DKAN Powers Dynamic, Data-Driven Decision-Making

Governments and civic organizations are increasingly embracing the open data movement and with it the prospect of unprecedented public transparency. However, organizations often need a sophisticated data repository to make information accessible to citizens and civic organizations, particularly in formats that can be accessed by other computers via application programming interfaces (APIs). Raw data, even when publicly shared, is not easily understood, and needs to be turned into data-driven stories to be useful to the public in holding institutions to account or assisting policymakers. The DKAN DemTool, developed by NuCivic, helps tackle these problems. Government organizations, journalists, policymakers or civic groups can create searchable, indexed public repositories of information compatible with open data standards. Data analysts and visual storytellers can then tap that information to create charts, graphs, maps and web pages to wrap raw numbers in powerful visualizations that illuminate meaning and have impact.

Why Would You Use DKAN?

Publicly Sharing Open Data, Maps and Visualizations

DKAN was designed for groups who want to share data with the world in open, public, machine-readable formats, or generate maps, charts and other visualizations off of the data. This data may be their own - budgets from a ministry or survey information from a civil society organization (CSO’s) members - or it may be other information that they’ve aggregated from other sources, or scraped from public web sites. The end goal of such a data portal is helping to increase understanding of complex information-centric topics which can lead to political accountability and better policy making. Remember that audiences are rarely the general public, who have little appetite for spreadsheets or even stacked bar charts; they are usually intermediary groups such as CSOs, journalists, or even public officials and their staffs who affect either public opinion or government policy. Groups are better advocates for their priority issues with information that is readily available and able to be analyzed rapidly without a high level of technical skills.

DKAN's design allows publicly shared large open datasets with standard open-data APIs. Organizations who want to build open data platforms that are fully compatible with the gigantic systems used by the White House or World Bank - and the large civic software development community around them - will find DKAN useful.

Maps and graphs can often tell a story more effectively than a table of numbers; DKAN gives the ability to create colorful, customizable visualizations that can be published directly, shared on social media or embedded in other web sites. With digitized boundaries of as countries or provinces maps can be automatically generated to look for geographic trends, reducing the need for complicated and often costly GIS software.

DKAN allows you to create a variety of visualization types so you can select the most effective graphical depictions to communicate your findings. Color-gradient maps can highlight differences between regions, while a range of powerful chart and graph generators can show changes over any number of variables.
**Past Use Cases**

Open data platforms such as DKAN are becoming de rigueur for any open data effort by a government entity. They also are used by civic organizations for aggregating and sharing resources gathered from a range of source. Open data platforms have been used in sharing data from elections, censuses, health monitoring, and economic analysis. NDI has made use of DKAN for internal visualization and analysis of both citizen observer and international observer election data in Nigeria and Tunisia. DKAN has been used as the official open data platform of a range of national and city governments including Italy, Puerto Rico, Sierra Leone, Cologne, and Ukraine. DKAN is being used for data publication by the UN, the USDA, and in a unified Ebola response.

**Technical Requirements**

At the most rudimentary level using DKAN requires a CSV (comma-separated value) form of a spreadsheet exported from Excel, the ability to do basic data management, and patience to experiment with different forms of graph generation.

To configure choropleth (color gradient) mapping requires a good deal more sophistication, as one needs to identify the right shapefiles, convert them to GeoJSON, upload them to DKAN, match the names to the correct column in the data resource, and then start generating content. Making data accessible via DKAN’s standard public APIs also requires more complicated efforts.
Users with the skills to set up and manage their own web server can download the software from http://getdkan.org, or for a version designed for international civic and governmental partners, from NDI’s GitHub repository.

NDI can also host a copy of DKAN on our DemCloud software-as-a-service (SaaS) platform, handling web server setup, patching, configuration, and protection from denial-of-service or hacking attacks. Contact the NDItech team if interested.

