

Text to Connect



Engineering + Technology requirements
for using text message outreach to reduce
SNAP churn



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Technology is an enabler, but it can also be the sticking point in an organization's policy strategy. This is why it's important to dig into and firm up the technical aspects of your program.

Working with your technology partners and internal IT group you'll want to confirm:

- + Will you contract with a **vendor** to run your texting program, or will you own and manage the platform in-house?
- + If you own and manage the platform, will you purchase something off the shelf or custom-developed?
- + What will the **engineering and technology workstream** look like over the lifecycle of the project?
- + Can your internal resources handle the execution of the program?

This guide can be used by procurement and vendor management specialists or software engineers to get general context on these types of endeavors, or by other project staff to prepare for more technical planning conversations. Begin now to ensure you're putting the right technology in place to achieve your program objectives.



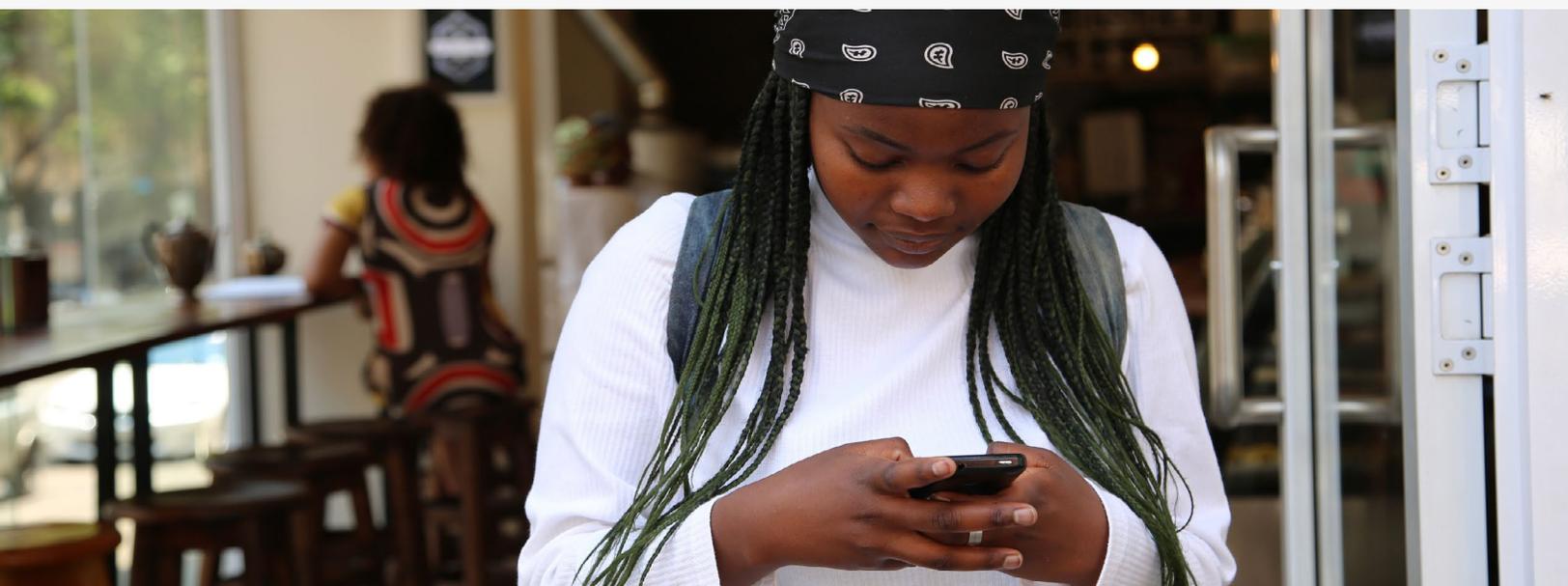


This guide is part of a series produced by the [Beeck Center for Social Impact + Innovation at Georgetown University](#) the [Benefits Data Trust](#), and is designed to help you implement a text messaging program to reduce SNAP churn. Click on any of the links in this graphic to see a different workflow, or find the entire [guidebook here](#).



