*Insert Customer Logo/Image here*

**Mi-Co RFI Response to Customer**

*Insert Project Title Here*

Presented by**:**

****

**INSERT PARTNER LOGO HERE**

**Advanced Digital Systems, Inc. D/B/A Mi-Co**

Mar 22, 2013

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# Executive Summary

On behalf of our team at Mi-Co, we would like to thank you for the opportunity to provide a RFI Response for the *\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Project* by Customer, designed to improve field personnel productivity, eliminate redundant data entry, and make critical data available quickly for analysis and action. We are pleased to provide you with the option for the use of Mi-Forms e-Forms technology, mobile electronic data collection solutions which ***provide the best value*** while supporting the preferred, flexible workflow of your staff with almost any mobile device.

***Mi-Co has over 13 years of experience*** in Mobile Data Capture and Mi-Co’s best-of-breed technology, Mi-Forms, helps organizations like the NC Department of Agriculture, the US Internal Revenue Service, BCH Mechanical, VeriGreen and many others streamline their data capture efficiency and improve business processes. According to the Children’s Hospital Boston Audiology department, their **staff sees 800 more patients each year** with the same staff, thanks to their use of Mi-Forms for improved productivity!

With Mi-Forms, Customer can achieve:

* Flexible Data collection options using a variety of devices, input modalities and data exports
* Seamless data integration to back-end systems, or simple flat-file exports
* Powerful workflow for e-Forms routing and approvals
* High data reporting accuracy & much faster sharing of relevant data to the right people
* Increased data security, including HIPAA & FDA 21 CFR Part 11 compliant technology
* Legally binding digital signatures and support for “electronic ink” signatures
* A fully scalable solution that can be easily scaled from this project to use in others as well

Mi-Co has a long history of helping customers like Customer automate their processes successfully and understands the needs of users, management, IT departments and other stakeholders in implementing such projects.

The following document will highlight the benefits to Customer of a Mi-Forms based solution from Mi-Co, outline the proposed Mi-Forms workflow and present technology offerings for your consideration. We look forward to presenting this best-of-breed, flexible technology platform & our deep expertise to your team and assisting your staff in streamlining their data collection processes for a highly successful project delivering the best value to Customer.

Best regards,

Gregory J. Clary, PhD

CEO & Founder

Mi-Co

[gclary@mi-corporation.com](mailto:gclary@mi-corporation.com)

919-485-4819 x 1624

# General: Company Overview

Founded in 1999 by former RTI International & IBM employees, Mi-Co, a division of Advanced Digital Systems Inc., is a privately held software and services company located in Durham, North Carolina. Mi-Co is a specialist in Mobile Data Capture solutions and has been serving the government, healthcare and other markets since 2001. Mi-Co is a leader in forms automation solutions for mobile devices and has delivered many e-Forms solutions which require workflow routing, digital signatures, mobile data input, handwriting recognition, signature capture, keyboard entry, touch-entry, data integration and more.

Mi-Co customers include the NC Department of Agriculture, the Internal Revenue Service, BCH Mechanical, VeriGreen and many others who have as a result streamlined their data capture efficiency and improved business processes. The NC Department of Agriculture has been a customer for more than 4 years now and their project has been highly successful in reducing a 2-3 week turnaround process for paper-inspection forms to less than a day! This project has now been replicated in VA, MD, DE, PA, West Virginia and Washington DC! Children’s Hospital Boston’s Audiology **staff see 800 more patients each year** with the same employee headcount, thanks to efficiencies & productivity gains in data capture resulting from the use of Mi-Forms technology from Mi-Co.

With a network of 34 channel partners and implementation services providers, Mi-Co brings to bear a breadth of experienced professionals capable of handling any Mobile Data Capture project Customer should require. Mi-Co has also worked closely with a number of partners with expertise in various industries including Public Safety, Federal Government, various geographic areas and more.

Mi-Co’s flagship solution, Mi-Forms, offers an easy, natural system for collecting electronic data immediately at the point of data generation, online or offline, using the iPads, Android Slates, Tablet PCs, keyboard & web-input and more. Mi-Forms solutions provide powerful advantages over traditional methods of data collection with built-in workflow, audit trails, and enterprise security as described in this proposal.

Customers & partners will vouch that Mi-Co staff are attentive, responsive, timely & enjoyable to work with. Mi-Co is eager to work with Customer to replicate the success we have shown other clients in streamlining their data capture process, and we are excited to make a big impact while helping to improve business processes at Customer.

## Company Details

* Name: Advanced Digital Systems, Inc. d/b/a Mi-Co
* Address: 4601 Creekstone Drive, Suite 102, Durham, NC 27713
* Telephone: 919-485-4819
* Date established: 1999
* Ownership: Private
* Incorporation state: Delaware, USA

# Project Team Staffing (Key Personnel & Technical Skills)

## Project Member Expertise & Roles

**Team Leader**

**Expertise:** > Ten (10) years of project management experience handling digital ink technology and an expert on Mi-Co’s products and services.

**Role:**  Will be responsible for the delivery of the end-to-end solution and key contact and interface with Customer. Team Leader will be in charge of the Discovery Phase and Process Analysis, understanding the current workflow and determine the best solution structure. Team Leader will also assist in coordinating with Customer’s lead for the Design phase. Team Leader will be in charge of delivering the agreed update/performance reports to Customer.

