Understanding Software for Program Evaluation
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Understanding Software for Program Evaluation

In our increasingly data-driven world, it’s more important than ever for nonprofits to be able to measure and monitor the effectiveness of their programs. It’s difficult to improve program services or reach without first measuring effectiveness, and measurable numbers—how many meals served at a soup kitchen, how many students in a mentoring program graduate high school, what percent of the target population does not have access to affordable housing—are more important than ever to help organizations identify where they can improve their programs.

Strategies for program evaluation have been the subject of countless books and seminars, but a gap remains in the area of practical resources about the software for collecting, tracking, and reporting on program data. Like many big-data issues, the sector looks to technology for an answer to these questions. We have donor management databases, constituent management systems, and case management systems, but where are the program evaluation systems?

Unfortunately, there is no such thing. All-in-one program evaluation software doesn’t exist, because program evaluation is really a strategy, not a tool.

We’ve identified the five parts of a technology-based program evaluation strategy in the chart on the next page. When all the steps are combined, they enable your organization to accurately and confidently collect, measure, and monitor the outcomes and effectiveness of your programs.

Throughout this guide, we provide overviews of the types of software that can assist with each of these five steps. But software is not a requirement for a successful strategy, merely a way to make your process easier, and many organizations complete them with little to no technology to assist them. That’s entirely up to you.

- **Central Hub of Program Data.** The foundation for your evaluation strategy is the central hub for your program data—this is where the information from all the data you’ve collected or sourced and the findings you’ve analyzed from that data can be tracked and reported on in one place.

- **Auxiliary Data Systems.** While it’s almost always preferable to store all your program data together, there are certain instances where data is too complicated or too distinct to store in your **Central Hub**. In those instances, it may make more sense to use a specialized tool, like a **Learning Management System** or **Scientific Data Monitoring System**, or to build your own solution using a **Custom Database**.

- **Proactive Data Gathering.** This piece includes all the program data you need to actively collect, like survey results, text messages from constituents, or handwritten notes from your staff.

- **Pulling Existing Data.** This includes the information that can be collected from public sources, such as what people are saying about your organization or services on social media, as well as public data from government agencies that can provide background information to add context to what you’ve already learned.

- **Reporting and Visualizing.** Once you have all your data, you need to make sense of it—this piece involves using **Custom Reporting Tools** and **Statistical Analysis Systems** to help you identify trends about your programs, and **Data Visualization** to present your findings to grantmakers, donors, or other stakeholders.

None of these tools are a requirement for a successful program evaluation strategy, but all can help. Consider this guide a reference for the types of tools and systems that might make sense for your organization’s particular programs. In each section we rank them from most commonly used to least to make it easier to find out what other nonprofits are using, or to find specialty solutions for your niche needs.

At the back of this guide you’ll find a library of additional resources for developing or improving your program evaluation strategy. Whether you’re a program director or just a staff member with an interest in program data, this handbook provides all you need to understand how to make technology a part of your program evaluation strategy.
Understanding Software for Program Evaluation

Proactive Data Gathering
- Online Survey Tools
- Qualitative Narrative Analysis
- Creating Custom Apps
- Mobile Texting
- Mobile Apps for Attendance
- Optical Character Recognition

Auxiliary Data Systems
- Spreadsheets
- Volunteer Management
- Correspondence Tracking Systems
- Electronic Medical Records
- Custom Databases
- Learning Management Systems
- Scientific Data Monitoring
- Visitor Management Systems

Pulling Existing Data
- Scheduling and Calendaring Tools
- Email and Website Analytics
- Online Listening and Monitoring Tools
- Sources of Public Data

Central Hub of Program Data
- Case Management
- Constituent Relationship Management
- Membership Management
- Ticketing Systems
- Library and Collection Management
- Student Information Systems
- Legal Case Management

Reporting & Visualizing
- Data Visualization Tools
- Statistical Analysis Tools
- Custom Reporting Tools
- ETL (Extract, Transform, Load) and Middleware
- Dashboards
- Data Warehousing
- Maps/Geographical Information Systems (GIS)
Section I: Central Hub of Program Data

The foundation for your evaluation strategy is the **Central Hub of Program Data**—this is where the information from all the data you’ve collected or sourced and the findings you’ve analyzed from that data can be tracked and reported on together. From more generalized, customizable platforms like **Constituent Relationship Management Systems** to **Case Management Systems** for direct service organizations—or even more specialized databases—the tool you choose will form the central foundation of your organization’s program evaluation strategy. While **Central Hubs** are the core repository for program data, they are neither the beginning nor end of the process. There are often more specific systems where nonprofits will need to dig for their data that, in some instances, also need to be compiled in their **Central Hubs**.

Many organizations employ a **Case Management System** as their Central Hub of program data, using it to pull a variety of data related to their clients. Some specialized sectors, such as homeless shelters and afterschool programs, may use specific modules to make their **Case Management Systems** more applicable, or use government-mandated reporting tools that track a multitude of data but offer little or no internal analysis useful for program evaluation.

Nonprofits with several different types of clients and complex needs should look at implementing customized **Constituent Relationship Management Systems**. Performing arts organizations, for example, may wish to use a **Ticketing System** as a Central Hub, and membership-based organizations will certainly benefit from a dedicated **Membership Management System**. Libraries and museums need to track collections across clients, and require dedicated **Collection Management Systems**, while charter schools that need to track things like curriculum and student credit completion need **Student Information Systems** or **Learning Management Systems**. Finally, legal aid organizations need to maintain records on their current and past lawyers and cases, and often use **Legal Case Management Systems**.
For the majority of organizations providing direct services, most data relating to program evaluation resides in whichever system the nonprofit uses to manage cases. **Case Management Systems**, also called client management systems, are a diverse software ecosystem unto themselves with different areas of focus depending on the clients or services they’re meant to manage. All **Case Management Systems**, though, are meant to be a Central Hub of case-related information and to shepherd a client—whether that means a homeless person, a student, or even a rescue animal, for example—through a series of steps.

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**Case Management Systems** track the information you need to work with the individuals who benefit from your programs’ services, such as age, address, job history, educational progress, or child care situation. They also track communications between your staff and constituents, any individualized plans, and progress toward those plans, while allowing you to report on all the information you’ve collected. Advanced **Case Management Systems** can also help with workflow and scheduling, or even automate billing processes.

At the lower-price end of the spectrum, more generic systems such as Apricot and Social Solutions’ Efforts to Outcomes (ETO) can provide substantial tracking ability for about $3,000 to $25,000 per year. Somewhat more expensive software, like Tapestry by Visionlink, Bowman Systems’ ServicePoint, Service Xpert Suite by Unicentric, or Evolv-CS by Defran, can provide more power for more expense—about $20,000 to $50,000 per year.

However, large organizations will likely need to look beyond these tools toward more powerful solutions, like ClientTrack from ClientTrack, Inc.

Most human service organizations use generalized **Case Management Systems**, but others need specialized systems for their sectors. If your programs concentrate on a particular area—such as homeless management, afterschool programs, or mental health work—you might use a tool geared specifically to your type of work. Many also use specialized modules for a more general system.

Many of these organizations must also navigate systems mandated by the federal or local government. The information stored in those systems isn’t usually helpful for an agency interested in gathering program evaluation data, as reports are simply sent out and not analyzed internally. Additionally, these proprietary systems seldom integrate seamlessly with other more specialized systems. For those serious about evaluating their programs, an additional **Donor Management System** or **Case Management System** to track and analyze data will be necessary—along with the added work to keep it up to date.
Nonprofits that feel they truly need a customized solution for program evaluation as well as Constituent Relationship Management, or CRM, systems. If your organization maintains relationships with a number of people in different groups—some discrete, some overlapping—being able to track and manage information about those relationships can be critical to your success. For example, you may have a devoted volunteer who has given faithfully to your annual campaign for years, participates in the walkathon, and got his company to match donations his coworkers make to your organization. Ideally, you have relationships with dozens of people like him, and are able to track that engagement easily. CRM systems can provide a more holistic view of constituents—a way to see the different ways they’re involved, and make sure they’re being shepherded to even greater levels of commitment.