Inside this document you'll find:

- + A breakdown of [texting platform options](#)
- + [Procurement and vendor management](#), including links to additional resources
- + Considerations for [off-the-shelf and flexible texting platforms](#)
- + Considerations for [in-house engineering](#)
- + Engineering and technology [workstream roadmap](#)



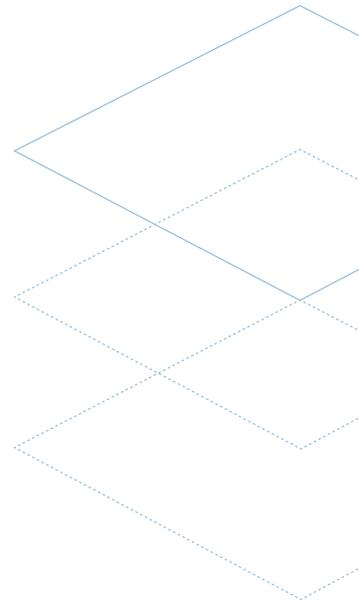
Texting Platform Options

Each text messaging program will have slightly different technology requirements. When choosing your technology, you should consider how you'll cover the capabilities you need for your text messaging program. For example:

- + Know who, what, and when to text
- + Initiate text outreach with a client
- + Ability to send (and receive) text messages
- + Ability for caseworkers to text directly with clients (if relevant)
- + Way to analyze outcomes from your text messaging program

Adding new pieces of technology to your system can be a big endeavor. Before introducing any new technology, the first thing you should do is to work with your engineering team to take stock of your existing resources (either internal or third-party) to save time. **Notably, if your case management system has the ability to send text messages, work with system administrators to use that feature.**

If you don't have existing texting functionality, there are a few different approaches you can take, depending on whether you're planning to outsource the technological aspects of the project or do it yourself. If you are considering outsourcing, we advise following the best practices for procurement and vendor management detailed below.





The two main options for outsourcing the technology piece are:

Partnering with a vendor to handle your text messaging program for you, which includes managing the texting platform. This option offers one of the lightest lifts for your engineering team—especially if the partner organization takes on building the data pipeline—making it a good fit for agencies with limited in-house engineering capacity. That said, partnering with a vendor also comes with a number of other operational considerations.

Procuring an enterprise solution that can be built and maintained for you. This option can allow for customization without the need for in-house engineering resources, while still allowing your agency to have full control. However, enterprise solutions can be very expensive and complex, and are not necessary (or advised) for most text messaging programs.



If your agency is planning to own your texting platform, there are three main categories of options, with variation within each:

1. Use an off-the-shelf texting platform

like SimpleTexting or Teletask. Going with a full-featured, hosted platform is a safe choice for agencies that are planning to run a simple text messaging program (e.g., one-way texting) or lack engineering capacity. Many of these services offer all of the functionality you need to run a text messaging program and take care of the backend infrastructure too, so it can be relatively cost-effective and easy to stand up and maintain. Depending on the size and complexity of your campaign, it's possible to upload client data, create the text messaging flows, and begin sending messages the day you create an account. On the other hand, off-the-shelf platforms may be less customizable and flexible, and provide less visibility and control over the backend systems.

2. Take a hybrid approach,

using a flexible texting platform with some in-house engineering. This option works well for agencies that have slightly more complex texting needs and the resources to take on a low-to-medium engineering lift. Platforms like Twilio provide the SMS API to send and receive text messages, along with a suite of other features (such as analytics capabilities and hosted servers) so that you don't have to build and manage them yourself. They often also come with the ability to layer additional capabilities or plug in more advanced, custom-built components as your program needs evolve. That said, because these platforms are not fully off-the-shelf, your engineering team may be responsible for managing your client database and building some of the notification logic. In general, this approach is a cost-effective option that offers more flexibility for customization and greater control over your systems, without requiring your engineering team to build and maintain everything.