**Designer Specialist**

**Expertise: >** Ten (10)years of designing forms and questionnaires for digital pen use.Proficient in electronic forms (eforms) design.

**Role:** Will co-lead the Forms Design phase. The Mi-Co Designer Specialist will constantly coordinate with Customer’s appropriate staff to validate forms aesthetics, look, usability, and capabilities such as rules and data flows. Specialist will conduct testing regularly to ensure proper eforms implementation. This role includes providing the export of the form data as specified earlier in the project plan/approach and Insight’s RFP.

**Database/Software Developer**

**Expertise: >** Ten (10) years of database and software development who has built programs using PHP and SQL language and integrated with MySQL, Access and SQL.

**Role:** Will co-lead Forms Design phase. The Mi-Co Database/Software Developer will constantly coordinate with the appropriate Customer staff to validate communications and data flows as part of the back-office integration stage. Specialist will conduct testing regularly. Developer is in-charge of continuous maintenance and improvements of the Mi-Forms software products, ensuring high operational and functional quality for enterprises and their end users.

**Trainer**

**Expertise:** > Five (5) years training enterprise on data capture technology, along with digital pen use. Proficient in forms design and data integration

**Role:** Will be responsible for all training materials and conducting training modules on the following:

Forms Design, Forms Communication, Server Administration as well as other topics (i.e. print set-up for Digital Pen Forms)

**Technical Support**

**Expertise:** > Five (5) years handling oversight of day-to-day customer support for enterprise on data capture technology, along with digital pen use.

**Role:** Will be responsible for all customer issues and requests directly related to the Mi-Forms software post knowledge and technology handoff. Technical Support will that requests for technical assistance are logged and tracked, customer inquiries are answered promptly, and customer feedback is obtained and analyzed to ensure continuous improvement of our services and products. Technical support for customers with product-related questions and issues is provided via e-mail and telephone and per our technical support policy.

## Related Project Team Bios

**Gregory J. Clary, PhD. – Team Leader**

CEO & Co-Founder

Dr. Clary has over 20 years of IT experience and holds 11 U.S. patents related to electronic forms data capture. Clary has been active in leading the development of Mi-Co's Mi-Forms since the product's inception, making it an industry-leading software platform for flexible mobile data capture solutions, supporting a variety of hardware including Laptops, Desktops, iPads, Android Slates, Tablet PCs, Digital Pens, Smartphones and more.  He has directed Mi-Co’s efforts to create innovative partnerships with leading institutions like University of North Carolina Health Care, Children’s Hospital Boston, Duke University Health System and Sutter Health.  Clary served as Mi-Co’s first CTO, and became its CEO in 2006.

Dr. Clary founded the company that became Mi-Co in 1999, after he was with the IBM T.J. Watson Research Center working on handwriting recognition and pen input systems. One of the novel pen input systems of the IBM team became the CrossPad from the A.T. Cross Pen Computing Group.

Clary holds the B.S.E. and the M.S.E.E. degrees from Duke University and the Ph.D. in Computer Science from the University of North Carolina at Chapel Hill.

**Christopher M. DiPierro - Technical Lead & Designer Specialist**

*Director of Software Development*

Christopher M. DiPierro is Director of Software Development with over 12 years experience developing enterprise-level mobile computing solutions at Mi-Co. Mr. DiPierro leads a technical team in the development of Mi-Co’s flagship Designer, Client, and Server software products for mobile electronic data capture. Mr. DiPierro holds 2 patents in the area of handwriting recognition and the processing of handwritten data. Additionally, he oversees Mi-Co’s CFR 21 Part 11 validation efforts that enable Mi-Forms use in the highly regulated clinical research and pharmaceutical industries. He joined Mi-Co in 2000 and previously managed a technical team at IBM. Mr. DiPierro holds a B.S. in Computer Science from the University of Maryland.

**David Nakamura – Quality Assurance Lead & Database/Software Developer**

*Director of Quality Assurance*

David Nakamura has over 13 years of IT experience. David started his career as a Computer Consultant and Instructor at Madison Elementary in 1997. After almost 4 years at Madison Elementary, David joined Mi-Co as a Quality Assurance Engineer in 2000. In 2003, he assumed the position of Director, develops testing documentation (test plan, test case, test log, traceability matrix, test execution, test summary, etc. documents) for several applications and components on a variety of platforms (Windows PC, Windows Mobile, Tablet PC), develops .NET applications for customers (VB and C# .NET), as well as participates as a developer in the software development lifecycle (requirements, design, implementation, testing, etc.) and currently develops several key functionality areas within the Mi-Forms core solution. David holds a Bachelor of Science in Biology from the University of Puget Sound; Tacoma, Washington, USA.

**Mitch Hamelau – Chief Trainer & Technical Support Lead**

*Director of Software Solutions*

Mitch Hamelau is an experienced software engineer with over 15 years of experience building complex IT solutions at various organizations including the NC Department of State Treasurer, MiSys, Captovation and more. Mitch leads Mi-Co’s training, services and support functions with teams responsible for each of those areas. Mitch has deep experience with Microsoft technologies, business analysis, scoping and executing projects on-time and on-budget and brings those same skills to Mi-Co’s fast-growing services departments. He has a BA degree in Computer Science from St. John’s University.