While some databases are designed to provide a detailed look into only one constituent group, like your donors or your volunteers, a CRM is meant to provide a high-level look at all of your different constituents. Systems like Salesforce, which is free for up to 10 users, and CivicCRM, which is an open source product, come with very little built in out of the box. Salesforce offers a Nonprofit Starter Pack—however, it features limited evaluation framework. CivicCRM might be a good fit for an organization that has in-depth case management needs, with its dedicated Case Management module, but both of these systems would need substantial customization by a consultant in order to be useful for program evaluation.

SugarCRM is a powerful and user-friendly system, but doesn’t offer widely available customization for nonprofits like the other tools profiled here. Almost all of the out-of-the-box language is geared toward the sales process, as SugarCRM is designed with for-profit businesses in mind. However, the fields and modules can be modified extensively. Microsoft Dynamics CRM is designed to truly be an all-in-one database. The Nonprofit Template, developed by Microsoft and available at no charge, sits on top of the CRM and transforms it into a nonprofit-centric platform. For nonprofit organizations, the price for Dynamics CRM Online is $119.88 per year per user. Pricing for the installed option, Dynamics CRM 2011, varies based on the consultant from whom you buy the system; one quote we received was $212 for the server licensing and $30 per license.

If an organization’s program evaluation involves tracking attendance, membership renewal rates, and participation, a Membership Management System might act as the Central Hub of Program Data. Generally synonymous with association management, membership management tends to imply a larger system that tracks organizations and individuals as members.

At the lower end of the spectrum, less-expensive online tools like Wild Apricot, 123 Signup, MemberClicks, YourMembership.com, and Tendenci are likely to work best for organizations with less-complicated membership and benefit structures. They range from about $50 to $300 per month, depending on tools and how many members you’re tracking. Solutions with mid-range pricing (typically, between $3,000 and $15,000 per year) usually offer deeper functionality and greater configurability than lower cost products. Hosted solutions—like i4a Association Management System, JL Systems’ NOAH, and Avectra’s netFORUM—tend to provide lower startup cost and implementation time, but are somewhat less flexible.

At the high end of the market, systems like Advanced Solutions International’s iMIS, GoMembers, Prevail, Aptify, and Personify target larger professional or trade associations that have the technical staff in place to adopt and sustain enterprise software. They offer complex features, customized toolsets, and stronger vendor support partnerships, but can range from $15,000 to more than $100,000 in annual costs for the software alone.
Nonprofits that operate full-fledged academic institutions, like charter schools, use a dedicated database called an SIS, or Student Information System. An SIS tracks notably different information than a Learning Management System (LMS), which helps manage curriculum. In the context of program evaluation, an SIS holds data including students’ completed credits and their progress toward degrees. Usually, they are packaged with online portals that can help a student or their parents monitor this information themselves.

They also often have modules that track tuition and financial aid, facility management, alumni information, and prospecting and admissions. For institutions that teach younger kids, keeping track of attendance and disciplinary actions is more important. K-12 schools might use SunGard’s eSchoolPLUS or Pearson’s PowerSchool, while higher education institutions could choose from Oracle’s PeopleSoft Campus Solutions or Ellucian’s Banner. An SIS and LMS will rarely integrate well with one another, though some vendors like Perceptive Software offer Middleware solutions aimed at this market. However, many schools will find that they need to manually export data relating to their programs from their SIS in order to use it for program evaluation.

For the arts management world, Tessitura provides highly usable functionality that integrates complex box office, online ticketing, and fundraising. It’s a complex system that’s much more appropriate for organizations with multimillion dollar budgets than for small ones, and requires considerable customization, training, and staff time to use.

If you have complex box office needs but don’t need a lot of fundraising functionality, you may find that the Ticketing Systems used primarily by stadiums and commercial venues work well for your needs. These systems—like ProVenue by Tickets.com, Ticketmaster Classic, or Ticketmaster Archtics—don’t tend to have much sophisticated functionality to track donor interactions, pledges, or donations made with event payments, but instead focus on the complex on- and offline box office functionality needed by venues.
For libraries, museums, and archives, the system used as the Central Hub of Program Data might keep track of more than just people, including the books, artifacts, and other pieces of cultural heritage that make up the organizations’ holdings. These institutions might gather data from an Integrated Library System (ILS), Library Management System, or Collection Management System to evaluate programs such as backlog processing, grant-based preservation and conservation work, provenance research, removing old or underused items from collections, and more.

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Many larger academic and public libraries use different ILS modules to manage patron, acquisitions, and circulation data. The system can also be used for cataloging items and serials—both digital and physical—into collections as well as to maintain the public catalog interface that patrons navigate, either from within the library or remotely. Sometimes the ILS can also manage the digital assets in an institution’s holdings, like scanned documents or oral history recordings. Bigger institutions often use proprietary software like Aleph or Voyager from Ex Libris (Voyager was formerly a product of Endeavor), or Millenium from Innovative Interfaces.

These products often have built-in reporting tools, such as Voyager Analyzer and the ALEPH Reporting Center, both of which use the business intelligence tool Cognos as their technical underpinnings. These tools can produce canned and ad-hoc reports about patrons and collections that can help measure program outcomes. Libraries that don’t have these modules will probably need to use MS Access or another custom database tool to provide useful reports from ILS queries.

Some institutions, including smaller libraries that previously lacked the resources to implement a proprietary ILS, are exploring newer open source offerings like VuFind, created by Villanova University, or Evergreen, originally developed by the Georgia State Library. These systems require significant staff time to get up and running, but once your collection data is in them, an institution won’t be charged money to use the systems and can use the system to serve as a central repository for all collections and patron data.

Special collections libraries and archives, which usually don’t have materials that circulate and require substantial original cataloging and description data, might be included in the ILS but often also have dedicated systems (most often homegrown) with substantial additional data. The two most widely-used open source systems, Archon and Archivist’s Toolkit, are working toward merging as ArchivesSpace, an open source archival Content Management System that can help archives gather data about their collections for evaluation purposes.

Museums and historical societies also need systems to capture data about their collections. PastPerfect has traditionally been the most popular catalog and accession system for small historical societies. The more expensive Argus, The Museum System (TMS), and KE Emu have been widely adopted by larger institutions. As with an ILS, some systems have reporting modules, but some won’t work with external tools like Crystal Reports, which might make data analysis difficult.
Legal aid organizations need software to help track their clients, manage billable hours, handle pro bono referrals, and lots more. In many instances, this means **Legal Case Management Systems** developed specifically for the legal sector—in this context, “case” refers to a court case rather than groups of constituents. Some legal nonprofits also use their **Legal Case Management Systems** to track foundation proposals and prospects, but for the most part, that’s handled by an external system that’s fairly siloed. Unique to **Legal Case Management Systems** is the document assembly capabilities that many of them offer, which allow paralegals and attorneys to work with clients to create complex legal documents by prompts and fill-ins offered by the software. At the end of the interview process, clients have a legal document they can take with them to court appointments or for future filings. Legal aid organizations often use **Legal Case Management Systems** to manage electronic case files, and sometimes built-in questionnaires have the capability to help automate the intake process with branching criteria. Some systems offer conflict of interest checking, too.

What information relating to your programs will live in **Legal Case Management Systems** as distinct from other **Central Hubs of Program Data**? Billable hours and referrals to pro bono attorneys can be reported. Some systems will offer you the ability to spit out statistics on how many and what kind of documents you assembled for clients. Scheduling information might be wholly contained in your **Legal Case Management System**, so you’ll need a high degree of comfort reporting on that kind of information using the system. However, some **Legal Case Management Systems** do integrate with other calendaring and contacts systems, like Microsoft Outlook or Google Apps.

Special custom reports within systems might help you find out more detailed program-related information, like how well certain strategies worked in resolving client problems or which remote offices were the most useful.

