

# LSNC Google Integration Project TIG Final Evaluation Report

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## I. Project Goals and Objectives

The overall project goal was to enhance the effectiveness and efficiency of day-to-day client representation by developing a wholly new, improved set of integrations of the Pika CMS with three core Google Apps: Gmail, Google Calendar and Google Drive. These are the three Google Apps most commonly used on a daily basis by LSNC advocates. Development of these three code integrations would enable Pika and Google Apps, as seamlessly as possible, to “talk” to each other and share client case-record data in a way that enhances the ability of LSNC advocates to complete work on behalf of their clients.

LSNC broadly characterized this technology initiative as the “LSNC Google Integration Project.” The Pika CMS itself is an open-source PHP application in use by LSNC for over 10 years. To accomplish the integrations with Pika, the project relied on various Google APIs (application program interface), which are open-source code sets enabling developers to properly request and sync data – e.g., Pika client case records – with Google applications.

The project had four objectives:

**Objective 1:** Integration of Google Calendar and Gmail functions into the Pika CMS to track date-sensitive calendared items such as filing, hearing and trial dates and other timed or scheduled events on client cases, such that all users associated with a client case are notified via a Gmail message of tickler events and can automatically add the tickler events to their Google Calendars.

**Objective 2:** Integration of Google Drive with the Pika CMS, by replacing the native Pika Docs file storage function with Google Drive, such that the user has direct access to a case-specific Google Drive subfolder directly from within Pika.

**Objective 3:** Integration of Gmail functions with Pika case records, enabling users from within the Gmail user interface to search for and copy to a client-specific Pika case record the contents of a Gmail message, as well as any files attached to the Gmail message.

**Objective 4:** Provide ongoing support to LSNC and other legal services organizations exploiting the project code, with bug fixes and updates of all three Google Apps integrations with Pika through the end of 2016 by: maintaining and updating the GitHub project code site; and assuring the continuing functionality and practicality of the Google Apps integrations by making code fixes or recoding to adjust or adapt to any changes required as a result of alterations in Pika or in the Google Apps cloud architecture and its related APIs.

No significant changes were made to the overall project goal and the stated objectives.

## **II. Evaluation Data and Methodologies**

The methods and data sets for evaluating each of the first three objectives was essentially the same: Each objective involved the development of an integration of one or more core Google App (Google Calendar, Gmail and Google Drive) with the Pika case management system. As each integration was developed in turn, it went through:

- Alpha testing by MC+A (Michael Cizmar and Associates, the Google developer on this project) and Pika Software (Aaron Worley, the original developer of the Pika CMS).
- Initial beta testing by MC+A and Pika Software, as well as LSNC project staff (Mark Sawyer and Brian Lawlor).
- Near-final beta testing by a designated group of advocates and support staff across LSNC offices and positions.

The number of LSNC staff beta testers varied from time to time, but for each phase numbered no fewer than four. Feedback from the LSNC staff beta testers was obtained via direct interviews by Brian Lawlor of all the beta testers at each juncture; direct messaging from the beta testers to Mark Sawyer and Brian Lawlor about issues they encountered; observation without prompting by Brian Lawlor of two beta test users in the LSNC Sacramento Office – the managing attorney and an intake paralegal – to determine how they were actually interacting with and understood the integrations; and post-deployment reports of issues and questions from other LSNC staff once the integrations were made available more broadly throughout the program. Albeit anecdotal, the direct feedback from the beta testers

revealed no significant problems or issues understanding or using the integrations.

The evaluation plan for this project provided for program-wide surveys of all staff about their user experience and success in utilizing all three integrations. Two surveys were conducted: one in October 2015 distributed to all LSNC staff six months after program-wide deployment of all three integrations; and another, more focused survey distributed in May 2016, a full year after deployment, to all LSNC attorneys and paralegals advocates. The survey results and analysis are detailed, below.

As detailed, below, all the Pika and Google API codes sets and documentation created for this project have been publicly posted at the project's GitHub site. The project site was created in December 2014 by MC+A and was updated regularly over the life of this project.

### **III. Summary of Major Accomplishments and Recommendations**

The overall project goal and all stated objectives were completed successfully. The integrations of three different Google Apps with Pika enable LSNC advocates to synchronize or replicate seamlessly selective content in Google Apps to the Pika case records with which the individual advocates are associated.

