Enterprise Mobility

Benefits of using tablet computers for forms based processes.

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Executive Overview

The widespread use of tablets in the consumer market has created a demand for their use in business environments.

One way organizations have implemented tablets is by converting business critical forms to tablet based forms. Tablet based forms are a replacement for paper based forms, that are typically manually entered into business critical systems such as CRM or ERP systems. Often times there are delays with this process which in turn can delay business critical processes such as diagnosis, billing, and customer service.

Tablet based electronic forms solutions solve this problem because they provide real-time communication to business systems, eliminate data entry processes, and decreases the cost of paper, allowing organizations to spend more time focusing on solving their customer's needs. This document describes some of the benefits associated with implementing a tablet based forms solution, the features they can incorporate, and proven applications where they have been successfully implemented.

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Definition of a Tablet Computer

A tablet computer is a wireless, portable personal computer designed with mobility in mind. The tablet is typically between 7 and 12 inches, making the device smaller than a laptop computer, but larger than a smartphone. Although tablet computers have increased in popularity due to consumer grade devices such as the iPad, the original tablet computers date back to as early as 2001.

Although a tablet is a wireless computer, they offer many enhanced features that differ from traditional computers, including:

- Touch screen or pen input
- Network connectivity
- Wireless LAN
- Wide Area Network

Paper Based Forms

As tablets have increased in popularity in the consumer market, business professionals have looked for ways to incorporate tablet technology into their business practices in order to increase their efficiencies. A common yet ineffective business practice that many organizations are reliant on is paper based forms to capture business critical data.

Paper forms and the drawbacks of using them

As tablets have increased in popularity in the consumer market, business professionals have looked for ways to incorporate tablet technology into their business practices in order to increase their efficiencies. A common yet ineffective business practice that many organizations are reliant on is paper based forms to capture business critical data.

For decades, businesses have been relying on paper based forms in order to obtain business critical information. Although this method of collecting data seems to be cost effective and efficient, there are a variety of drawbacks to collecting data in this way including:

- **Cost of making Changes:** Since forms are printed, it is difficult to replace old versions of the forms with newer ones. Additionally there is no way to guarantee that no one can access the prior version of the document. Additionally, there is a cost associated with every change made (ie- cost to get the form re-printed).

- **Environmental Impact:** As our population is growing more educated in sustainability initiatives, stakeholders are growing more concerned in the environmental impacts businesses are making.

- **Cost of Data Entry:** After a paper based form is completed, employees have to go back and manually enter the data that was collected.

- **Version Control:** Making sure that you are using the most current version is impossible due to the number of people that have access to the file.

The average employee prints over 10,000 sheets of paper per year, resulting in cost of over $1,000 annually.

Source: Copy This! Results of the Citigroup-Environmental Defense Partnership to Improve Office Paper Management
(New York: Citigroup and Environmental Defense, November 2004)

Filling out paper based forms and submitting them

The largest fear associated with paper based forms is the possibility the form will not be properly and timely return to the main office. Depending on the application this can result in loss of revenue, a customer satisfaction problem or other bad things that can happen when a paper form is lost.

Some forms are hand written and then entered in to business system later. If the person that enters is not the same as the person that wrote it they may not be able to read the writing easily. Even when the data entry person can read the hand writing, there is still a great chance for data entry errors. Depending on the time lag between filling out the paper form and entering it in to a business system, if a portion of the form is not complete or not readable, it may be impossible to get that data.

The form approval process when using paper forms is also full of problems. Once submitted for approval, if an error or omission is found, the form is returned to the submitter for correction. This increases the time before the data is entered or used and as discussed before, the data may not be retrievable at that time.

Tablet Computer Based Forms

Tablet based forms provide users with a paperless data capture process. These forms have the capability to help enable end-users to capture data and securely integrate the data into enterprise database, document imaging, and/or other core systems. Tablet based form applications are typically available on all operating systems, allowing the user to have complete flexibility in their hardware selection.

The benefits of implementing a tablet based form solution include:

1. User is always accessing the latest version, allowing guaranteed version control

2. Form changes can be distributed in real time

3. Data can be automatically pulled from a database to eliminate having to enter previously known data

4. Data can be validated while it is being entered
   - Fields can be checked for specific lengths – or min max lengths
   - Data can be checked for specific character types such as only numeric data allowed.

5. Form submittal
   - With electronic forms, the form can be checked for completeness indicating to the user whether or not there are any fields on the form that need attention.

6. Forms can be submitted and go to an "approver" before the data is submitted to the business system.

7. Audit trails are easier to follow

8. Business rules can be built into the form

9. Customization

10. Real-time visibility

11. Real time form approval and submission

12. Elimination of paper trail

Error rates detected by the double-entry method ranged from 2.3% to 26.9%. Errors were due to both mistakes in data entry and to misinterpretation of the information in the original documents.

According to Salary.com, the average starting salary for a Data Entry Professional is $27,740.