**Case Management Systems** on the market, with big names including Kemp’s **Case Works**, **Legal Files**, and **Pika Software**. If you’re a legal aid organization, you probably already have a **Legal Case Management System**, but it’s worth checking out its reporting capabilities and interoperability with other systems.
Section II: Auxiliary Data Systems
Section II: Auxiliary Data Systems

Nonprofits often don’t keep all their data in one place. Many organizations have two or more separate systems to track information on specific programs or constituents that, for one reason or another, need to be kept separate from other constituent data in the Central Hub of Program Data. While this is not an ideal way to manage program data, and can complicate your evaluation strategy, it’s sometimes necessary—for example, when dealing with confidential health records or other sensitive data.

Depending on your specific programs or mission, the following tools are all possible additional databases that can serve a specific function in addition to your Central Hub of Program Data:

- **Volunteer Management Systems.** These are often used by organizations with a substantial volunteer force with very little overlap with other constituents.
- **Electronic Medical Records.** Hospitals, clinics, and other public health organizations will likely need to store their confidential patient health records and prescriptions separately from other constituent data.
- **Visitor Management Systems.** Your Central Hub may not provide the ability to count and track the people that show up or attend your programs.
- **Help Desk Software.** While many databases can now track when you call or email a constituent, you’ll likely need a separate system to handle hotlines or anonymous calls.
- **Learning Management Systems.** Information around trainings and testing may be too complicated to effectively track along-side general constituent data.
- **Scientific Data Monitoring Systems.** Environmental groups, research institutions, or other organizations tracking scientific indicators not directly related to constituents will likely benefit from using a separate database.
- **Custom Databases.** Occasionally, it may be simpler or more practical to track non-constituent data in one of these systems, but only as a last resort.

With any of these systems, the key step is to integrate with the program data stored in your Central Hub. If there isn’t an existing integration that you can easily set up yourself, you may need to hire a programmer to link your databases or manually import and export your data using Spreadsheets. Tools like Microsoft Excel will, in many cases, be well-suited for storing non-constituent-related data or even performing basic queries. It’s important to keep in mind that these systems are usually somewhat limited in their out-of-the-box reporting capabilities. For more complex custom queries and reports, Business Intelligence and Statistical Analysis Software would be of use.
Spreadsheets are not an ideal way to manage all your data, but can be very useful to move your data in or out of your database or to help make sense of relatively straightforward data. In fact, spreadsheets can be a good place to store and track basic datasets—as long as that data isn’t about your clients or constituents.

Unlike databases, spreadsheets track “flat files,” or non-relational data. This means that without multiple entries, a spreadsheet doesn’t really understand how a constituent fits into your organization. But spreadsheets are a useful mode of getting program data into or out of your Central Hub of Program Data—for example, when you need to import a list of new constituent records or export the results of a report or query. Spreadsheets are often needed for migrating records from your old database to a new one.

When most nonprofits think about spreadsheets, they think of Microsoft Excel, part of the Microsoft Office suite (but also available as a standalone product), but other spreadsheet tools are available at lower cost. Open Office and Libre Office, the open source alternatives to Microsoft, include spreadsheet tools, and are free to install and use. If you want access to your spreadsheets away from the office, Google Drive offers a spreadsheet tool that’s accessed over the internet instead of installed on your desktop. It doesn’t have all the features of Excel, but allows multiple people to edit the same spreadsheet at the same time, making it easier to collaborate with other staff members. Microsoft also offers a full-featured online version of Office that includes Excel.

Despite the plethora of software systems available for nonprofits to handle specialized needs, some organizations have chosen to build databases from scratch (or close to scratch) to track their program information. Although custom databases like these aren’t always the most nimble, many organizations continue to maintain them rather than deal with converting to new solutions.

Although these systems are powerful, they can be clunky when an organization is attempting to tailor them to new program evaluation workflows—for instance, if a new grant comes in. There’s often not a ton of expertise on staff to alter the framework of the database. As a result, these systems should be considered a last-resort solution when your organization can’t find a specialized database, or your data is too complex or unusual to track in your Central Hub of Program Data. However, Custom Databases might make sense if you’re tracking a lot of “flat,” non-relational information and have too much to keep in a spreadsheet. For instance, if you’re tracking measures of water quality over a long period of time, a custom database configuration might make sense. If you’re looking to track information about people involved with your programs, though—constituents or clients with multiple points of interaction with your organization—custom databases might not be the right system, as you won’t be able to track very sophisticated relationships.

For smaller datasets, two of the most commonly-used custom databases are Microsoft Access, which is available on its own or as part of Microsoft Office, and Filemaker Pro. Both are relatively inexpensive but will require significant time to customize to your needs. For more robust tracking of larger datasets—those with around 10,000 entries or more—you can also look to more powerful enterprise-level solutions, like Oracle or Microsoft SQL.
If an organization’s programs depend on the efforts of volunteers, it’s essential to track, maintain, and report on that data. How many volunteers does the organization have, and how much time do they work? For example, how many hours did each volunteer work on a specific project, like canvassing door-to-door in support of policy related to your mission?

While some organizations with a small community of volunteers or fairly basic scheduling will likely be able to track and manage that information through Spreadsheet tools—like Microsoft Excel or Google Drive—those with a large volunteer force or complicated scheduling considerations like interests, geographic location, or online registration will want to track their records in a relational database.

Especially large volunteer programs, or those that are independent of other organization programs, may require a standalone Volunteer Management System. These databases are specifically designed to track hundreds or even thousands of volunteer records, and simplify matching volunteers to opportunities by geographic location or self-service online portals. Systems like eRecruiter/eCoordinator from Samaritan, Volgistics, and VolunteerReporter range in price based on features or the number of users or volunteer records you need to track.

While it’s often tempting to use one of these specialized solutions to track your volunteers, remember that they are constituents, and will likely overlap with the other people you are tracking—for example, if a current patient’s family members decide to help out. And many Constituent Databases have added the ability to track basic information about volunteers. When possible, try to track your volunteers with your other constituents in your Central Hub of Program Data.

For nonprofits with a high number of walk-in clients—such as community centers, drop-ins, or libraries and museums—simply counting who comes in the door is important. Organizations that don’t sell tickets might derive this data from Visitor Management Systems.

No matter what the underlying technology of the system might be, Attendance Tracking Systems work on the principle of unique identifiers, either a numeric code in the case of systems that simply count who walks in the door, or a physical, scannable object. If a scannable device or other check-in process is involved, the time of each scan is captured and linked to a member’s database record (or a client or patron’s). However, that “swipe” data also lives apart from the database record as a unique piece of information, and can be analyzed—how many people came in at 6 a.m. in February vs. 6 a.m. in August, for instance?

For nonprofits with a high number of walk-in clients—such as community centers, drop-ins, or libraries and museums—simply counting who comes in the door is important.

At its most basic, tracking program attendees could involve manually counting everyone who comes in the door using tally marks or a physical “clicker” device and recording them in a Spreadsheet, or directly into your Central Hub of Program Data. While low-cost and straightforward, this method is prone to human error. For more automated gate counting, you might consider issuing ID cards your constituents can present to a staff member or scan in order to enter. The cards don’t have to be very elaborate or high-tech—simply printing and laminating something containing the constituent’s name and a barcode will suffice.
Correspondence Tracking Systems

Some organizations might need to extract program-related data from correspondence tracking systems, such as information from phone help lines, help ticketing systems, or email-tracking systems. Say your nonprofit operates a hotline—you might measure the total number of inquiries you receive, how many calls are reported as successfully resolved, and how many follow-ups you get. Ideally, you should be tracking this data in your Central Hub of Program Data or other Constituent Management System. If this isn’t feasible, however, you may need to use a standalone system to track this kind of workflow.

Some organizations might need to extract program-related data from correspondence tracking systems, such as information from phone help lines, help ticketing systems, or email-tracking systems.

There are certainly more involved ways to implement ID cards, ranging from scanners or swipe hardware to turnstiles, which require greater up-front investment to install.