Mi-Co confirms that none of its current employees have been convicted of a felony. Also to the best of our knowledge there are no conflicts of interest between Mi-Co’s project team members and this project (outlined in the RFP), for Customer.

## Key Point-of-Contact:

Gautham Pandiyan

Director of Sales & Marketing

Phone: 001-919-485-4819 x 1973

Fax: 001-866-610-1942

Email: [gpandiyan@mi-corporation.com](mailto:gpandiyan@mi-corporation.com)

## Contractual Binding Signatory:

Gregory Clary, PhD

CEO

Phone: 001-919-485-4819 x 1624

Fax: 001-866-610-1942

Email: [gclary@mi-corporation.com](mailto:gclary@mi-corporation.com)

# Selected Sample Projects – Relevant Experience

## 

* The North Carolina Department of Agriculture & Consumer Services (Structural Pest Control & Pesticides division) has been a Mi-Forms customer for 5 years. Using Mi-Forms technology they have almost eliminated all paper forms used in their field inspection processes, and **reduced a 3-4 week process using paper-forms to as fast as 1 day for data collection and processing!**
* At Children’s Hospital Boston, the Director of Diagnostic Audiology selected a Mi-Forms solution to collect patient and diagnostic device data during patient visits, reduce errors with live edit checks and eliminate paper forms processes. Compared to the previous methods of collecting this data, improved efficiency is allowing his clinic to ***see an additional 800 patients per year* with the same staff**.
* A federal government agency used Mi-Forms e-Forms technology to equip field workers with a user-friendly, Digital Pen based system that minimized the need for scanning, manual data-entry, and faxing & mailing paper. A total of 150 agents used the system and manual re-keying time was reduced from 10 man-hours every few days to less than 3.25 hours for verification & approvals **(a 67% time savings!)**.
* The University of North Carolina – Chapel Hill (UNC-CH) Health System used Mi-Forms e-Forms technology during the **DMIST clinical trial (involving 49,000 women)** and during the recruitment of subjects in the **16,000 person Study of Latinos** and found this technology saved them considerable time & was preferred by users over paper-forms capture. It also enabled much faster completion times than they anticipated for project timelines.
* The US Department of Agriculture moved from a paper-forms inspection process to Mi-Forms e-Forms technology during the Mad Cow disease outbreak in 2004 and found that they were able to do **8x as many inspections as the year before!** In addition, real-time communication with their Oracle database from the forms and the electronic transmission of forms data to it **reduced the USDA’s paper-usage costs by $675,000 per year for this project!**

# Track Record: References

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| **Consultant Experience 1** | | | | | | | | |
| **Name of Agency** | **NC Department of Agriculture & Consumer Services (Structural Pest Control & Pesticides division)** | | | | | | | |
| **Application Name** | Pesticides Federal Inspection Forms & Reporting | | | | **Year Contracted** | | | 2007 |
| **Client Address** | 2109 Blue Ridge Rd., Raleigh, NC 27607 | | | | | | | |
| **Client City** | Durham | | **State** | | NC | **ZIP Code** | | 27713 |
| **Client Contact** | Dwight Seal | | | **Contact Fax** | | |  | |
| **Contact E-mail** | [dwight.seal@ncagr.gov](mailto:dwight.seal@ncagr.gov) | | | | | | | |
| **Number of Years Contracted** | 5 years | | | | | | | |
| **Implementation Description** | Narrative description of Project:  Originally, the Pesticides team followed a paper-based process when conducting field inspections.  It took an average of three to four weeks for the data to get from the actual inspection to their backend systems. In the old process, inspection reports were physically mailed twice, (first for the Managers’ review, and second for the Process Analyst’s transcription), a long queue of forms (bottleneck) stacked up at transcription, and correspondence via phone or email was required to verify the inspectors’ written information. NCDA’s Pesticides Division worked with Mi-Co to automate this data capture process.  Using electronic forms by Mi-Co’s Mi-Forms, inspection data from the field can now sync to NCDA’s database in as fast as a day. Managers now have the ability to review field inspection data in realtime, and transcription no longer applies. Circling back to the inspector for data clarification is now at a bare minimum due to handwriting-to-text conversion that addresses legibility concerns. Data prefill and live validation rules addressed data accuracy and completeness concerns.  By eliminating the use of paper, the Division not only saved time, but significant costs related to paper as well, such as printing, mailing, faxing, and storage. In addition, Mi-Co created a reporting application which made it much easier for reviewers and managers to find and analyze data as they made queries.  “Using Mi-Forms, we now operate with a much more streamlined process, and are able to generate better revenue streams as a result of readily available registration and license information.” - Dwight Seal, Regional Manager, NCDA&CS SPCPD.  Description of actual services provided by your staff within the assignment:  The Mi-Co Team performed the following services:   * Analyzed and streamlined existing workflow * Built initial few e-forms for use by NCDA during pilot phases * Assisted NCDA IT staff to build eForms * Integrated Mi-Forms with SQL Server databases and provided reporting/dashboard tools * Trained NCDA staff on use of the technology internally to meet their needs * Support services post project deployment * Analysis and reporting of results in improvements after adopting new Mi-Forms solution | | | | | | | |
| **Application Modules/Functions Operational** | | Mi-Forms Designer, Mi-Forms Client, Mi-Forms Server, Reporting Module, Approval Dashboard Module, Database Integration Module | | | | | | |
| **Application Modules/Functions Planned for Implementation** | | Additional forms and database integration | | | | | | |
| **Technology Utilized (i.e. programming languages, database – brand/version, hardware – make/model** | | Programming Language: VB.NET  Database:SQL Server  Hardware: Lenovo Tablet PC | | | | | | |

