Capturx Case Study

Alice Ferguson Foundation

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FOR FIELD DATA STUDIES

Summary

Background: The Alice Ferguson Foundation funds a science education outreach program called, Bridging the Watershed. The student-based program provides opportunities to collect and analyze field data for the benefit of the National Park Service.

Challenge: Paper management and the aggregation of the field records for timely analysis was both time consuming and error prone. Bridging the Watershed was looking for a durable and easy-to-use tool for students to use in the field and that would help with automating the data management.

Solution: Capturx Forms Service instantly digitizes and records handwritten field observations written on paper forms with digital pens.

Results: Teams can start analyzing and sharing accurate field records immediately due to instant access to digital data without the manual entry. The rugged digital pens are well-suited for field data collection and require little to no training.

Capturx Streamlines Scientific Data Collection in the National Parks

Bridging the Watershed (BTW) is a science education outreach program of the Alice Ferguson Foundation (AFF), focusing on providing students with outdoor learning experiences which promote academic achievement, lifelong civic engagement, and environmental stewardship. BTW partners with the National Park Service (NPS) to create field programs enabling students to collect and analyze field data, which is important both as a learning tool and a source of information analysis for the NPS.

In keeping with the authentic experience, students generate a great deal of data for field observations on paper ranging from water chemistry and quality to invasive species counts. In the course of a typical month, for example, BTW conducts as many as 42 field studies, averaging 5 to 10 per week. To streamline data access for analysis and reporting, the students also use the latest professional tools including Capturx Data Collection Software for Digital Pens to instantly digitize and record handwritten observations on paper.

Challenge:

Like data collection challenges faced by many field teams, the BTW teams found that moving data from paper and aggregating records for timely analysis and reporting was both time consuming and error prone. During lunch breaks, for example, team leads would hastily gather all the data collection sheets from field workers and then manually transcribe all the data to create a composite sheet. After returning to the office, the data from the composite sheet would be manually entered onto a private web page accessible remotely by the participants for analysis. A copy would be filed in an archive binder.

In addition to being a cumbersome process for BTW staff, extracting the data from the website for analysis and reporting was awkward for the field participants. They would have to download and format the data into a reporting tool like Excel. The National Park Service also wanted streamlined digital access to the data for their own analysis, reporting and record keeping – so much so that they provided a technology grant to help streamline the process of data sharing.

For data analysis, BTW selected Microsoft Office Excel, since it provided flexible data tracking and analysis capabilities, and was commonly available to participants. For hardware, BTW evaluated laptops and PDAs, but were concerned about durability for use by students especially in unpredictable weather for data sampling around streams. The team was also concerned about the full costs including support and training in addition to expensive hardware.

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"With Capturx, we've helped the national parks to target their issues without them having to conduct studies at the magnitude that we commit to on a regular basis."

KATRINA FAUSS
Program Director
Alice Ferguson Foundation

Solution: Capturx Forms Service & digital pens

To reliably and quickly collect and digitize the field data, Bridging the Watershed ultimately selected the Capturx Forms Service for digital pens which works with Microsoft Excel and SharePoint. The field teams continue to use their standard paper data collection forms in the field with durable digital pens. When forms are printed from Excel or SharePoint, Capturx software automatically creates unique 2D-barcodes on each form. As data is written on the forms, the digital pen records the handwritten data and the unique barcodes. The field teams can collect data on a range of forms all morning, afternoon or for a week. All the data is stored on the pen until it is docked with a PC using a standard mini-USB connection. When docked, Capturx automatically uploads the data from the pen into the right forms on Capturx Forms Service. The data is aggregated for all field users and accessible in the original handwriting and as converted digital data using advanced character recognition. The service automatically creates time, date- and author stamped image files for each form in addition to structured data tables for immediate availability in Excel.

Results:

Faster Access to Data – Manual Entry Eliminated
With Capturx, the field teams instantly create digital data, so there's no need to scramble between lunch breaks to aggregate field data by hand or to re-type data into the web-based sharing tool. The digital pens are now simply gathered at the conclusion of the field sessions and docked to the team lead's laptop back at the office. Capturx Forms Service is instantly updated with their data from each form and aggregated into a summary table with just one touch of a button for quick review, sharing, and analysis.

Field Data Easily Shared – More Opportunities to Leverage Field Data
In addition to eliminating the manual data entry steps, Capturx also provides immediate access to the digital data to be shared with the NPS, educators, and the field data collectors themselves. The summary data table can be immediately opened from the Capturx Forms Service in Excel or shared through email as XLS, CSV, or XML files for immediate follow-up teaching or data analysis.

By leveraging the familiarity and ease of use of SharePoint, team leaders can easily organize the data results by field study type, class, form-type, or date. At any time, the structured data can be easily shared with the National Park Service for general trend analysis, regional comparisons, or seasonal cycles. The large amount of data captured is a boon to the NPS.

Digital Pens: Perfect Fit for Field Data Collection
Given the large numbers of field users and the variable park environments and weather, digital pens were a reliable and easy-to-use data collection tool. Field teams tromp through streams, occasionally drop pens on damp grass, casually stash pens in their pockets. Clipboards with forms have been the traditional data collection method, and the field teams felt very comfortable with the digital pens – using them just like ordinary pens. Unlike laptops, dropped pens wouldn't break and no extra training or support was necessary.

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