Source: Salary.com

Incorporating Data Collection

Due to the portable nature, and component of a tablet computer, many users have experienced the benefits of incorporating tablet based solutions into their data collection practices, more commonly referred to as AIDC. AIDC can be defined as automatically obtaining data, and entering that data directly into a business system with zero human involvement.

Many end-users of forms have incorporated data collected into their electronic forms in order to automatically populate information into the form. This is beneficial because the mobile worker is granted instant information about the process, providing them with data that is essential to successfully and efficiently complete the task at hand.

Types of Data Collection used in Forms

- **Bar Code:** Bar code is the most common form of data collection. A bar code is a group of patterned bars and spaces that are designed to be scanned and read in order to obtain information about the object that the bar code is placed on. This type of data collection is utilized in tablet based forms to pre populate general information about people or objects.

- **RFID:** Radio Frequency Identification (RFID) is a wireless form a data collection in which radio-frequency electromagnetic fields are used to transfer data in order to identify information about the objects that are attached to RFID tags or labels. Similar to using bar code in tablet based forms, RFID is frequently used to pre populate forms with general information about people, location, or objects.

- **GPS:** GPS is a radio navigation system that determines an exact location using coordinates. This type of data collection is used in tablet based forms in order to automatically populate information in regards to an individual's location and /or the location in which the survey was taken at.

- **Magnetic Stripe:** A magnetic stripe is an encoded strip mostly found on the back of credit cards. When the magnetic stripe is swiped through a reader, payment information can be taken directly from the tablet. This type of technology is often implemented in tablet based forms as a proof of payment solution.

- **Photo:** Most tablet computers have a built in camera. Users can implement photographs into their electronic forms in order to show evidence, proof of performance, as well as for a variety of other reasons.

- **Speech:** Speech recognition is a feature in which a user can speak into a tablet and their speech will populate the different sections of the electronic form. This is often used to provide tablet based form users the ability to complete the necessary form hands free.

Throughout the longstanding history of data collection, users have experienced the following benefits:

• Speed   • Accuracy   • Productivity

Examples of Applications

Many businesses have already seen the benefit of implementing paperless form solutions utilizing tablet technology. Examples of these applications include, but are not limited to:

Field Service/Inspections: In this environment, tablet based forms improve the processes by taking advantage of today's mobile computing platforms and wireless networks to coordinate between the database and the field with a seamless and easy-to-use interface. Workers often utilize these forms in order to successfully complete all task orders. In return, they are able to instantly provide their paperwork back to the office, which increases the data accuracy, billing time, and proof of service. Many members of this industry utilize enhanced features such as data collection (bar code), form logic, and picture features within the form.

Home Health Care: Point-of-care solutions are a key way home care agencies are making improvements in providing higher quality, evidence-based care. Automating paper processes helps agencies improve efficiency, meet legal and regulatory requirements, and provide high-quality care to an ever-increasing number of patients.

Public Safety: In this environment, tablet based forms improve the processes by helping make standard reports such as incident reports electronic. Police Officers are able to document evidence, and details about the report instantly so clear communication and essential proof such as the time and pictures of the evidence can be incorporated. They often take advantage of features such as bar code, voice recognition, hand writing interpretation GPS, picture, and video.

Medical E-Forms: In this application, users utilize an intuitive paper-like interface that eliminates the need for manual re-entry, improves accuracy and gives physicians and nurses more time to spend with patients. Integrating e-forms with EMR and HIS systems reduces costs, reassures patients, and allow administrators to quickly measure and improve the quality of care. These users often take advantage of features such as bar code, form logic, handwriting interpretation, and pictures.

Tablet based form solutions can run on any type of tablet using any operating system, providing complete flexibility for the user.

About Lowry Solutions

Since 1974, Lowry Solutions has been implementing technology innovations nationwide, and with over 10,000 customers, it has established itself as a premier Enterprise Mobility and Auto-ID system integrator focused on barcode, RFID, biometrics, enterprise mobility, and asset management solutions.

Lowry understands that each enterprise has its own specific issues and requirements, and that in order to provide best-in-class solutions to address these issues, a deep understanding of our clients' unique business processes is a necessity. To us, success is rooted in our ability to enhance and grow our customer's business.

Our Approach

We don't push technology or brand — we encourage partnerships. Our success depends on how we enhance and improve our customers' business.

Our Employees

Our employees are highly experienced, certified, and accredited individuals with vertical and application specificity that are continually trained on relevant technologies, solutions, and standards.

Our Relationships

We have long-standing relationships with leading Enterprise Mobility and Auto-ID hardware manufacturers, providing us access to the best equipment for the application — at a more affordable price.

Our Solutions

The solutions we provide are customized for each client to ensure the greatest impact and most aggressive ROI — and we support these solutions with world-class, 24/7 service.

Our Experience

We are one of the most venerable Enterprise Mobility systems integrators, with a track record of nearly 40 years of success delivering solutions to our valued customers.

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