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| **Consultant Experience 2** | | | | | | | | |
| **Name of Agency** | Custom Data Processing Solutions (CDP) | | | | | | | |
| **Application Name** | Environmental Health Inspections for County and State Governments | | | | **Year Contracted** | | | 2005 |
| **Client Address** | 1408 Joliet Road | | | | | | | |
| **Client City** | Romeoville | | **State** | | IL | **ZIP Code** | | 60446 |
| **Client Contact** | Mike Peth | | | **Contact Fax** | | | (630) 783-8841 | |
| **Contact E-mail** | [mike.peth@cdpehs.com](mailto:mike.peth@cdpehs.com) | | | | | | | |
| **Number of Years Contracted** | 7 years | | | | | | | |
| **Implementation Description** | CDP of Illinois rebrands Mi-Co Mi-Forms to be its CDPMobile product. CDPMobile is in use in a number of states, and according to a study by the University of North Carolina, it is in use in at least 40 North Carolina counties for Environmental Health Inspections.  **Objectives**  CDPMobile’s efficient & effective mobile data capture process platform meets the following objectives:   * Flexible forms design * Handwriting interpretation/recognition * Verification * Data validation * Communication of forms-based data for our enterprise users * Robust communication with our back-end rich database systems * Eliminate paper forms and the re-entry of data * Collect information in real time or offline * Supports Tablet PCs, Laptops or Digital Pens * Flexible forms design * Comprehensive data quality processes * Electronic Audit Trails * Security of a paper record * Audio and visual feedback * Built-in business rules * Rich content * Wireless transmission * GPS * Integrated voice/sound recording * Audio annotations * Barcode scanners * Ability to draw on the imported photo * Rapid data transfer * Minimizes retraining * Web-based storage, access & capabilities   With the implementation of the CDPMobile System, local health departments have seen:   * Increased Efficiency * Increased Accuracy * Integration of Data * Automated Business Procedures   **Results**  Taking Lincoln County, NC as an example, the decision to select CDPMobile was based upon many factors including:   * Price * System efficiencies * Systems comprehensiveness - meeting all of the state's requirements * Ability to replicate paper forms exactly in a digital format * Ability to enter field data once - in the field * CDP's ability to sync the data to CDPims, and to the state's system (HSIS), * Speed of implementation.   A positive ROI was achieved in less than 4 months.  **Conclusion**  The CDPMobile solution was not a fix for a previously attempted implementation; it was a new, ground-breaking project for Lincoln County & CDP. The deployment eliminated dual and triple entry of data at the health department level, as well as providing a direct interface from the mobile user, to the CDP database, and to the State of North Carolina database. This data transfer has resulted in more efficient and timely cash reimbursements to the local health department. | | | | | | | |
| **Application Modules/Functions Operational** | | e-Forms, Mi-Forms Designer, Mi-Forms Client, Mi-Forms Server, Database Integration Module | | | | | | |
| **Application Modules/Functions Planned for Implementation** | | Potential Digital Pen, Ricoh eQuill and/or iPad implementations.  Potential rollouts of CDPMobile in Kentucky, beyond existing implementations in Illinois, Utah, and North Carolina. | | | | | | |
| **Technology Utilized (i.e. programming languages, database – brand/version, hardware – make/model** | | Programming Language: VB.NET Scripting and core Mi-Forms products (C#).  Database: Access, SQL  Hardware: Windows Tablet PCs, Windows Laptops | | | | | | |