#### **Major Accomplishments**

- LSNC developed a Google Calendar integration with Pika that is completely seamless: LSNC advocates continue to enter time-sensitive tickler events in Pika, as they always have. Without any further interaction required by the advocate:
  - ◆ All advocates associated with a Pika client case, including the advocate who entered the Pika tickler event, are notified via a Gmail message of the tickler event;
  - ◆ All recipients of the Gmail message can, at their discretion, click on a link in the message to add the tickler event to their personal LSNC Google Calendars.
  - ◆ All tickler events in the Pika CMS also automatically trigger delivery of the same Gmail message to the LSNC office with which the Pika case record is associated, so that the office manager can in similar fashion add the tickler event to the respective office's "tickler" Google Calendar.

- LSNC developed a Google Drive integration with Pika designed to wholly replace the native Pika file storage function. This integration is as seamless as can be imagined: As they have always done, Pika users go to a client case record and then select a tab labeled “Drive” (designed to replace the default Pika “Docs” tab). When viewing the Drive tab in Pika, users see all case-specific files now listed in an embedded Google Drive view. What they are viewing is exactly that, an actual Google Drive folder linked to that particular case record.
- The third integration was designed to enable LSNC users, from within the Gmail user interface, to search for and copy to a client-specific Pika case record the contents of a Gmail message, as well as any files attached to the Gmail message. While this integration, of necessity, requires interaction by the user to conduct a search for a specific client case record and then select available options for copying the content of the message and its attached files, it is functionally all but seamless. The user only needs to interact with the Gmail message. The content of the message and file attachments are automatically copied to the case notes of the selected case record, and any file attachment selected is also automatically copied over to the same case record’s “Drive”.
- A public, permanent code repository for all Pika and Google API code sets was created for this project at GitHub, where one can freely download all the code developed for this project. The project’s GitHub site includes detailed instructions explaining how to install the integrations.

This project has helped set a technical marker for use, and reuse, by other legal services programs, demonstrating they can successfully integrate Google Apps with open-source case management systems like Pika. This project tells them it can be done, and done well, with seamless integration and excellent user-experience (UX) design. The basic work for adapting these integrations with Pika is now done and available to all programs using Pika. Programs relying on other open-source case management systems now have a solid blueprint of how comparable integrations can be accomplished.

#### **IV. In-Depth Analysis of Accomplishments**

LSNC, in partnership with MC+A and Pika Software, successfully designed and implemented a set of three Google Apps integrations with the Pika case management system that brings a new level of efficiency and effectiveness to some of the most common, day-to-day, repetitive yet essential tasks involved in representing clients. These integrations of Gmail, Google Calendar and Google Drive

with Pika afford advocates simplified, all but seamless methods for synchronizing and replicating select client case-specific information and integrating that information with the client's case record in Pika.

The technical focus of the LSNC Google Apps Integration Project has been all about developing software code. All technical requirements of the project related to that code and the effective use of Google APIs so that the different Google Apps could communicate with and share or synchronize data with the Pika CMS. There were no particular or additional hardware requirements for this project other than those LSNC already had available to it, i.e., the web server on which the Pika CMS and related database reside and, of course, reliable, sufficient bandwidth to support the use of Pika and web access to Google Apps.

This in-depth analysis first summarizes each of the three integrations. After reviewing how each of those works, the report summarizes in detail how the LSNC user testing was conducted, a process essentially the same for all three integrations. Finally, the analysis details the public GitHub code site created for the project and its role in the success of the overall project for this project.

### **Initial Level Setting and Project Planning**

At the outset of this project in December 2014, LSNC, MC+A and Pika Software, met to work out the technical requirements and structures for completion of the project. (This initial phase was eased considerably by LSNC and MC+A's prior experience in 2011 with an earlier TIG grant supporting the development of various Google integrations.) All the parties involved with this current TIG project understood the basic beats to hit:

- Undertake regularly scheduled (usually every week or so) video conference via Google Hangouts for vetting proposed code and user designs and review pending alpha and beta testing of each implementation;
- Establish a shared, web-accessible test-bed environment for initial alpha and beta testing of each of the Google integrations;
- Establish a LSNC-specific beta test-bed environment on its own server for initial replication testing of each integration;
- Create a public project site at GitHub making available the developed code and providing technical instructions for replicating the project. (See Attachment 1, screenshot of GitHub project site.)
- Create a Google+ Community for publicizing and promoting project developments throughout 2015 and 2016. (See Attachment 2, screenshot of the "Google Apps | CMS Integrations" community at Google+.)

These beats were hit smoothly. After the outset of the project in December 2014, MC+A created the project GitHub site at – <https://github.com/mcplusa/TIG-Google-Apps-Integration> – and established a shared a development site on Amazon Web Services (AWS). With these initial project components in place, the development team began to meet regularly to work on the Google Calendar integration.