While inconceivable to most nonprofits, more-advanced gate counting technologies exist. Radio Frequency Identification (RFID) allows you to track visitors without actively scanning anything—a sensor in the room counts each person as they enter using a small chip in their ID card. Another potential high-tech method is biometric scanning—for example, scanning a constituent’s fingerprint to grant them access to a room—but most nonprofits aren’t anywhere near this level of technological sophistication. Typically, the scanner or other counting equipment you use will be connected to a computer to automatically record each visitor. If you need to scan attendees away from a computer—for example, at an outdoor event—most scanners should be able to instead store the data on a USB flash drive. Organizations that can’t afford special equipment, or that don’t rely on attendance tracking for most of their programs but need to capture this information more occasionally, might simply record the data in a Spreadsheet or explore Mobile Apps to help with head counts. Depending on your program needs, you might find a Visitor Management System packaged as just one part of a larger set of software, like CCC’s OpTIME for YMCAs and similar organizations.
Learning Management Systems (LMS) help organizations that conduct trainings or other educational programs organize curriculum-related materials, forums, grades, submission of class materials, and other online communications. Some systems also offer eLearning modules that allow courses to be streamed over the web. Nonprofits looking to track information about total hours of curriculum provided or the number of participants whose test scores have improved since entering the program, for example, might find this information in their LMS. Program data about student or participant performance, attendance, and progress might also be stored in these systems.

Learning Management Systems (LMS) help organizations that conduct trainings or other educational programs organize curriculum-related materials, forums, grades, submission of class materials, and other online communications.

Learning Management Systems sometimes offer the ability to conduct standardized tests, or you might choose to outsource this to an outside company like Scantron. Such tests are available in paper or electronic forms, and external providers will analyze and score results for a fee—or let you do the analysis yourself.

Popular LMS products include the open source Moodle, which allows for grading, online discussion forums and message boards, messaging and other teacher-student interactions, and some file delivery, but not synchronous online meetings. As an open source project, there’s a variety of custom reports available on the Moodle platform that could help with program evaluation, and you can write your own in SQL. Another well-known open source LMS is Sakai, developed by a consortium of universities including the University of Michigan, MIT, and Stanford and adopted and customized by many higher education institutions. Sakai also runs on SQL-based queries for custom reports. There’s also the proprietary Blackboard suite of products, which includes Learn and Collaborate for Learning Management Systems, and Analytics for statistics and reporting.●
Substantial privacy and confidentiality issues surround patient data stored in Electronic Medical Records systems. As such, most EMR systems aren’t appropriate for most multi-service organizations’ all-in-one database solutions. Although some of this data will be similar to information tracked in Case Management Databases, much of it—like test results and prescription information—should not be tracked with other data in shared systems because of confidentiality concerns.

As part of the Affordable Care Act, health care providers are being mandated to convert from paper to electronic medical and health records software by 2015 or pay a penalty. Additionally, providers who bill Medicare or Medicaid receive a financial incentive to convert before the deadline. This legal change has led to an influx of new EMR software systems in the marketplace. Many are being marketed to nonprofit organizations with limited budgets who will need to extract information about programs from their EMR systems to report to the government or private funders. Few of these integrate seamlessly with widely used Case Management Systems, and few agencies have the budget to set up a system integration or deploy a Middleware solution. This can lead to the problem of manual double-entry, and can make tracking data relating to programs more complex. Some multiservice organizations use a CRM system like Salesforce to track medical information, which makes integration with a Case Management System more feasible.

For organizations monitoring scientific data like air, soil, or water quality, information related to program evaluation might need to be extracted from scientific monitors or standalone data-loggers. The technology of the sensors differs widely based on what kind of monitoring your organization does, as well as whether they’re remote sensors that communicate to your office from the field or if you’re only monitoring the environmental data at intervals. Depending on where you’re located and if you need to share your data with federal or local government agencies, you might also need to comply with external collection standards.

Sometimes, the database product that can receive the scientific data collected is packaged with the monitoring equipment itself, or can be purchased together as a whole. For instance, Campbell Scientific offers many different solutions for monitoring weather, structural, and environmental factors and pairs them with installed database solutions that can analyze the data collected by the sensors. The mobile marketplace for this kind of software is thriving, so you can take a mobile device into the field with you to help with the data analysis process.
Section III: Proactive Data Gathering

As much as we’d like all of our data to be readily accessible, it rarely ever is. It’s often necessary to go beyond your organization’s standard systems to collect the information you need to evaluate your programs. A common first step to better understanding the results of your programs is to simply ask your organization’s clients for their feedback, but how can you best obtain and manage that data?

Online Survey Tools can be a cost-effective method to gather opinions and follow-up information from the people you serve. Some organizations, especially those serving youth populations, may find Text Messaging to be an effective means of communicating with constituents, reminding clients or patients of upcoming appointments, or even corresponding with volunteers or staff in the field.

Staff notes—from client sessions, volunteering events, and school visits, for example—are valuable sources of data about your programs, but those notes often take forms that may not be easy to keep track of. Depending on the system you use for your Central Hub, field staff may have access to Mobile Apps to record notes electronically, which keep your database current by updating it automatically. However, for handwritten notes or audio recordings, you will likely need Qualitative Narrative Analysis or Optical Character Recognition software that puts them into an organized, electronic format.
If you need to collect constituent information from a geographically diverse population, an Online Survey can be a powerful method for gathering data. Even anonymous follow-up questions—such as, “do you feel less angry after taking our anger management seminar?”—can offer insight into the effectiveness of your programs and the consensus of your clients, staff, and others.

Online Survey Tools are an inexpensive way to deliver queries, collect results, and possibly even analyze the data—all in one central package. These tools let you easily define survey questions and possible responses using an online interface, send constituents links to take the survey, and download response data. Basic survey features are available through some other types of systems, like Integrated Online Systems, Broadcast Email Tools, or online form builders such as Google Forms, Wufoo, or Formstack.

A number of standalone Online Survey Tools are also available. Some, like SurveyMonkey, SurveyGizmo, and Polldaddy, offer both free versions with limited functionality and pay versions with more robust features for $200-$300 per year. These types of tools tend to provide considerable support for different types of survey questions, but typically only limited ability to analyze the results.

If you want to conduct larger-scale research projects, a more powerful survey package like Qualtrics, QuestionPro, or Key Survey might be a better fit. These tools support more advanced question formats, survey logic, and sophisticated data analysis starting at several thousand dollars per year. LimeSurvey provides similarly advanced functionality, but is available as an open source platform at no cost. The more complex feature-set makes this whole class of tool more difficult to use without training—especially for those without prior survey-design expertise. If these tools seem like overkill for your needs, consider the Google Docs form functionality, which lets you easily create and post a form online for free.

Nonprofits that are surveying constituents or gathering client-reported data might find it impractical or too expensive to use software to do so, especially when working with populations that aren’t familiar with or willing to use Online Survey Tools. Using paper forms to collect information is cheap and easy at the point of collection, but what to do once you’re faced with a mountain of paper surveys that all need to be analyzed? How can you collect data that has been filled out by hand—for example from case worker notes or patient forms?

One solution is Optical Character Recognition Software, or OCR Software. OCR is a process in which handwritten or printed text can be scanned into a computer using an external scanner. That image is then converted to machine-readable text that can be searched, analyzed, and/or imported into the system you use as the Central Hub of Program Data. OCR programs can be fallible, especially when dealing with messy handwriting or nonstandard fonts, but their accuracy has improved vastly in recent years. Still, staff members may need to take the time to check over the scans and correct them manually as needed.

New scanners often come with basic OCR Software. If you’re looking to scan large numbers of documents at once, look into a dedicated document scanner with a feeder that can allow you to scan whole stacks of paper at rates of up to 150 pages per minute. The staff time this saves you might be worth the investment.

If you’re on a tight budget and have a newer scanner, consider freeware OCR Software, like OCRFeeder, FreeOCR, Tesseract GUI, or TextRipper. Additionally, if you use Microsoft Office, you may already have Microsoft OneNote installed. If you have a CAQDAS System, check to see if it offers OCR abilities—many do.
To better understand and analyze non-numerical data—for example, oral histories, social media data, or focus group notes—you may want to eliminate at least some of the scrutiny using software. Sociologists, anthropologists, and other academics who use Qualitative Narrative Analysis to conduct their research often rely on tools called Computer Assisted Qualitative Data Analysis (or CAQDAS) to discern patterns or trends from pages of text. Qualitative Narrative Analysis Software (or QNA Software) automates the coding process through user-defined “story grammar” that assigns categories and values to narrative content.