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| |  | | --- | | **Consultant Experience 3** | | | | | | | | |
| **Name of Agency** | US Internal Revenue Service | | | | | | |
| **Application Name** | Federal Inspection | | | **Year Contracted** | | | 2001 |
| **Client Address** | New Carrollton Federal Building | | | | | | |
| **Client City** | New Carrollton | **State** | | MD | **ZIP Code** | | 20706 |
| **Client Contact** | Available upon request | | **Contact Fax** | | |  | |
| **Contact E-mail** |  | | | | | | |
| **Number of Years Contracted** | 9 years | | | | | | |
| **Implementation Description** | Mi-Co was approached by an agency of the Federal government to make data collection easier for its regulation compliance inspections. The compliance monitoring activities of this agency require inspections of both equipment operated in public by individuals and equipment of retail outlets and wholesalers. Agency field inspectors conduct interviews with key personnel and collect relevant information about the equipment.  Challenges of the inspections include: some of the data is collected outdoors, making mobility and viewability of the solution a key requirement; laptops are not an option due to the need to collect data quickly and the concern that some interview subjects would be intimidated by them; and inspectors have only limited network access.  **Objectives**   * Same-day entry of collected information into a computer system. * Preserve handwritten, pen-on-paper data entry – though inspectors had been given handheld, mobile computers in the past for data collection, they prefer to rely on paper forms instead. * Eliminate manual transcription and reduce overall data entry time. * Transfer data to back-end database via ODBC, and generate   delimited text files for further analysis by another government contractor.  Allow rapid entry of data, without requiring users to pause to correct handwriting recognition errors. Information that identifies the equipment is recorded quickly and continuously, and there is no time to review handwriting recognition results during data collection.  To improve the data collection process, the agency added the Digital Pen to its arsenal of data collection platforms with the Mi-Forms System. Because data collection is convenient via pen-on-paper handwriting and data entry time is reduced, correct data can be available in the computer system on the day of the inspections.  The Mi-Forms system was chosen because it meets the aforementioned challenges and objectives. In addition, the Mi-Forms system has demonstrated its flexibility by allowing the agency to use multiple data collection platforms. Besides using the Digital Pen, field personnel have also used the HP Jornada Pocket PC connected to pen on paper mounted atop an electronic clipboard. For both data capture platforms, Federal inspectors transfer the data to a laptop computer that performs complementary handwriting recognition, allows rapid review and verification of recognition results, transfers data via ODBC to existing back-end local databases, and generates comma separated data files.  The Federal government agency chose Mi-Forms because it electronically captures pen-on-paper data, and therefore is highly viewable and portable. Paper is easier to see in bright sunlight than a computer screen and can present much more information at any given time than the screen of a PDA. Writing on paper is comfortable, intuitive, and feels natural versus the slippery displays of many PDA’s. Field personnel prefer paper because interview subjects may be uncomfortable if their responses are keyed into a computer while they are present. In addition, typing in a subject’s presence can be distracting because of the noise of the keyboard. Mi-Forms provides a “smart” client so that many forms can be collected during a shift and transferred in batch mode at the shift’s end, using the modem of the field personnel’s laptop. This mitigates the problem of limited network availability.  In order to meet the challenge of reducing data entry time, Mi-Forms handwriting recognition software was used. The handwriting recognition system converts handwriting to machine usable computer text (the “results”). Mi-Co’s proprietary statistical method for presenting handwriting recognition results highlights (“flags”) only the fields and characters that are likely to be in need of human verification before transfer to the back-end system. The user may set a level of errors that is palatable in the machine-accepted results (“unflagged” characters). Typically this error rate is set to match the error rates of human transcriptionists. Thus, in general, Mi-Forms is capable of alerting the user when it is unsure of a recognition result and likely to be wrong, and when it claims to be correct it is in fact correct with an accuracy corresponding to the level chosen by the user.  The Mi-Forms system includes a verification mode that allows rapid laptop-based review of handwriting recognition results. This system eliminates the need for users to pause to correct handwriting recognition errors during data collection, thereby making data collection efficient. The verification system highlights in red those results of which it is unsure. The user can rapidly accept correct results and access the next highlighted result via a single key. In fact, in verification mode, the system can be set to present only “unsure” results, cutting the number of characters that require human attention to a small fraction of the original characters. After presenting handwriting recognition results for review, the local verification tool populates customer databases via ODBC and/or generates delimited text files.  **Results**  In one field test, personnel spent one day inspecting publicly operated equipment. Because inspection information was recorded quickly via handwriting using the Mi-Forms system, over 1000 pieces of equipment were inspected in a single day.  Next, a direct comparison was made of the time taken to type the equipments’ identifying information from the paper forms, versus the time taken to review the handwriting recognition results using the Mi-Forms system. Field personnel spent 10 man-hours keying the data directly from the paper over the course of several days, while it only took 3.25 man-hours to review the data using the Mi-Forms local verification tool on the same day as the inspections. Thus, Mi-Forms provided a savings in data entry time of 67.5%.  **Conclusion**  By using pen on paper processes and Mi-Forms verification software on a laptop, Federal inspectors are able to meet data collection objectives and overcome past challenges. Paper is preserved, data is available immediately after a rapid review process, the challenge of limited network access in the field is met, manual transcription is eliminated, data entry time is dramatically reduced, and back-end data transfer is accomplished  Description of actual services provided by your staff within the assignment:  The Mi-Co Team performed the following services:   * Mi-Co staff coordinated with IRS staff to find ways to streamline the current traditional pen and paper based solution workflow * Translated current IRS paper forms into Mi-Forms Designer and produced patterned paper forms for Digital Pen use * Integrated data capture solution to IRS back-end systems * Training of IRS staff * Support services post project deployment * Analysis and reporting of results in improvements after adopting new Mi-Forms solution | | | | | | |
| **Application Modules/Functions Operational** | e-Forms, Mi-Forms Designer, Mi-Forms Client, Database Integration Module, Printing Tool | | | | | | |
| **Application Modules/Functions Planned for Implementation** |  | | | | | | |
| **Technology Utilized (i.e. programming languages, database – brand/version, hardware** | Programming Language: VB.NET  Database: Access, Oracle  Hardware: Anoto Digital Pen | | | | | | |

# Mi-Co Authorized Partner in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mi-Co has a network of 50 channel partners worldwide that resell and provide services around various aspects of Mi-Co’s best-of-breed “Mi-Forms” platform technology. Mi-Co was notified of this RFI from Customer by \_\_\_\_\_\_\_\_\_\_\_\_\_\_, a Mi-Co authorized partner located in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

INSERT BLURB ABOUT PARTNER ORGANIZATION

INSER BLURB ABOUT PARTNER BEING LEVEL 1 SUPPORT & IMPLEMENTATION AND LEANING ON MI-CO AS LEVEL 2 SUPPORT. DESCRIBE PARTNER EXPERIENCE, CAPABILITIES ETC. ETC.