3. Develop your system in-house.

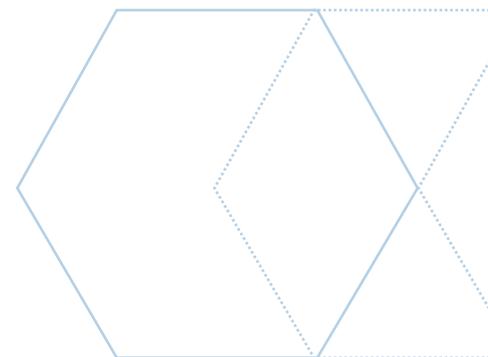
Developing a texting platform from scratch is a high-risk option if you're just starting out because the process requires substantial engineering resources to build, integrate, and manage all of the different technology components on your own. The more complex and sophisticated your technology needs, the greater the engineering burden required to support them. While this approach gives you the ability to fully customize your technology and keep complete control over your system, this level of investment isn't necessary (or advised) for most texting programs.

Procurement and Vendor Management

If you need to purchase new technology or services, you'll want to work closely with your procurement team to select technologies, approaches, and vendors that work with your existing systems, fit with your security, budget, and procurement protocols, and are aligned with the objectives of your agency. It's important to think of procurement and vendor management as processes that you need to actively engage with to ensure you're getting what you need. Make sure that you have a dedicated team member in-house with the subject matter expertise to help the procurement team develop a request for proposals (RFP) or request for information (RFI) that focuses on the services and outcomes you want (instead of the specifics of a product a vendor should produce), vet potential vendors, and manage vendor relationships. For example, if your RFP is too long or the contract size too large, you may accidentally be weeding out smaller, more specialized vendors that may be a better fit for your needs. Another good practice is to build a component of upskilling into vendor contracts so that you can leverage those relationships to build up your in-house team's capacity and empower them to be co-owners who can manage the project and technology longer term.

For more information and best practices on procurement, check out:

- + [State Software Budgeting Handbook: Budgeting and Overseeing Tech Projects](#), 18F
- + [Procuring Differently: How Colorado Used User Research and Active Vendor Management for COVID-19 Technology](#), Beeck Center for Social Impact + Innovation
- + [USDA's FNS Handbook: Advanced Planning Document Process: A State System's Guide to America's Food Programs](#), USDA
- + [Considerations When Selecting a Text Messaging Vendor](#), Seattle & King County Public Health

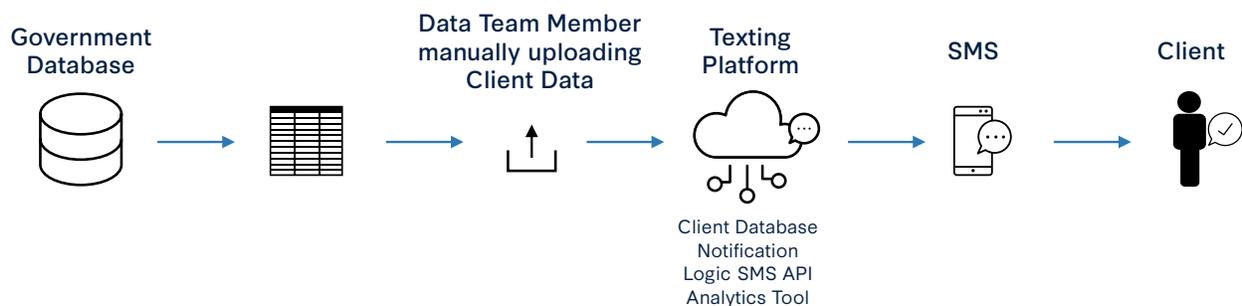


Considerations for Off-the-Shelf and Flexible Texting Platforms

When selecting an off-the-shelf texting platform (a full-featured, hosted texting platform), you'll want to make sure that the service provides all of the functionality you need to run your text messaging program, without the need for engineering. In general, look for a vendor that offers the following features: SMS API, notification logic, client and notification database, hosted servers, and analytics tools.

If you're planning to take a hybrid approach, using a flexible texting platform with some in-house engineering, you won't necessarily need all of the bells and whistles. Instead, work with your engineering team to select a platform that provides the functionality you need, based on which pieces you prefer to integrate or build yourself. For example, you may only need a platform providing the SMS API, hosted servers, notification database, and analytics tool if you're planning to maintain and integrate a separate client database and write the code for the notification logic.