**Objective 1: Integration of Google Calendar and Gmail functions into the Pika CMS to track date-sensitive calendared items such as filing, hearing and trial dates and other timed or scheduled events on client cases, such that all users associated with a client case are notified via a Gmail message of tickler events and can automatically add the tickler events to their Google Calendars.**

From the UX (user experience) perspective, the overall goal was to create a collection of integrations that are as seamless as possible. The Google Calendar integration, the first to be built, exemplifies how this was accomplished.

For LSNC the measure of success is that users would continue to experience the Pika tickler functionality as they always have, but with the coding magic that their entry of a Pika tickler event automatically triggers a Gmail notification to all advocates associated with a particular case that a new ticker has been created; and that each recipient, at their individual discretion, could then click on an embedded link in the notification to add the tickler event to one's personal LSNC Google Calendar. The Gmail notification would also go to the office associated with the particular case, so that it could add the ticker event to its "office tickler" Google Calendar. An added feature is that the Gmail notifications have been designed to display a subject line that makes it explicitly clear it is a tickler notification about a specific client.

A video demonstration of the Calendar integration with the Pika tickler function is available at YouTube – <https://www.youtube.com/watch?v=Q2ofTo8cvz0>

What difference would this make? As a practical matter, advocates responsibly enter ticklers in Pika but predictably do not rely on Pika calendaring for any other purpose. What advocates rely on for general calendaring is Google Calendar. Why not assure that notification of time-sensitive ticklers entered in Pika are seamlessly delivered to everyone working on the case, and with a simple click add the tickler event to the same calendar the advocates (and the office, for that matter) actually use to calendar such events.

This new calendaring functionality is a marked improvement over the default Pika tickler calendar options. Advocates can enter their ticklers once in Pika – as they have always done – but now have the added benefit of automating the process of

adding those ticklers to their personal LSNC Google Calendars, the calendar space they actually use on a daily basis, with all the benefits of conventional Google Calendar functions, i.e., the tickler event added to one's Google Calendar is exactly that – a Google Calendar event one can use or exploit like any other Google Calendar event.

Alpha and beta testing of the Calendar integration occurred on a rolling basis during January and February 2015. As explained, below, in order to simplify rollout of the integrations to all LSNC staffers was delayed until all three integrations were completed and ready to go.

**Objective 2: Integration of Google Drive with the Pika CMS, by replacing the native Pika Docs file storage function with Google Drive, such that the user has direct access to a case-specific Google Drive subfolder directly from within Pika.**

Of all three integrations, the Google Drive implementation in Pika is by far the most transparent and seamless. On the user end, there is nothing they need to do. Once implemented, Pika users could click on a standard Pika case-record tab, renamed “Docs” to “Drive, to view files uploaded to the particular case record. In parlance within LSNC, users now refer the tab as the “Pika Drive”. The initial Google Drive integration was completed and then rapidly deployed in April 2015, along with the other integrations.

How does the Google Drive integration compare to the native file manager in Pika? The default Pika file management component is severely limited. The user uploads a file and it is stored in the native Pika Mysql database. One cannot do anything with the file other than download it. The file cannot be viewed or shared or renamed, or, well nothing else, really. In contrast, this project's Google Drive integration provides users with drag-n-drop uploading, and once uploaded one can click on a file and invoke the native Google Drive file viewer to see what is in the file, zoom in on its content, rename the file, and share the file – all like one does in Google Drive. (It should be noted that the Google Drive integration, like the native Pika file manager, only supports single-file, not multiple-file, uploading.)

A video demonstration of the Google Drive integration with Pika is available at YouTube - <https://www.youtube.com/watch?v=vxAtE7W1ir4>

**Objective 3: Integration of Gmail functions with Pika case records, enabling users from within the Gmail user interface to search for and copy to a client-specific Pika case record the contents of a Gmail message, as well and any files attached to the Gmail message.**

The first two integrations described, above, require little or no user interaction to work. The Calendar integration operates automatically every time a Pika tickler is created. The user automatically receives a Gmail notification that a new tickler has been created, and can choose or not to add the tickler to one's personal LSNC Google Calendar. The Google Drive integration is equally simple and seamless: It is just there. No user interaction is required, other than to upload files as one has always done in Pika.

The third integration, allowing users to copy the content of Gmail messages and related file attachments to a specific client case record in Pika, is more complicated and requires more user interaction, but is well worth it.

Again, from the UX perspective, the Gmail integration addresses a recurring advocate user problem: How to quickly, efficiently copy the content of a Gmail message in a client case record?