Proprietary software can be very expensive, and could be of limited use to a nonprofit that only needs to analyze a few hundred interviews—which, in the world of QNA, is not a significant amount. Major players on the market include NVivo, ATLAS.ti, and QDA Miner from Provalis, which also offers a free and fairly robust version of the software in QDA Miner Lite. Depending on what you pay for this type of software, expect it to let you import a variety of file formats; assign and record codes for terms, phrases, and ideas; search across text for coded segments; and export to formats useful for data analysis, such as .csv and tab-delimited.

Open source CAQDAS tools are often developed and supported by universities. Coding Analysis Toolkit, a web-based system from the University of Pittsburgh, is a free and fairly user-friendly option for users with basic needs. Qiqqa, a newer tool developed at the University of Cambridge in the United Kingdom, is described as a “reference management software” and helps manage and analyze information stored in PDF documents. Qiqqa also includes a built-in Optical Character Recognition process. If you’re conversant in the programming language R, and hope to use it to analyze your data, RQDA is an R package designed for Computer Assisted Qualitative Data Analysis. Like R itself, it’s free and powerful, but you’ll need to understand the coding language to use it.

If the information you’re trying to analyze is primarily in the format of digital audio or video that hasn’t yet been transcribed, your options are slightly different. Transana is an open source tool that carries a relatively small fee—about $65 per user or $500 per multi-user project—to support its developers, who operate as a nonprofit. The software doesn’t transcribe your multimedia files automatically, but relies on user assistance to generate transcripts from which qualitative data can be coded and analyzed. (Transcription services, even automated ones, can cost upward of $100 per hour of material.) NVivo and ATLAS.ti also have multimedia modules in addition to their Qualitative Data Analysis tools—however, the comprehensive package is prohibitively expensive for most small organizations.

Proprietary software can be very expensive, and could be of limited use to a nonprofit that only needs to analyze a few hundred interviews.

Finally, you might consider simply using a spreadsheet tool like Microsoft Excel to code and analyze qualitative data, especially if you don’t have very many files to analyze. You can take notes from audio and video recordings, or use an OCR process to extract text from written narratives, enter the information into a spreadsheet, and code and categorize for thoughts, keywords, and phrases. This process may not be as comprehensive as an automated one such as CAQDAS, but can be efficient and helpful when faced with a number of narratives to analyze and limited resources to do so.
Mobile Apps can be a good option for tracking attendance and participation at large, in-person events and trainings due to the availability and portability of mobile phones. There are two types of apps in this area—those that attendees use to “check-in” on their own phones, and those that your staff members can use to take attendance.

Mobile Apps in the first group, like SmartConnect (formerly Geniemobile) from Genie Connect and QuickMobile, allow attendees to check-in, create schedules, and even share notes with other attendees. The downside of these apps, however, is that they require attendees to download them beforehand.

Mobile Apps in the second group, like Event Check-In for Constant Contact, let your staff take attendance on their own phones, either by “checking-in” registrants or scanning QR codes. You could also look at apps designed for teachers, like The Attendance App, Attendance IQ, Attendance, Attendance Tracker, or Meeting Attendance. Apps can integrate directly with your Central Hub of Program Data, or you might need to export information by generating a report and importing it into your central database.

Unlike a mobile website, which can only be accessed with a Wi-Fi or data connection, apps generally don’t need internet access to be used, but your constituents will need internet access to download them in the first place. A custom-made organizational application can be an expensive endeavor, but can allow for new ways to connect with constituents, or help staff and volunteers carry out organizational work in the field.

If you have an audience compelled to use specific information or resources from your organization in an ongoing way, a Mobile App could be advantageous. Before creating your own Custom App, make sure it will provide real value to actual constituents. What would prompt someone to download it? What are the points of engagement that would bring them back to it more than once?

Based on the cost, creating a Custom App shouldn’t be the first place you turn to enter the mobile market but a more advanced option to consider if other possibilities won’t meet your goals. If you are looking to create an application for internal use, first consider the staff time and resources used to input data that could be saved by creating a Custom App.

Remember that apps are platform-dependent—those designed for iPhones won’t run on Droids, and vice versa. The same exclusivity applies to BlackBerry devices. While testing the waters with an iPhone app is a popular choice, you would need to make an educated assumption about your attendees or staff members for apps only available on a single platform.
A huge percentage of adults in the United States—85 percent of them, according to a November 2012 survey by Pew Research Center—have cell phones. This abundance makes it increasingly desirable for nonprofits to reach out via cell phone text messages, also known as SMS or Short Message Service.

Nonprofits might use Mobile Texting, often just called Texting, to collect data about the need for programs or to actually provide services, like a text-to-help hotline. However, you will need a database of constituents’ phone numbers, as well as permission from the user as required by law.

Nonprofits might use Mobile Texting, often just called Texting, to collect data about the need for programs or to actually provide services, like a text-to-help hotline.

Texting works best as a two-way channel. This could be automated using a “branching” set of responses. For example, a supporter who texts “HELP” to a particular number could get information back asking if they’re able to help volunteer at an upcoming event. If they answer “YES,” they get information about the event in response; if they answer “NO,” they might be offered another possible opportunity. A system can also automatically pull responses or information from a database. Connecting with your Central Hub of Program Data might make reporting on mobile outreach more streamlined with your other programs.

SMS can also be used in place of, or alongside, an Online Survey to collect information from a mobile audience. For example, an organization might create a service to let high school students and commuters rate the quality of the city bus services by texting in their thoughts. Staff members could then pull the response data and analyze it to identify what bus lines were rated positively or negatively, and the reasons for those ratings.

In another example, the tool Ushahadi lets you display texts asking for help on a map—in one instance, it was used after the Haiti earthquake to plot areas of greatest need and help locate people close to rescue providers who could be reached quickly. See the Maps/GIS section for more information on how geographic visualization can be useful in program evaluation.
How can different types of nonprofits most effectively use software? This section provides examples of how fictional, but realistic, organizations use software to meet their needs. It starts with smaller organizations that aren’t yet ready to make a big investment in software, and then moves to larger organizations with more complex needs.

All of the software names highlighted within the text are covered in the Types of Software section—look them up to find out more information.
Section IV: Pulling Existing Data

Never underestimate the value of publicly available information. **Clipping Services** and **Social Media Monitoring** tools can make it easy to track when and what people are saying about your programs online, while **Email and Website Analytics** tools can tell you when clients, donors, or other constituents open your emails, and what the most commonly used resources on your website are. **Public Data**, like demographic or geographic information collected and provided by government agencies, can provide a baseline against which to compare your program data, or help you identify currently underserved communities.

It can also be worthwhile to track existing information from within your organization. **Scheduling and Calendaring Tools** help you know how much staff time is being spent on programs, and how that time is spent—essential data for evaluating which programs need more staff members, and which can be streamlined.

You might find that the data your organization needs isn’t publicly available, which can make measuring your outcomes a challenge. For instance, if you run an afterschool program for middle school students in a major city and you want to see how many of those kids go on to graduate from high school, you may have to collect that data on your own—with an **Online Survey** of program alumni, or a similarly incomprehensive approach.

But for information that is available, either publicly or within your organization, there are a number of tools that can help collect it. Many offer a way to export information into a spreadsheet, which can then be loaded into your **Central Hub of Program Data** for further analysis. However, in most cases, using lower-end tools will require some manual transformation of data to make it understandable by the system or as a standalone visualization.
Part of evaluating your programs means knowing how staff time is being spent. While it’s important to collect schedules, calendars, and time-tracking data, this information often lives in multiple different tools if it’s being tracked at all. The first step is to find where it is hiding and analyze it for program data.

Getting your data all in one place is not difficult in theory, but as data becomes more complex, it requires more caution. Scheduling and Calendar Tools can be especially useful for finding such program information as how many appointments have been cancelled, how many visitors have come in, and how many public meetings are scheduled by volunteers. Information in Google Calendar, for example, can be fairly easily extracted through Google’s substantial API, but medium and larger nonprofits have more staff members, and thus more layers of complexity to pay attention to.