Sample architecture for an off-the-shelf texting platform where client data is manually uploaded



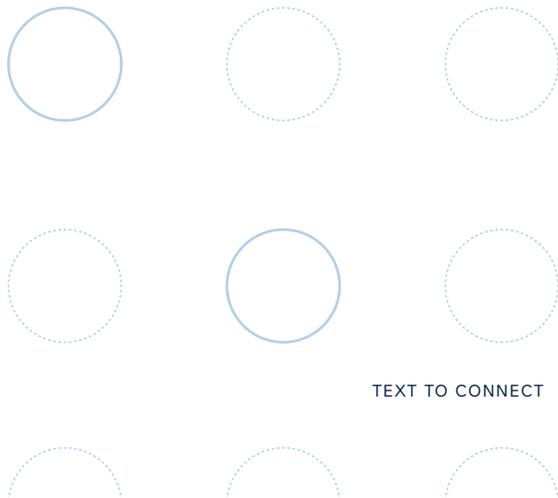
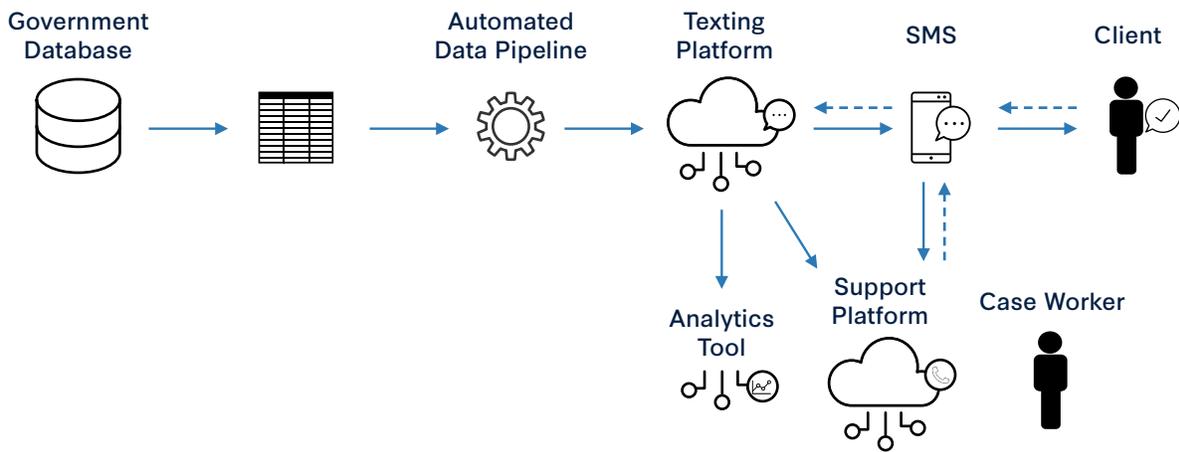
Flexible texting platforms are designed to make it easy to layer new capabilities, integrate with other technologies, and replace certain pieces with your own custom code. These customizations may be important if you are taking a hybrid approach, or may be flexibilities for you to consider as your program evolves and scales with time.

For example, if you decide you want to add human-assisted two-way texting, many texting platforms offer a communication interface feature to facilitate direct messaging between field staff and clients. You could also set up an integration with a support platform like Salesforce or Zendesk to automatically update case files when clients receive and respond to text messages and allow caseworkers to message clients with follow-up actions as they process recertification forms and verification documents.

Most texting platforms will offer basic analytics functionality, but you may also choose to export data from the platform or build integrations with other analytics tools like Looker or Tableau to augment your reporting capabilities.

Additionally, you might choose to automate processes—sometimes this can be necessitated by your program design or as you scale your program. For example, if you need to trigger renewal notice texts as soon as a client’s recertification window opens, you may not be able to rely on weekly or monthly manual data imports. You could automate your data pipeline to run a script that loads new client data into your hosted texting platform to trigger texts on a daily basis.

Sample architecture for a flexible texting platform with an automated data pipeline and integrations for client support and analytics



Considerations for In-House Engineering

Whether you're planning to take a hybrid approach (using a flexible texting platform with some in-house engineering) or build your texting system fully in-house, you'll want to work closely with your engineering team to architect a system that fits your agency's needs.