Without the integration, a user has to go through a cumbersome copy-and-paste process: View the message in Gmail, highlight the text of the message, right-click to select "copy" the highlighted text, then open Pika, search within Pika for the specific client case record, clicking on the Pika "Case Notes" tab, and then paste the message into a new case note. The process has to be repeated with the same message to add any file attachments to the same case record, by downloading the file attachment to one's desktop, and then go again to Pika to open the "Docs" tab and upload the file.

The Gmail integration simplifies this process: When viewing a Gmail message, the user sees a "Copy to Pika" button at the bottom of the message when clicked it invokes a dialog box where the user can search and select a specific client case record, and then copy the message and any file attachments directly over to Pika, without ever opening Pika. Without any further user interaction, the message is automatically added as a case note in the select case record, and any selected file attachments are automatically added to the list of files on the "Drive" tab page of the same case record.

To be sure, use of the Gmail integration involves a one-time installation of the custom Chrome extension "Gmail-to-Pika" available at the Chrome Web Store: <https://chrome.google.com/webstore/detail/gmail-to-pika/mnapnknkgdnkpobhafdgc lljfihpobnnf>



Once installed, the Chrome extension automates the “Copy to Pika” button in one’s Gmail messages and enables the Gmail message and file attachment copying process.

A video demonstration of the Gmail-to-Pika integration is available at YouTube - <https://www.youtube.com/watch?v=Iwj5AzLaks>

**Objective 4: Provide ongoing support to LSNC and other legal services organizations exploiting the project code, with bug fixes and updates of all three Google Apps integrations with Pika through the end of 2016.**

This project included a purposefully self-protective element, to guard principally against any changes to the Google Apps cloud architecture and its related APIs, through 2016, that might compromise or break the integrations with Pika. This caution was prompted by LSNC’s earlier, painful experience on a comparable TIG-funded “Google integrations” project in 2010. There, unanticipated changes by Google in both its Google Apps architecture and its APIs completely broke the code sets created for that project, rendering them useless shortly after that project was completed.

In the current project, both MC+A and Pika Software contractually committed to providing, as a subscription service at a fixed price, whatever technical and coding support was necessary to keep the code sets intact and full workable through the end of 2016. While this note of caution was totally warranted, as a practical matter there has been no demand or need for technical support. The code sets developed for this project have proven rock solid. During this term, Google has made no changes to its Google Apps platform or its related APIs that have any effect on this project’s integrations.

### **Alpha and beta testing and initial user feedback**

As each of the integrations were created by MC+A and Pika Software, the developers tested the code initially at a Pika “test bed” installation set up by MC+A on Amazon Web Services (AWS). LSNC always had access to the test bed site, but during the alpha phase, LSNC stayed out of the way and let the developers do their thing. All three integrations were coded and went through alpha testing during 1Q 2015.

During March and early April 2015, LSNC got directly involved in beta testing all three integrations. Initial beta testing was performed by Brian Lawlor (LSNC project director) and Mark Sawyer (LSNC Manager of IT), and then later by three beta testers, two of whom (Jenni Gomez and John Tan) are practicing LSNC lawyers and a third who is an intake paralegal (Martha Valles).

To get a practical measure of whether the UX design was effective, none of these three LSNC beta testers were trained, given a demonstration or even instructions about the integrations, other than a brief oral description of the integrations and what they were designed to do. The point of this approach was to see if users could easily and intuitively figure out how to use them without handholding.

After these LSNC staff members tested the integrations, Brian Lawlor informally “debriefed” them. What came out of the debriefing was straightforward and positive: The beta testers found the integrations easy to understand and use. They encountered no technical problems of any kind. They simply worked as described to them, and did so in a way they found intuitive.

After the beta testing was completed in April 2016, LSNC quickly added all three integrations to its production version of Pika. Although the integrations were effectively available to all LSNC users at that point, a decision was made to alert only the Sacramento Office staff about the integrations. This was done so that LSNC could get additional anecdotal feedback based on a week or so of actual use in actual cases, in a real-world office environment, without any hand-holding. It was also during this brief period that Brian Lawlor directly observed two LSNC staffers (Bill Kennedy, Managing Attorney; and Marth Valles, Intake Paralegal) to see how they interacted with each of the integrations. He also informally checked with a half-dozen other LSNC staffers to see if they were having any problems with the integrations. No one reported any problems or issues with the integrations.