# Therefore Customer will not only have the ability to work with the most flexible and mature technology in the market, Mi-Forms, but also benefit from superior support & services from Mi-Co and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for a highly successful project.

# Project Management & Quality Control Approach & Methodology

Mi-Co understands the importance of the field data capture process & its current inefficiencies with the use of paper-forms by Customer personnel collecting critical price information on various products. Many other companies like Customer have utilized Mi-Co technology & expertise over the last 13 years to make their staff significantly more productive & efficient – *seeing more patients, delivering more orders, completing more jobs* – and doing all this with fewer administrative burdens and *getting critical business data faster*. They also have all the data related to these personnel & their work *available in real-time for management* to view & understand, *enabling better forecasting*, marketing planning & ultimately considerably *improving cash-flow*. Mi-Co keenly understands the need to have service personnel function as efficiently & productively as possible to enable such benefits for Customer and enjoy the results our other customers have experienced.

## Overall Approach and Components

The best-of-breed, proven system being proposed will be comprised of a combination of off the shelf Mi-Co components (collectively known as the Mi-Forms System), configured and customized forms and customized software designed specifically for Field Data Capture. The Mi-Forms System is composed of the Mi-Forms Designer, Mi-Forms Server, and Mi-Forms Client, all of which are anticipated to be used within this solution.

## Basic Automation Engine and Underlying Database

Mi-Co’s Mi-Forms Designer is a Windows desktop application used to design forms layout and logic. It provides a WYSIWYG design tool where form fields and geometric shapes can be dragged on to form pages and properties of those fields can be customized. Form validation and calculation logic can be setup via a validation rule editor allowing for arbitrary field comparisons and computations. Further form customization is available through an included VB.Net script editor allowing for code to be triggered by events in the form’s lifecycle.

Mi-Co’s Mi-Forms Client for Windows is an application that runs on Windows XP, Vista, Windows 7 and Windows 8 and provides a mechanism to fill electronic forms. Through synchronization with Mi-Co’s Mi-Forms Server (described below) users are first authenticated and then presented with a list of authorized forms. The user may then open either a new blank form template or resume work on previously saved form sessions. In either case they are presented with a canvas that allows for data entry through inking (including handwriting recognition), typing and mouse clicks. Validation rules in the form are displayed to the user both in a list and through field highlighting to ensure accurate data entry. These validations may be configured to prevent completing a form until all rules are satisfied. Upon complete entry a user may submit a form to the Server for workflow and processing.

Mi-Co’s Mi-Forms Client for iPad and Android slate devices runs both on iOS v5+ and Android v3+. Similar to the Windows Client, after authentication with the Server, the application presents a list of available blank and partially filled forms to the user. Tapping on one of these presents a data entry interface. This interface is optimized for virtual keyboard entry on slate devices, but also supports inking signatures, geolocation fields and photographs. Validation rules are enforced in this interface again through a list and field highlighting. When a form is completely filled it may be submitted to the Server for workflow and processing. Mi-Co can assist with making the appropriate hardware decision, based on the needs of Customer (budget, personnel preference etc.).

Mi-Co’s Mi-Forms Server is an ASP.Net based application server hosted on a Windows Server operating system running IIS and handles numerous solution roles. Firstly, it is used as an authenticator for Designer, Client, and SDK access through predefined users and groups either via its own mechanism or through connection with an Active Directory server. Forms are published to the Server such that the Mi-Forms Client may synchronize available blank form templates based upon user group membership. The Server is also used as a centralized workflow manager and data exporter by providing workflow queues and forms export processing.

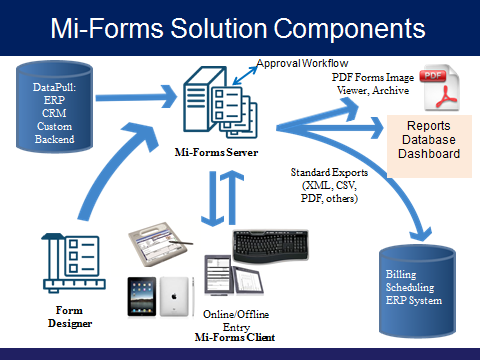
The Mi-Forms Server has a dependency on Microsoft SQL Server in order to maintain the state of each of its customer entities including authentication, permissions, and form meta information. This database does not store all discrete data fields of each filled form session. However, if Customer wishes to use the same SQL Server instance to store discrete data from one or more of the forms as is assumed below, it may do so or simply utilize CSV/XML exports from the Mi-Forms system to import into the Customer system. Integration to other systems can be done via web-services, programmatic APIs, ODBC connections or a variety of other possible methods.

## Workflow features of the software

Workflow in the Mi-Forms system is dictated by the Mi-Forms Server. Users are configured on the Server for the purposes of authentication and form provisioning. The Server allows for the configuration of entities known as groups to which permissions may be assigned (administrator, form filler, publisher, etc.). Each user and each group is provided with a corresponding entity known as a queue.