You may also want to explore lightweight, cloud-based time tracking systems like Toggl or RescueTime for hour-by-hour breakdowns of how your team is spending its time on programs. Remember too that tracking a client’s time can sometimes be just as useful as tracking a staff member’s. These systems vary in sophistication of the data you can extract, but many have low-cost subscription plans that offer more features.

Some CRM or other Central Hub systems have calendar tools built in. Using an all-encompassing system might simplify the harvesting of this kind of data, but an organization should be ready for the challenges of moving to a new Scheduling Tool.

Project Management tools can also be used to help better understand the efficiency of your employees and programs. Unfortunately, there are few catch-all solutions. Software that helps track technical issues, such as Jira, DoneDone, and Unfuddle, are available from $10 to $30 per year. Others, like Mantis, Bugzilla, and Trac, are open source solutions that are free to install but require some technical knowledge to maintain. More general Project Management software is available, such as Basecamp, Microsoft Outlook, and even Google Apps, which can keep your calendar, email, and task management solutions in one place.

Website Analytics software tracks your site’s statistics, including program-related website traffic such as visitors to each page, how they got there, who they are, and more. It’s possible that the vendor you pay to host your website offers access to some web statistics through the same control panel you use to administer email addresses, check available file space, and manage permissions. These tools—AWStats and The Webalizer, for instance—offer basic reports with little in-depth analysis, but are free, convenient ways to get your feet wet with analytics.

As a free and powerful option, Google Analytics is becoming more and more dominant in this space. Getting started requires access to your website’s HTML code, and at least a few hours of work—even more to track documents like PDFs or Flash content. You’ll be able to see sophisticated metrics, analyze data across timeframes or pages, and set up the traffic reports you need. The powerful interface is widely used but does have a learning curve.

A number of high-end Analytics Tools, like ClickTracks, Webtrends, and Omniture, are particularly useful to organizations that need to track traffic behind a password barrier, use multimedia content, or require technical support, which gives these tools an advantage over Google Analytics. Prices vary, starting as low as $25 per month and ranging way up to $1,000 per month or more.

Unfortunately, these tools cannot track broadcast, or blast, email. That data can be collected through broadcast email clients like MailChimp, VerticalResponse, or ConstantContact, which can report on open rates (how many people opened the email) and click-through rates (how many people followed a link from your email). This can be useful for measuring a number of program-related metrics, such as what resources get the most visits through email, what subject lines interest constituents the most, and how often clients are checking and reading the email you send them.
Listening to what people are saying online about your organization’s programs or causes can be invaluable in determining public opinion. **Online Listening and Monitoring** tools help nonprofits track mentions of your organization, specific programs, or campaigns to help you report on their reach.

Because constantly searching a number of sites can be time consuming, it’s often more convenient to be notified when one of your keywords is being discussed. **Google Alerts**, for example, will send you daily emails whenever your keywords are mentioned—though it is not as thorough when it comes to social media. Organizations looking to harvest data from their social media platforms can choose from many tools and options for measuring outreach success. **TweetBeep** tracks conversations taking place in Twitter, and **NutshellMail** summarizes activity related to your accounts on Twitter, Facebook, and YouTube.

Most social media channels offer some built-in or third-party way to analyze your activity. **Facebook Insights** is a reasonably powerful tool available to any organization with at least 30 Facebook fans, and platforms like **HootSuite** and ExactTarget’s **CoTweet** provide basic metrics for Twitter. Most blogs can be effectively measured with a combination of the blogging site’s built-in metrics, **FeedBurner**, and web analytics.

The most robust way to handle online listening is to use an RSS Tool to create a “listening dashboard.” Most of the examples above let you create RSS feeds for particular keywords—you can then pull those feeds together into a “dashboard” using an RSS reader. This method often results in a huge amount of duplicate content, but advanced tools like **Yahoo! Pipes** can help reduce the clutter.

Higher-end tools like **Radian6** and **Jive** can create robust listening dashboards with less work, but they’re best suited for organizations with the resources to afford them, and enough online mentions to make them worthwhile.

**Clipping Services** or a **Media Monitoring Service** can monitor social media as well as online news outlets and print media. Most offer software so organizations can track these sources themselves, but others can do the tracking for you and deliver reports on the results. Tools in this area include **Sprout Social**, **uberVU**, and **Actionly** at the low-end of the price range. At higher tiers, there is **Trackur**, **Thrive**, and **CustomScoop**, which can cost hundreds or even thousands of dollars per month. These tools allow you to keep track of social media followers, note when media outlets promote your resources, or look at the ratio of positive-to-negative press about your organization’s programs.

Depending on the program you’re evaluating, there’s a wealth of data made publicly available online that can help you benchmark and evaluate your programs. For example, a housing organization may wish to analyze changes in eviction rates in its city over the last five years and apply it as a possible measurement of its programs. Though nonprofits often face the challenge of segmented and siloed data, that’s beginning to improve as funders and entrepreneurs recognize the power of linked, open data.

The **IATI Explorer** (http://iatiexplorer.org/) helps organizations query and export data from its registry of hundreds of global development and aid organizations around the world. Another tool for global development nonprofits is the World Bank’s open data site, data.worldbank.org, which includes a directory of all surveys and datasets cataloged by the organization. **The Data Hub**, operated by a nonprofit called the Open Knowledge Foundation, is a useful but underutilized attempt to assemble an international open-license data catalog. OKFN also runs datacatalogs.org, a “meta-catalog” of open data resources.

Data.gov has a list of open data sites on its website (www.data.gov/opendatasites) as well as a catalog of datasets (explore.data.gov)—and these datasets aren’t just limited to data from the U.S. There’s also a **GIS** data hub at Geo.Data.gov with useful maps, visualizations, and sets. Many state and city governments place their GIS data catalogs online. For instance, NYC.gov’s **Open Data** initiative (nycopendata.socrata.com) might be useful for organizations working in the New York metropolitan area.
Section V: Reporting and Visualizing

Now that you’ve collected all this data on your programs, you’ll need to make sense of what you’ve found before you can improve your service delivery. There are a wide range of tools that allow you to report on quantitative data—for example, you could easily see how many constituents have attended a specific program in the past month and compare that to previous months, or even against other programs. While your program director or a database manager will likely have no trouble making sense of the report quickly, in order to present your findings to other stakeholders—like board members, volunteers, or donors, for example—you may need to visualize the data through a chart or graph.

For the most part, your Central Hub of Program Data should be able to handle most commonly-used reports, and even provide some basic ability to create charts or graphs. But if you find that you need more functionality than you already have, consider one or more of the tools listed below. Not all databases are created equal, and while most provide a library of fairly standardized pre-packaged reports, not all will let you easily create custom reports that can meet the unique needs of your organization’s programs—unlike Custom Reporting Tools. And while a database can create complex reports for fundraising, attendance, or outreach data, it may not be able to handle statistical trends quite as well. If you have large volumes of data from surveys or other sources to analyze, you may need a Statistical Analysis Tool.

Not everyone can parse rows of quantitative data and quickly make sense of it. A Dashboard allows your program officers to see, at a glance, a snapshot of the data they use the most through short lists or customizable charts—for example, a “thermometer” or “gauge” to show progress toward a fundraising goal. For sharing or presenting your findings to other staff members, your board, or even outside the organization, Data Visualization Tools allow you to turn your numbers into easy-to-read charts or graphs, while Geographical Information Systems allow you to turn addresses or other location data into maps that show where your constituents are, or to identify areas of need that you aren’t yet serving.

Finally, if you’ve collected a very large amount of data, you may need an additional database simply to store or archive the excess: a Data Warehouse. Because different databases may have different standards for how they store data, you will likely need a tool, called ETL and Middleware, to extract your records from one system, transform them, and load them into another.
A Dashboard allows your program officers to see, at a glance, a snapshot of the data they use the most through short lists or customizable charts—for example, a “thermometer” or “gauge” to show progress toward a fundraising goal.

Not all program data will make sense as numbers on the page. Charts and graphs are easy to scan and can be a visually compelling way to present program data to board members or other stakeholders. A graph showing the percent of program participants placed in jobs over time tells the same story as a written report or whitepaper, but in an immediately identifiable way. Google Drive Spreadsheet and Many Eyes provide tools geared toward creating interactive online charts inexpensively, or even for free.