The final deployment to the entire LSNC took place in April, 2015. The feedback from the beta testers and later by the Sacramento Office, described above, convinced LSNC that formal training was not required for users to understand how the integrations. Instead, a set of short videos were created demonstrating each of the integrations and briefly explaining their purpose. These videos were distributed to all LSNC staff via a Gmail message with a link to the videos uploaded to YouTube:

**Calendar integration**

<https://www.youtube.com/watch?v=Q2ofTo8cvz0>

**Drive integration**

<https://www.youtube.com/watch?v=vxAtE7W1ir4>

**Gmail-to-Pika integration**

<https://www.youtube.com/watch?v=Iwj5AzLaks>

**Survey Results**

Not long after program-wide deployment in April 2015, two surveys were conducted to get feedback from all staff about the integrations. The initial survey was published to all LSNC staff via a Google Forms in October 2015 to get feedback broadly from across all LSNC positions. The second survey was published only to LSNC attorneys and paralegals in May 2016, to get more focused feedback for those most likely to rely on the integrations to do client-related work. The survey results are attached to this report as Attachment 3 (all-staff survey) and Attachment 4 (advocate-only survey).

In both instances, the survey results overall were very positive. The results confirmed that most users now rely on the Chrome browser, understand the integrations, have used them, and rated them highly. To be sure, the initial, all-program survey used intentionally goofy labels for rating the integrations on a scale from 1 (“Phewy”) to 5 (“Nirvana”) to encourage the users to respond. Of those who had used the integrations, the all-program survey shows that, on a scale from 1 to 5, rating from worst to best, 73% (14/19) rated the integrations as a 3 or higher.

The second, advocate-oriented survey was more focused in rating the integrations individually. On a scale of 1 to 5, rating from worst to best, 91.6% (22/24) of advocates rated the Calendar integration as a 3 or higher, with 45.8% (11/24) rating it as a 5, the highest score. The rating for the Google Drive integration was a touch higher, with 95.8% (23/24) of users rating it as a 3 or higher, and 91.6% (22/24) rating it as as a 4 or 5. The rating of the Gmail “copy” to Pika integration was the most mixed of the three, likely reflecting the need of the user to interact more with that particular integration. Of 24 responders, 25% rated it as a 1 or 2. But 75% (18/24) still rated it as a 3 or higher, and 45.8% (11/24) rated as a 4 or 5.

## **V. Factors Affecting Project Accomplishments**

Prior failure can lead ultimately to later success, and that happened here. LSNC in partnership with MC+A, came to the current project with considerable prior experience of developing integrations of Google Apps with Pika as part of a comparable 2010 TIG grant. That earlier project hit rocky shores at its end because, shortly after completion of the project, Google made dramatic changes to its Google Apps platform and its Google APIs that rendered the code sets useless, a pain point that felt like failure at the time.

With the current TIG grant, LSC generously supported the development of wholly new code sets to accomplish even better designed set of integrations of Pika with Google Gmail, Calendar and Drive. The completion of this current project is a proud

point of success for the entire development team. The code sets are very stable and can now be readily replicated by any other legal services program that uses the Pika CMS and relies on the Google Apps (now called “G-Suite”) platform.

## **VI. Strategies to Address Major Challenges**

Other programs that undertake to implement these integrations would be wise to factor in the time and resources, including the cost of ongoing technical support from developers, to assure the integrations continue to work. This is a key aspect of working with any Google application or platform. Wonderfully, but notoriously, Google constantly and relentlessly makes changes to its applications and APIs, with the obvious purpose of improving them. However, these types of integrations are always vulnerable to being caught in the cross-hairs of Google’s changes.

It bears emphasizing something that LSNC learned repeatedly from its three Google-centric TIG grants over the last 10 years: Unlike so many other technology projects undertaken by legal services field programs – where the organization’s IT staff likely has the expertise need, at least in theory – field programs are all but certain to need very specialized third-party technical expertise. LSNC certainly has had that need on all three of its TIG-funded Google projects.

LSNC’s advice to other field program: Be prudent but not fearful. You can do it! Just make sure you retain the technical expertise required, so your project does not flounder for lack of essential technical skills.

## **VII. Major Lessons and Recommendations**

- This project was highly technical and code intensive. It required use of various components of open-source Pika and Google API codes sets. The effective use of that open source code, albeit freely available, does demand a professional level of code programming skills and sophistication to accomplish a project of this kind. Organizations undertaking this type of project should assure they have available the technical coding expertise to meet the demands of the project.
- An organization should work with an experienced Google developer and Pika developer. This type of project relies and must depend upon the Google Apps platform, which ultimately is beyond the organization’s control. It can be difficult to diagnose and resolve some coding problems when building out these types of integrations with one’s case management system. It is

essential an organization work with an experienced Google developer and Pika developer to assure those types of problems can be resolved.

- This cannot be emphasized enough: Be prepared to “nurture and maintain” your code. Over time, the Google API code will be updated and some parts of it will be deprecated, both of which are normal in the longer arc of code development. Organizations should factor in what it will take to maintain their Google API code in light of those inevitable changes.