When a form is submitted to the Server from a Client device the Server’s first processing step is to execute workflow for that form. It does so by triggering an event called “ServerQueuing” within the form. As with all other events in the form’s lifecycle an event handler may be created within the form at design time to handle this trigger. The event handler is provided with information about the user, group, and queue setup within the Server. It may make logic decisions based upon this information and all data on the form (e.g. which fields are filled or inked in) to determine where the form must next be routed. If a workflow step is needed this event handler will set a variable with the name of the new queue. This instructs the Server to move the form session to the queue specified and no further processing occurs. Alternatively if workflow is completed the Server is allowed to continue processing data exports.

When a form is placed in a workflow queue Client applications may query the Server for available forms typically referred to as remote form sessions. The Client is provided with a list of all sessions that exist either in the user’s personal queue and all sessions that exist within all queues corresponding to the groups to which the user belongs. A user may then take an action within the Client software to lock the form to them. When this happens the form session data is transferred to the Client device and the Server exclusively locks it to the user. A locked form is considered to be exclusive to the locking user such that other users may not make changes. Upon completion of the form it is once again uploaded to the Server where the workflow process starts again and the workflow event handler may make a different workflow choice based upon newly submitted data.



# Implementation Project Management Approach

Given some of the complexities of security, syncing and other aspects of Customer requirements that will likely be uncovered during an engagement, Mi-Co sees the project management approach for any potential project as being highly collaborative and has experience working closely with customers to successfully implement projects such as this one. As a goal of a possible project is to provide a user experience compliant with Customer’s workflow processes and because very few constraints as to integration paths have thus far been established, Mi-Co plans to participate in design meetings with Customer that will lead to best practices based approaches for the project that can be tweaked as needed on an ongoing basis.

## Key Personnel

Mi-Co normally designates and works with the following types of roles during any project implementation:

|  |  |  |
| --- | --- | --- |
| **Organization** | **Role** | **Description** |
| Customer | Project Lead | Will coordinate all Customer personnel and act as the overall system owner of the project and soliciting input from Customer staff as to functionality needed for the system. |
| Customer | Technical Lead | Responsible for leading design and implementation of the Mi-Forms system internally and setting up necessary technology platforms such as servers to host necessary components. This role and previous could be combined into one. |
| Customer | Lead User | A person in a role typical of that of the primary user in the normal use case scenario. This user will be provided with early access to the system and asked to provide full system testing for critical feedback so the design can be improved. |
| Mi-Co | Project Manager | Will facilitate communication between Customer and Mi-Co while assuring compliance with schedules and providing overall project guidance. |
| Mi-Co | Technical Lead | Responsible for working with the Customer technical lead to ensure appropriate design and lead the Mi-Co team towards that goal. |
| Mi-Co | Lead Form Designer | Will be responsible for creating initial form set based upon specifications and guidance from Customer. |
| Mi-Co | Quality Assurance Lead | Will handle creating representative test cases and executing them both with Mi-Co and Customer users as needed. |
| Mi-Co | Support Lead | Will handle installation and configuration issues in setting up the system in Customer’ environment and will produce documents describing system setup. Also responsible for training Customer personnel as needed. |
|  |  |  |

In a project such as this it is recommended that key personnel communicate via conference call and webinar on a weekly or bi-weekly basis depending upon scheduling availability, but Mi-Co does not require this to be the only communications channel. It is expected that these personnel will also be able to communicate by email, instant message or by phone as needed.

## Project Approach

The overall phases of the project are expected to mirror Mi-Co’s standard development processes as much as possible. Each phase is described in more detail below.

### Conceptual Phase

The conceptual phase of a project is a time where current system implementation and limitations are analyzed and where use cases are constructed. Customer has begun this process already in its solicitation and associated appendices, and this will be used as the foundation of the process. A document will be formalized in order to ensure the use case(s) are valid in accordance with the Lead User (described above) and that no key item is missing.

It is typical to host either in person or virtual meetings and encourage potential system users to make declarative statements (e.g. “I need the system to be able to…” and “It would save me time if…”). These statements will be recorded and combined with the already outlined use cases such that the project may move forward.

### Planning Phase

The goal of the planning phase is to create an agreed upon Functional Requirements Document. Drawing directly from the use cases and meetings described in the conceptual phase above, a general outline document will be put together that iterates all requirements. During this phase, the logical pieces of each system are separated (e.g. printing, filling, exporting) and requirements specific to each are outlined. This requirements document will describe the overall system being put together piece by piece, but will not describe the specific technical approach.

The Mi-Co project manager will work with the Mi-Co team to create an initial pass at this document. From there it will be circulated amongst key personnel and any other designated interested party and changes will be integrated to the document as needed. At the end of this review period sign off will be provided by both Customer and Mi-Co. Any changes required to this document after sign off can be implemented but may affect project implementation time and budget.

### Technical Design Phase

From the Functional Requirements Document created in the planning phase above, a detailed Technical Design Document will be created. This document will elaborate on each line item in the Functional Requirements Document as to how it will be accomplished specifically and through what technology it will be accomplished. The level of this document should reflect specifics of user interfaces displayed to end users and a description of the technical function that occurs when items in that interface are used. This document will be put together jointly by the technical lead in each company and the lead form designer at Mi-Co.