User Considerations

Management of an open data platform requires a decent understanding of data - why it matters, what to collect, what to share, what format it should be in, and its political impact. The manager of the DKAN platform should also understand the basics of a web content management system (CMS) like Drupal to upload, manage and organize data sets and resources. The organization should be capable of analyzing data and framing their messages in a larger story for maximum impact. The end user, in most cases, is the general public or an interest group who can use the platform to catalogue and report issues.

Effective data visualization couples the science of analysis with the art of communication. The selection of what to map or graph, and how it’s categorized, can send radically different messages to your target-ed audiences. Technically building the visualizations is not particularly difficult, once the resources - shapefiles for maps and base resources - are uploaded, but it does take training to understand the range of options.

DKAN is relatively straightforward to use - an administrator comfortable with CMSs should understand how to use the system in a day or two. However, producing effective visualizations is an entire field of study; and the basics are worth dedicated training for people new to the topic.

Promotion and Content Sharing

If your core audience is the narrow world of open data experts, a targeted series of direct messages and introductory sessions might be sufficient. However, if your DKAN site has a wide target audience, it is important to make sure the public knows about it. Many visualizations make for compelling social media posts; consider highlighting interesting elements on a regular basis. If engaging on social media, consider a Facebook advertising campaign to spread the word. Google search ads are also a powerful way to find people looking for information on particular topics, including the parties, parliament, or political issues raised.

As journalists are often a key audience consider in-depth conversations and trainings on data-driven journalism to assist them in understanding the platform and methodology, and sharing the content with the public.

Security Considerations

Your security needs are as serious as the privacy of the data in the site. The integrity of all the data is important - one doesn’t want strangers surreptitiously changing some of the information - and so administrative accounts with good passwords are a must.

If the information in the system is confidential - for internal analysis, perhaps - one must be sure to limit access to private information to users who log in. Best practices in web server administration must be followed. These considerations are only a small subset of possibilities; if your program is in a sensitive security context, please engage in a holistic risk assessment process to determine the types of threats that your participants may face.
Considerations for Women & Marginalized Populations

As a web-based data visualization system, DKAN is excluding communities without internet and those with visual disabilities. When using gradient maps it is particularly important to remember common problems with colorblindness. Graphs and charts can, however, be empowering for those with low literacy, as visual narratives can help in understanding a sophisticated problem.

At the end of the day open data often involves information compiled from individual people. When posting information, one must be careful to make sure that personally identifiable information is not somehow discoverable in the large data set; sophisticated analysis can often unmask individuals even after a purge of obvious personal data. This is doubly true for marginalized populations; be very thoughtful about whether the information presented or the visualizations shared could in some way be used to negatively impact those who already may be discriminated against.

Translations

DKAN has previously been translated into several languages. As a Drupal distribution, much of the framework has been translated into a wide array of languages already. Please discuss with the NDITech team to see if it is available in your language of choice.

Funding Considerations

With the DemTools deployment of DKAN, the technology costs required are relatively low, but is straightforward, programs should think through the following activities and budget appropriately for the related staff time.

Initial Deployment
• Program strategy and setup
• Data cleaning support
• Visualization design
• A targeted outreach strategy to inform key audiences of the system and how to take advantage of it
• A redesigned visual theme, if desired
• New language translations, if necessary
• Training on the Drupal Content Management System (CMS) which powers DKAN

Ongoing Care and Feeding
• Advertising campaign management
• Social media management
• Data management and updating
• Occasional generation of new visualizations

What Support Does NDITech Offer?

NDI has created user manuals to assist organizations with making use of the DKAN (in English; other translations welcome.) The NDITech team can provide strategic advice in the design and deployment of DKAN platform in a particular political context. The team is experienced in training on best practices in data analysis and visualization, site management, social media outreach, and advertising strategies. If desired, NDITech can offer a full range of support, including troubleshooting, data input, and visualization setup. NDITech may also provide specific support for organizing data and creating more customized visualizations.

The DKAN DemTool is available via DemCloud, a software-as-a-service (SaaS) hosting system where NDI manages server administration, patching, security and bug fixes.