These online tools, however, offer considerably less power to create charts that are substantial enough for printed publications. Microsoft Excel and DeltaGraph provide powerful functionality to create printed charts, and they’re under $200 for nonprofits, while Tableau offers sophisticated online and offline software geared toward those with more complex needs and a higher budget. For more complicated visualizations, you’ll either need Statistical Analysis Tools for more mathematic power, or the advanced graphic abilities of design software like Adobe Illustrator.

Geographical Information Systems (GIS) allow nonprofits to display, analyze, and share data like addresses, ZIP codes, or latitude/longitude coordinates. Nonprofits looking to capture and track data about geographical reach and diversity in their programs might find these useful—for example, using addresses and demographic data to compare the people served with neighborhoods of greatest need. By displaying information visually, maps can reveal significant data relationships that would otherwise be hard to notice. These tools range widely in complexity and in the features they offer.

To be useful in a program evaluation context, GIS systems require good data. It’s critical to spend time understanding what information will be required, where you can get it, and the time it will take to transform it to a format that can be used by your (or any) GIS system. Pay close attention to ensure that your data is accurate—a misread GPS device or a misplaced decimal point can literally make a mountain out of a molehill. In addition to geographic data, you should also look to publicly-available demographic information, like ethnicity or income level.

For many nonprofits, simply providing flat-map or globe views of the world, through what are often called “geobrowsers,” will be enough to make sense of program data. These tools—like Google Maps and Google Earth, MapBuilder, and Virtual Earth 3D—are relatively simple to learn and use, allow you to plot data to create basic maps, and let you share your maps, but don’t allow for in-depth data analysis.

Think about the type of data and how you want to visualize it before picking a tool. For example, Google Maps provides two-dimensional views, while Google Earth provides three-dimensional abilities to “fly” around your map, and adds abilities to raise and lower drawn shapes, potentially adding more data visualization possibilities. If you need to create thematic or “heat maps”—like displaying election results by district, for instance—you will likely need a more specialized tool. One of the few tools available that can create these types of maps is Microsoft MapPoint, available to nonprofits for $12 through TechSoup.
More sophisticated GIS packages allow you to work with data including imagery (such as maps), points (like a building), lines (such as streets), and polygons (areas enclosed by a shape, such as a census tract). You can then describe these points, lines, and polygons with other data, such as income levels, vacancy rates, or ethnicity. All of this data can be displayed on top of one another in layers on a map.

If your organization needs to find trends in survey data (like feedback from constituents who have gone through your programs) or large data sets, statistical analysis software can help.

Sophisticated GIS allows more advanced understanding of all this data when layered together through functionality that includes queries and filters that help analysts focus in on particular data and layers; functions for thinning and generalizing data; tools for reconciling physical features from two different data layers into the same view; and more. Advanced tools like MapWindow, Manifold GIS, or the industry-leader Esri ArcGIS require strong data-analysis skills, and using these tools effectively can require quite a leap in expertise from the basic mapping systems.

Not all analysis can be easily accomplished through reports. If your organization needs to find trends in survey data (like feedback from constituents who have gone through your programs) or large datasets (like U.S. Census or demographic information about your service area), statistical analysis software can help. These tools are not for the faint of heart, however. While it can be inexpensive to start, the more feature-rich options can cost upward of $6,000 for a single license. Statistics is also not something you can pick up easily, either; these packages can require a considerable investment in staff time and training.

If your software budget is tight and your statistical analysis needs are basic, you might consider using Microsoft Excel. While normally thought of as a Spreadsheet tool, Excel can handle most statistic needs, and you probably already have it. If not, it’s relatively inexpensive at about $120 as a standalone product, and nonprofits can obtain a license for the office from TechSoup at great discount. But Excel isn’t an optimal solution—it can’t automatically handle missing cell values for instance. Many of these limitations can be overcome through free add-ons, like the Analysis Toolpak for Windows or Statplus: Mac LE for Mac OS.

While Excel is good for most of the basic analysis you’ll need, it won’t take long to outgrow it. A widely used and well-respected option is R. R is an open source solution, meaning it’s free to acquire, but requires some technical savvy to use, as there is no graphical user interface. Instead, all functions are entered through the command-line. R runs on a variety of operating systems, and its thriving user community will help if you get stuck. Nonprofit staffers familiar with programming basics and with a firm grasp of statistical concepts may find R a good choice.

For users with moderate-sized datasets, Stata is an affordable option, starting at about $1,000 for STATA/IC, the standard version. Less technical users will likely appreciate Stata’s menu-based graphical interface, but there is a command-line interface for those with more programming know-how. Stata is easily customized, and draws praise for its tech support, helpful user community, and relative ease of use. However, the software lacks the power of some other options on the market—for example, Stata can only open one dataset at a time.
IBM’s answer to statistical analysis, **SPSS Statistics**, has a point-and-click graphical interface that doesn’t require substantial programming knowledge. This ease of use comes at the expense of some control over statistical output. Nonprofits in need of basic statistical analysis won’t find this an issue, but if you seek to do more sophisticated data manipulation, SPSS might prove frustrating. And it’s relatively expensive—about $6,000 for a license.

If you’ve got substantial data analysis needs, you might need an enterprise-level system. With more than one-third of the market share, **SAS** is the giant of the statistical analysis software scene. Strengths include power and efficiency in linking large data sets, and a comprehensive built-in set of statistical analysis features. **SAS Analytics Pro**, the entry-level desktop version of the software, costs around $8,500 per user for first-year license fees alone and about $2,000 per year for ongoing use. This software is not for novices, and requires a high degree of statistical and technological expertise to run it. However, SAS offers excellent tech support, and its prevalence means it will likely be easier to find other organizations in your network that also use the software than other tools.

While most **Case Management** or **Constituent Relationship Management (CRM)** systems that you would use as your **Central Hub of Program Data** will provide a range of flexible and useful reports, nonprofits looking to expand their report repertoire may want to consider designing their own reports using dedicated custom reporting tools. These reports can help with more complex evaluation efforts compared to built-in reports—for example, to analyze what types of people are most likely to attend your other programs.

One solution would be to use a **Custom Database** to augment your existing reporting capabilities. Tools like **Microsoft Access** and **Filemaker Pro** are inexpensive, flexible options you may already be using as **Auxiliary Data Systems**. While these databases may be easier to use than other custom reporting tools, and can fairly easily import and export data to your **Central Hub of Program Data**, you’ll need to create and maintain your own documentation so future staff members will be able to understand how the system works.

**Crystal Reports** from SAP is a widely-used custom reporting tool that provides the built-in reporting infrastructure for lots of software systems. However, the software is not the most user-friendly available, and while it’s relatively inexpensive to start—about $500 for the license fee—there’s a substantial jump in price to the more advanced versions. Crystal is still good for building basic forms and handling registration data, but for complex data analysis, it might be more than most nonprofits need or want. Other similar reporting tools include **Birst** and **Logi Analytics** from the business world, and **Jaspersoft** and **BIRT**, two open source solutions. You could also consider Microsoft’s **Reporting Services** or **Analysis Services**, which come bundled with SQL server.
A Dashboard—sometimes called an Executive Dashboard—is simply a means of making it easier to understand data ranging from event attendance, volunteer participation, supporter involvement, and more by pulling it together in one place, with easy-to-understand visuals. For example, your program officer’s dashboard could show the attendance numbers, recently added clients, and fundraising goals for her programs, allowing her to monitor overall program health at a high level.

A good dashboard pulls different metrics together into a visually-appealing, easy-to-understand interface. Often it will show indicators that make it easy see progress against a goal—for example, a “traffic light” icon with a green, yellow, or red light to show whether fundraising revenue is proceeding according to plan.

Deciding what metrics to track and where to find that data can be deceptively challenging, as can the logistics behind creating and displaying it as a dashboard.

The simplest way to create a dashboard is to use one that already exists. Many CRM systems come with pre-programmed dashboards to track fundraising campaigns. For example, a flexible constituent database like Salesforce might track enough of the metrics you want to look at to simply create a dashboard as a report.

