application software development lifecycle (SDLC) includes functional and unit-testing during development, which transitions to user-acceptance testing during a QA phase. Separate to that, once we have set up a “pre-production” environment (the environment that will ultimately become production once the site launches), we subject this environment to a battery of stress and load-testing informed by the expected nature and volume of the public traffic to the website.

This testing will be straight-forward, as all areas of the site (except administrative admin tools) are publicly accessible and non-transactional in nature. There are a few hosted, automated load-testing tools we use which can simulate traffic coming from multiple parts of the web, and which offer a dashboard with reports and analytics to demonstrate how the site performed during the test.



Sample load time testing results

Functionality to allow the online portal to communicate with the database housing the workforce data

We understand that the data is stored in a dimensional model built in an Oracle db. There are numerous ways to sync the data. The most real-time (but perhaps not entirely necessary for this project), would be to set up direct replication between the online portal database and your Oracle source database. Since you will only update all of the aggregate data tables monthly, this is not really necessary. All we need is a method of syncing all of the data between the Oracle server and our database in the cloud which is powering the portal. This database is likely to be PostgreSQL, unless you have an additional license for Oracle specific to this project that could be hosted in the cloud and dedicated to this portal.

The exact method will be defined during a technical discovery phase and may vary depending upon the size and nature of the data. If we were concerned about a lot of constraints such as too many relationships and foreign keys, then we might want a complete data dump from Oracle which includes database schema (e.g. the table and relationship definitions). A transfer of that data (basically a zipped up file) to the online portal would then entail an import process that restores all of the data cleanly into PostgreSQL. However, since most or all of this data is really just a series of independent data tables, an easier workflow would be to have the data simply exported in a delimited format (such as CSV), zipped up and transferred to the online portal and ingested accordingly.

To achieve this, on the Oracle side, someone will need to write a scheduled job that will export a list of tables in a delimited format, zip them up and put them on an SFTP server. If there isn't one already available to the Oracle server, then we can set up an SFTP server as part of the portal solution that the files could be transferred to.

We envision using Python and a Web Framework called Django for this project. Behind the scenes we will use a job scheduling tool called Celery. The Celery engine will run an automated task that will securely transfer the datafiles (SFTP) from the existing Oracle DB to the Online Portal; there, they will be unzipped and processed, transformed as necessary via Python, and imported directly into the PostgreSQL database in bulk using PostgreSQL copy

commands. We have successfully done this many times in the past with large datasets (+1MM records) with city data, and can demonstrate how fast and reliable the process is.

These jobs can be managed via admin tools that we set up, so you will be able to monitor and see their progress and a full log of each step. You'll also be able to configure various aspects, such as the FTP login/password, the schedule (in case it ever updates more than monthly), and the names or number of files that are pulled over in case things evolve or change over time.

E. Design & Technical Documentation

Knowledge transfer and training for NYC Opportunity

Towards the end of design and development we will work on a variety of materials for knowledge transfer and training. These will include a design style-guide. We will also deliver a functional specification document, which is essentially an evolution of a business requirements document.

Training is usually provided by the project manager and the lead architect and generally involves a face-to-face or remote training session for your CMS users. We will develop and deliver–in advance of this training session–a training plan which will help guide the session and serve as a reference document once training is complete.

Once the CMS is feature complete and tested, we will coordinate training of both producers and editors as well as IT and support staff. We'll likely arrange face-to-face sessions, conduct online webinars (CITRIX/GoToMeeting, etc.) and use other tools to accomplish this, and we will hand-off documented source-code as well as documentation that overviews the technical approach (e.g. MVC/OOP) and infrastructure (e.g. LAMP), and review with your staff.

Our project manager and producer will train your core administrative team to use the new back-end system, working with your team to prepare the site for launch. This is often combined with content entry, using initial content placement as a learning experience to demonstrate the operations of the new back-end. We'll provide thorough user guides and documentation for your team, so that you'll have materials at your disposal and can on-board new internal staff after the launch.

High-level and low-level technical design documentation

At the outset of the project, as we undertake discovery, UX and design, we will be parallel tracking a high level Business Requirement Document (BRD), which will overview the

high-level implementation of the system. This document will itemize each of the core requirements (e.g. user can see chart X, interact with chart X, see chart X in a responsive mode on a phone, see chart X in context of Workforce content administered via CMS, admin user can login and administer content Y, etc). This document will also include a system diagram and eventually a system ops and database schema.

Later towards the end of the project, we will also deliver detailed low-level technical design and documentation, much of which is built directly into the code-base via doc strings, inline commenting, ReadMe files, and a project wiki which are stored directly in the git repo.

04

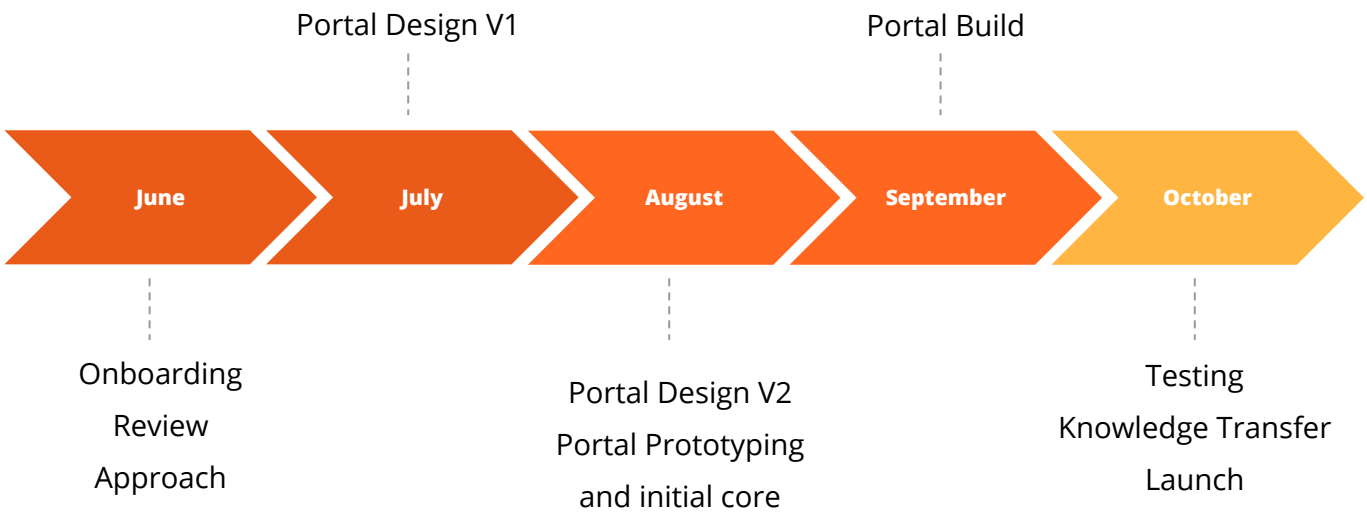
Budget Management

A. Pricing

B. Timeline

B. Timeline

Overall Project Timeline:



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References

Thank you!

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