From a process perspective, it is likely that private meetings will be held between these key personnel and potentially other members of each team and that a document may be created combining input from both companies.

Once created the Mi-Co project manager will work with the project lead on the Customer side and gain sign off on this document. Changes to this document after sign off are permitted assuming the technical lead on each side consents though such changes may affect project implementation time.

### Implementation Phase

Using the Technical Design Document created in the technical design phase, Mi-Co and Customer technical teams will implement the specifications as set out. Where possible, Mi-Co will encourage this work to be done in an Agile fashion such that key components may be prototyped quickly and effectively. While it is understood that some components will require others to fully comply with the Technical Design Document, representative data will be created in order to simulate these processes as necessary.

Prototyped implementations will be presented at the status meetings previously described and may be made available to the Quality Assurance Lead at Mi-Co and the Lead User at Customer prior to these meetings as necessary. The goal is to solicit feedback on defects during the implementation phase rather than to wait for a separate quality assurance phase. In this sense, quality assurance is built into the implementation itself. In order to achieve this, the Quality Assurance Lead will create a test plan and test cases at the beginning of this phase that adequately cover all line items in the Technical Design Document.

### Testing (QA) Phase

As mentioned in the implementation phase description above, quality assurance is actively sought during that phase. However, as software components exit the implementation phase above in compliance with the technical design, functional and system tests are performed in accordance with a test plan. If a component fails this testing, defect(s) are recorded and the developer responsible will use the previously defined defect tracking mechanism to provide updates and fixes.

### Release Phase

Once the Quality Assurance Lead at Mi-Co and the Lead User at Customer have agreed that software has met specifications and adequate test coverage has occurred, a sign off document will be created by Mi-Co known as the Test Summary. This document will list test cases run, defects encountered, and any deviations from plan. Once this document has been signed off on by both Mi-Co and Customer, an official build will be made and the product will be considered released and ready for rollout.

Mi-Co technical staff will work with Customer staff in order to roll out the released software within the Customer environment as necessary.

In compliance with the Deliverables section of the solicitation, Mi-Co will at the end of the release phase make available all source code written specifically for this project, detailed release notes and technical documentation put together by the support lead, and any other supporting documentation required to operate and maintain the system. Mi-Co does escrow its product source code and Customer may wish to be added as a beneficiary. If so, additional cost will be incurred.

### Maintenance Phase

As a part of this project, a solution support agreement will be established between Mi-Co and Customer. Software having been released will then be considered to fall under the Maintenance Phase. This agreement specifies support service level agreement and pools of hours in which functionality changes may be implemented. If functionality changes do occur during this phase, updates to the documents described above will be made and the software will again flow through this same process albeit without the need for detailed functional level quality assurance coverage for unchanged software components.

## Training of users and support personnel

Mi-Co is equipped to provide training at many levels. Standard curriculums include training in designing forms, using Client software, and administrating Server software. These training courses may be completed either at Mi-Co facilities, or via the web (delivered in multiple sessions as needed). Customization of the curriculums is possible if cross-product training is required but may affect the length and availability of the training courses.

## Other implementation activities as necessary

Other implementation activities that fall outside the scope of this solicitation and response may be contracted separately with Mi-Co’s Business Partner \_\_\_\_\_\_\_\_\_\_\_, a Mi-Co authorized reseller partner in \_\_\_\_\_\_\_\_\_\_\_.

# Technical Environment Requirements

## Desktop/Laptop Operating System Compatibility

* iPad3 iOS 5 – Supported out of the box
* Windows 7 SP1 32bit & 64bit & Windows 8 – Supported out of the box
* Android tablet – Honeycomb & ICS – Supported out of the box

## Active Directory Environment

* Microsoft server 2008 R2 Active Directory – Supported out of the box

## Email Service Compatibility

* Exchange 2010 Standard – Supported out of the box

## Microsoft Office Suite

* Microsoft Office 2010 – Supported out of the box

## Internet Browser Compatibility

* HTML5 mobile-web app compatible with Safari, Firefox, Chrome & IE10 (and above)

# Conclusion

Mi-Forms solutions for Tablets provide user-friendly, efficient means of collecting data in electronic format quickly and easily. Not only improving availability but also the accuracy of data, these user-friendly devices offer high recognition rates and live edit checks, which can greatly reduce discrepancies and streamline data verification and cleaning processes. Customer will be able use the system to reduce the number of paper forms processes, improve efficiency, lower costs and improve billing cycles/cash flow with more rapid and automatic data for invoicing.

Other customers like Children’s Hospital Boston have ***seen 800 more patients a year*** with the same staff, using Mi-Forms technology. Steadman Phillipon Research Institute has ***reduced costs of data-entry by 97%*** using Mi-Forms technology! Others like NC Department of Agriculture have ***reduced a 2-week turnaround time for permit issuance to 2 days***! Most Mi-Co customers experience a 6-12 month complete payback of their investment in this technology!

We look forward to your feedback and answering any questions you may have on the information in this proposal, including customizing this quote to best fit Customer’s needs & resources. Please let us know how we can be of further assistance to you to make this a highly successful project with great value.