A more straightforward approach is to use Microsoft Excel or another Spreadsheet tool, as you can easily paste in updated figures, summarize them on a highly formatted summary tab, and use charts and automatic color-coding to create something highly readable—though it’s more difficult to make it beautiful. You could do something similar with the spreadsheet tools in Google Drive. Though not quite as powerful for creating complex calculations, Google Drive does provide such graphic dashboard formats as a gauge to show where within a range your metric falls.

There’s also business intelligence software, a whole class of tools designed to help you pull together data from different systems and transform it into easily readable reports and dashboards. Tools like GoodData, iDashboards, Tableau, and JCA Answers are powerful but expensive systems. Another option would be to use a Custom Reporting Tool like Crystal Reports or Jasper Reports to create a dashboard of program metrics. These tools also have the advantage of flexible custom reports, which provide more information than would be otherwise available.

ETL, or Extract, Transform, and Load, is a three-phase process common in enterprise software in which data is automatically extracted from external sources, transformed or converted into another format which can be readable by the target database, and then loaded into the database or Data Warehouse. For nonprofits looking to use government, public, or another kind of data for program evaluation, the process might be useful, although the complexity and expense of the project almost certainly means that you’d need to outsource the process to an external firm.

Middleware refers not to a process, but a kind of software—it’s a catchall term for all systems that serve as an intermediary or middle layer in between different kinds of software, or between a software and a network. If you’re using data from multiple systems to measure your program’s effectiveness, middleware can help those different systems “talk” to each other and share data across platforms—thus rendering the systems interoperable rather than siloed from each other. Some middleware also serves to anonymize data by stripping it of identifying or private information. Like other kinds of software, middleware comes in both proprietary and open-source varieties.

Nonprofits on a budget can use free tools to transform some aspects of “messy” data. OpenRefine, which started its life as Google Refine, is an open source tool that gets high marks from experts in terms of both usability and power when working with large datasets. Some data-driven nonprofits are experimenting with streamlining their back end operations across organizations to enable data sharing and minimize the need for these processes.
Data Warehouses allow organizations to pull information from multiple places to report on it or analyze it in a central location.

Each of your existing software packages continues to work in exactly the same way, but you also have the ability to see all of their data together in one place. For program evaluation purposes, Data Warehouses can help an organization assess performance across programs and systems, and identify opportunities to improve service to constituents.

A Data Warehouse is much more a set of processes than an actual piece of software you can buy off the shelf. First, take the time to carefully analyze your needs and determine what systems you’ll need to pull data from, what fields to extract, and how you’d ultimately like to see and use the data. Think of how you plan to use this data to enhance your work and plan backward from there.

With a definition of where the data is coming from, and where it’s going, you’ll need to work through the most complicated steps: matching up the data across different systems, and defining the business rules to dictate how it should go into the repository. Before you can even think about combining data from multiple systems, it’s critical to ensure that the data itself is defined and stored in a consistent format. Once your business rules are defined, you’ll need to set up processes to actually transform the data, carry out the rules, and move the data from the starting systems into the repository.

Finally, consider the repository and reporting solution that’s most likely to meet your needs. It’s convenient to store the data in a package that has its own reporting tools—like your Custom Reporting Tool. You’re likely to run into functional limitations with these solutions if you have more complex needs, in which case you’ll need a dedicated data solution built on a more powerful database framework like a SQL or Oracle server, or a business intelligence tool like Business Objects or Cognos.

Data Warehouses allow organizations to pull information from multiple places to report on it or analyze it in a central location.

Once your needs are nailed down, you’ll need to define a process to get data out of each of your existing systems, ideally in some sort of automated way. This would mean, for instance, the ability for a programmer to access the data via code or to prompt the system to automatically export data into a file at the same time every week.

You’ll need somewhere to put the data that can handle all the different types of information you’ll need to store. It should be a structured database with some flexibility to define the fields that you want to track and the relationships between them.
How can different types of nonprofits most effectively use software? This section provides examples of how fictional, but realistic, organizations use software to meet their needs. It starts with smaller organizations that aren’t yet ready to make a big investment in software, and then moves to larger organizations with more complex needs.

All of the software names highlighted within the text are covered in the Types of Software section—look them up to find out more information.
Methodology

The research for this guide began with an exploratory and defining phase. We started with a literature review of academic works in order to identify and understand the current prevailing thoughts surrounding program evaluation techniques, strategies, and methods. Next, an advisory committee of seven program evaluation and nonprofit technology experts worked with Idealware to identify and classify a list of program evaluation indicators, which were used in tandem with our preliminary findings to inform the report.

In the second phase of research, with a firm understanding of the current state of evaluation and a comprehensive list of example indicators in hand, Idealware worked with the committee to identify the types of software for each part of a program evaluation strategy. We then wrote each section based on interviews with software and program evaluation experts and Idealware’s prior research knowledge.

Additional Resources


Innovation in Evaluation topic board, GOOD: http://www.good.is/innovation-in-evaluation

Performance Management Archive, The Urban Institute: http://www.urban.org/government/measurement.cfm

TechSoup
www.techsoup.org

TechSoup.org offers nonprofits a one-stop resource for technology needs by providing free information, resources, and discounted software. It provides instructional articles and worksheets for nonprofit staff members who make use of information technologies, as well as technology planning information for executives and other decision makers. In addition, its TechSoup Stock program offers more than 600 donated and discounted products at very low administrative fees.

NTEN
www.nten.org

NTEN is the membership organization of nonprofit professionals who put technology to use for their causes. It brings together a community of peers who share technology solutions across the sector and support each other’s work, and enables members to embrace advances in technology through knowledge-sharing, trainings, research, and industry analysis.

Aspiration
www.aspirationtech.org

Aspiration helps nonprofits and foundations use software tools more effectively and sustainably. It serves as ally, coach, strategist, mentor, and facilitator to those trying to make more impactful use of information technology in their social change efforts.
About Idealware

Idealware, a 501(c)(3) nonprofit, provides thoroughly researched, impartial, and accessible resources about software to help nonprofits make smart software decisions.

Nonprofits maintain a complicated relationship with technology. Most know that software can streamline their processes and help fulfill their missions more efficiently and effectively, yet lean staffing and tight budgets mean they’re unable to devote the time necessary to keep up with new technologies and find the right tools.

From the most basic questions, like how to use software to help manage emailing hundreds of people at once, to the more complex, like understanding the role of social networking and mobile phone text-messaging in fundraising strategy, organizations need a trusted source for answers.

By synthesizing vast amounts of original research into credible and approachable information, Idealware helps nonprofits make the most of their time and financial resources. And our reach is expanding. Our reports have been downloaded hundreds of thousands of times.

Along with reports and articles, Idealware also gets into the trenches with nonprofits through our interactive online training. Each month we create a training theme to give your organization a broad look at technology topics, including social media, fundraising, and back office operations. These 90-minute seminars get rave reviews from the participants, but we take the training a step further with our Toolkits. Made up of five or six 90-minute sessions, Idealware’s Toolkits offer extremely detailed training on one topic, including email fundraising, advanced social media, and website development. Along with the training, participants have access to an Idealware expert during weekly office hours. To round out the learning opportunities, Idealware offers the only training of its kind in our On Demand Tactical Technology Planning. Made up of five units and 26 modules, On Demand Tactical Tech Planning allows participants to take the training at their own pace on the device of their choice. When completed, they’ll have a complete tactical technology plan for their organizations.

To join any of Idealware’s trainings, visit our website at www.idealware.org. To learn more about On Demand Tactical Tech Planning, visit tacticaltech.idealware.org.

Who’s behind Idealware? Idealware is made up of a small, growing staff aided by a community of experts, including content partners and contributors, and overseen by a remarkable board or directors and set of advisors.

Want to connect with us? Join the conversation on Twitter or Facebook.

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Facebook: facebook.com/Idealware.
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Laura leads Idealware’s activities. Prior to Idealware, Laura founded Alder Consulting, where she helped nonprofits create internet strategies, select appropriate software, and then build sophisticated websites on a limited budget. Laura is a frequent speaker and writer on nonprofit technology topics.

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