Your engineering team will be able to tell you if you already have the right technology in place or if there are components you need to get. You'll also want to consider the level of complexity you want to take on as you make technology decisions. In general, if you're looking to maintain full control of your systems and maximize customization, and you have the engineering prowess to set up and manage your infrastructure, you may decide to opt for self-managed tools. Going with managed tools may be a better bet if you are planning to take a hybrid approach or prefer to have your providers host your servers and databases.

Below are the main technologies involved in most text messaging programs. Each technology decision comes with varying degrees of complexity.



Texting Platform

There are two capabilities you need in your texting platform. The first is the ability to send and receive text messages to clients—this is the SMS API. The second is the logic that coordinates with the client and notification databases to tell the SMS API who to send what messages and when. For example, when a client is added to the client database, the notification logic triggers the SMS API to add them to the texting flow. If your existing system already has the ability to send text messages, work with system administrators to use that feature. Otherwise, you can custom build your own notification logic in conjunction with an SMS API like Twilio or Bandwidth. Some flexible texting platform services may also handle both the SMS API and notification logic for you.



Databases

These are where data related to your program is stored. The client database houses information about clients you are using for the program. The notification database stores the information about the text messages sent to and received from clients. Depending on how you set up your texting platform, these databases could be separate or integrated. The simplest option is to use your existing database infrastructure. If you need to procure a new database, you can either self-manage your database or go with a managed database like Heroku PostgreSQL, Amazon RDS, or Azure SQL.



Servers

This is where everything related to the texting program is hosted. Depending on your engineering team's preferences, you may want to use your existing cloud-based or onpremise server infrastructure or spin up new servers specifically for your text messaging program. Otherwise, you could go with a hosted service like Heroku or self-managed cloud services like Google Cloud Platform or Amazon Web Services (AWS).



Analytics Tool

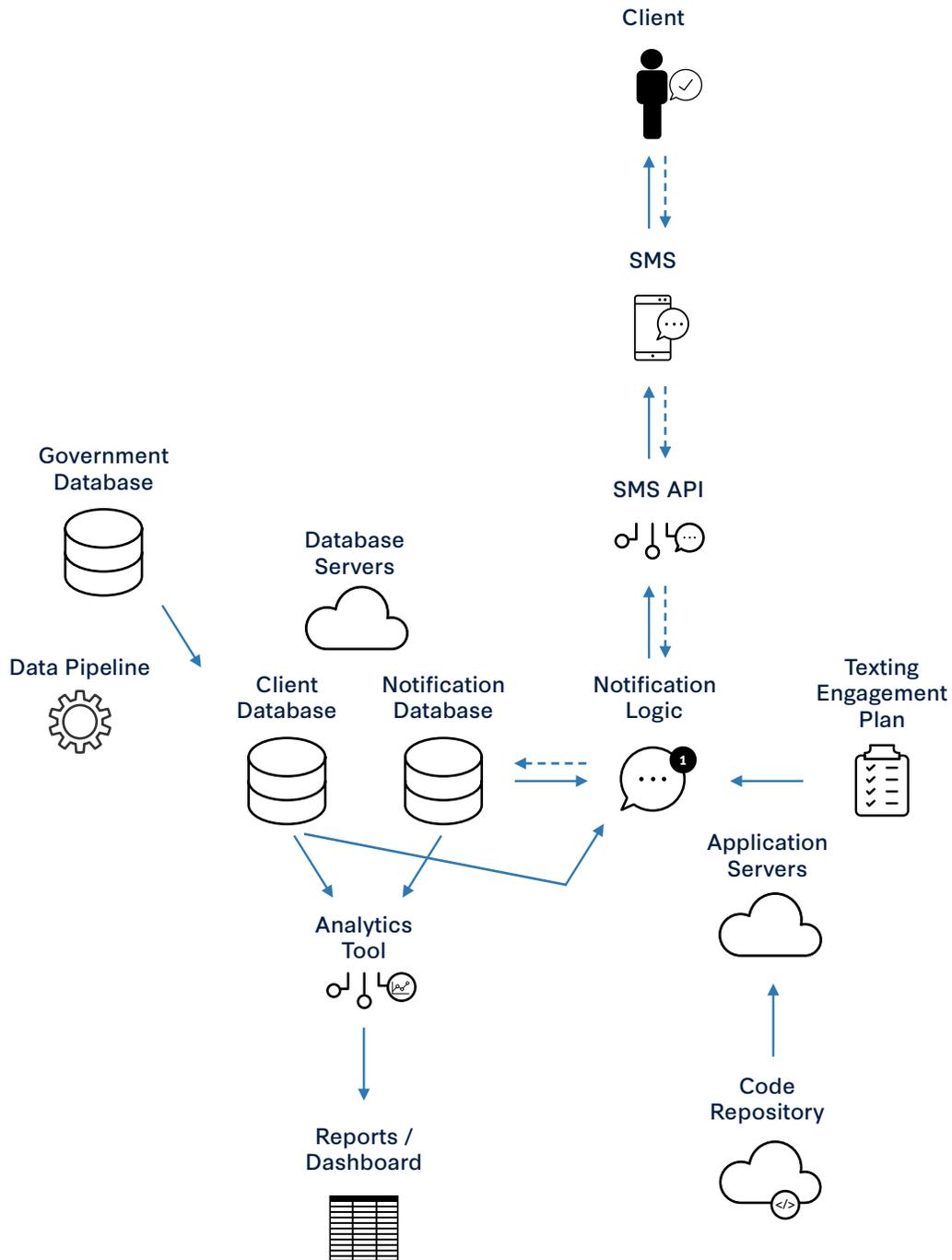
This allows joining of client and notification data to generate dashboards or reports that show a complete picture of the client record and action in one place and facilitate program evaluation. Work with your engineering, data, and research/ evaluation teams to choose a tool that aligns with their workflows and other needs. These teams might already have an existing analytics tool you could use. If you want to create dashboards and visualizations, you may want to use a tool like Looker, Tableau, or Power BI. If you're trying to run heavy analyses and models, then you may want to write and run code in languages like Python or R.

Flexible modeling

As a best practice, use flexible modeling rather than hardcoding when programming your texting engagement plan into your texting platform. Hardcoding assigns a specific response to trigger a specific message. This means you can only use "reply 1" as an option once, since every time a client sends back "1", they'll get the same message no matter where they are in the flow. Flexible modeling allows you to reuse response options because it takes into account variables like the interaction layer (i.e., where the client is in the message flow). This means you can give clients an option to "reply 1" multiple times throughout the same message flow, while still triggering relevant follow-up messages. This is particularly important to keep in mind if you're developing your texting system inhouse or just using an SMS API, as your engineering team will need to write code to keep track of where a client is at in the texting flow. If you're using a full-featured, hosted texting platform, you may already have flexible modeling built-in.

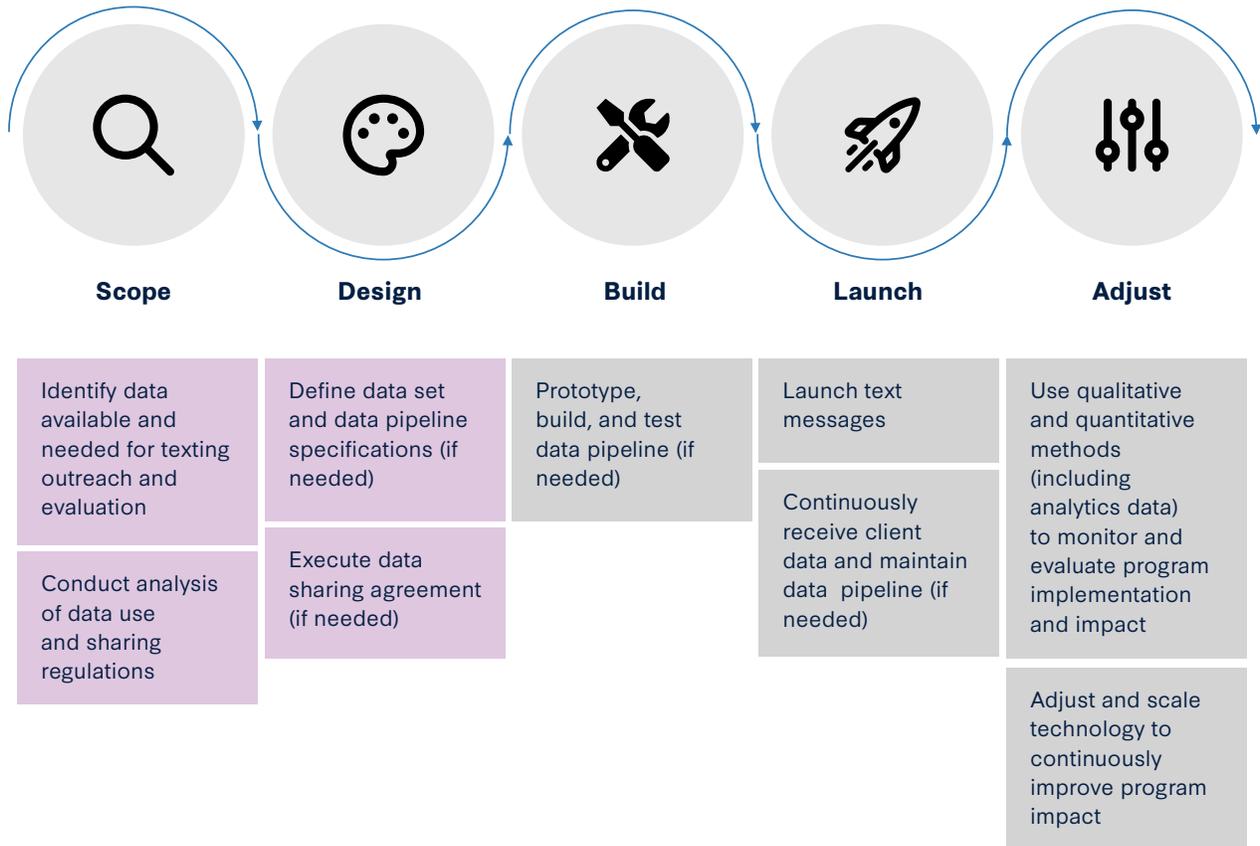
Sample architecture for an in-house texting system

To give you a sense of how the different technology components fit together and interact with each other, here's an example of what the architecture for an in-house texting platform might look like. Yours may look slightly different, depending on how you've designed your text messaging program and the technologies you use.



Engineering + Technology Workstream Roadmap

Below is a snapshot of what’s involved in the engineering and technology workstream over the project lifecycle. In purple are key scope and design activities for architecting your texting platform.



About the Beeck Center for Social Impact + Innovation

The Beeck Center is an experiential hub at Georgetown University that trains students and incubates scalable, leading edge ideas for social change. We believe impact at scale requires the courage to think and behave differently. Our work centers on investing in outcomes for individuals and society. We equip future global leaders with the mindset to promote outcome-driven solutions, using the tools of design, data, technology, and innovation. We convene actors across the public, private, and civic sectors to advance new tools, frameworks, and approaches necessary to achieve these outcomes.

About Benefits Data Trust

Benefits Data Trust (BDT) is a national nonprofit organization based in Philadelphia that uses these modern approaches to support government agencies in transforming how their residents access the social safety net. In 2017, BDT began a SNAP recertification text messaging program in New York City, and now partners with several states to implement similar programs suited to their needs.

About This Guidebook

Together, the Beeck Center and BDT authored this guidebook to detail practices so more states and local agencies can use text messaging to reach the people they serve with important, timely, and easy to understand guidance so people don't lose their SNAP benefits when they need them most. While we focus on the use case of SNAP recertification, we hope this content might be useful for anyone using text messaging to improve safety net benefits delivery in other ways.

This guidebook is part of a larger initiative by the Beeck Center for Social Impact + Innovation at Georgetown University to document innovations in social safety net benefits delivery driven by human-centered service design, data-informed practices, and responsive technology with a goal of spreading proven practices more widely.

Please contact us with any thoughts, questions, or suggested additions to this guidebook. We can be reached via email at:

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