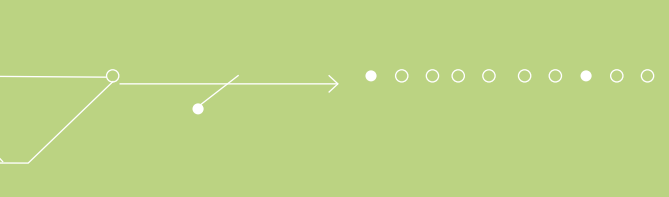
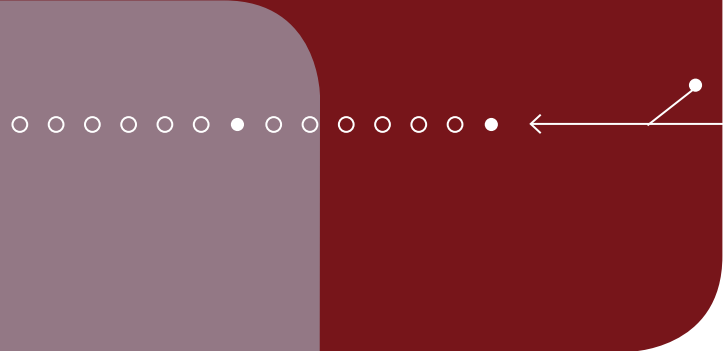


Whitepaper



Avoiding the
Hidden Costs of

Data Collection Implementations



Avoiding the Hidden Costs of Data Collection Implementations



Introduction

As you begin to undertake the task of adding automated data collection (ADC) to your ERP system, do you think it will be as easy as installing software on a server, purchasing a handful of wireless devices and conducting a few hours of training? Of course not. As with any typical software implementation, you fully expect to experience your share of changes as the project moves toward an end. But to what extent are additional costs for these changes acceptable? At what point do change order costs cross the line between standard operating procedure and inept vendor?

If you've already performed an initial vendor search, you have no doubt discovered that there are two, three or even five ADC vendors who appear to be able to handle your project. But how many can actually complete your project without exposing your company to incident after incident of non-budgeted expenses? At this point it may be difficult to judge, but good news is just around the corner. By reading this report you will be able to educate yourself on the vast array of ADC features and functions, and protect yourself and your company from the hidden costs of data collection implementations.

Basic Functionality—It's All in How You Say It

Many vendors use terms such as 'real-time information,' 'scalability' and 'seamless integration' to differentiate their offering from the rest of the products in the marketplace. What you may not realize, however, is that most ADC software vendors can meet these minimum requirements, and companies that use these terms to differentiate themselves are simply promoting what is considered to be the most basic functionality. To ensure that your company is not subject to the hidden costs of data collection implementations, it is important to educate yourself on the basics of ADC—the functionality that all vendors should be able to offer out of the box—and set your project expectations accordingly.

'Seamless integration' is one of the most commonly used terms in the software development world.

Real-Time Information—Isn't That the Point?

Today, any ADC software vendor can provide real-time information. If real-time information was not important to your company, you would invest in data entry personnel and keyboards—not software and hand-held devices. In this technologically unparalleled period of network-enabled devices, wireless terminals and high-speed networks, there is no excuse for vendors to NOT provide customers with information in real time. Although there are times when batching data to an ERP system will be an absolute necessity, you will be hard-pressed to find a system that does not provide data in real time. Real-time information is not an end, but merely a starting point in the selection of an ADC software vendor.

The Many Faces of Scalability

The term 'scalability,' as used in the ADC realm, has a variety of meanings, from volume of data collected, to number of users supported, to expansion of functionality. Due to this broad range of definitions, software vendors can inherently tout their systems as scalable. The key for you, the purchaser, is to determine which definition of 'scalable' fits your particular situation—then ask the right questions.

Seamless Integration: Bolt-in vs. Middleware

'Seamless integration' is one of the most commonly used terms in the software development world. Does it mean that two applications have the ability to appear as one? Does it mean that two applications can easily share data? Does it mean both? Or neither?

To clarify the definition of 'seamless integration,' most ERP system vendors have published an approved standard interface methodology and technology. By definition, any data collection system that communicates with an ERP system using its defined methodology is inherently seamless, whether the software resides on the ERP server (often referred to as 'bolt-in') or on a networked server (defined as 'middleware'). Many ADC vendors offering bolt-in solutions use seamless integration as a way to position middleware solutions as cost prohibitive, but prospective ADC buyers need not fall into this trap. In fact, middleware solutions offer a number of advantages that bolt-in solutions simply cannot—such as uninterrupted data collection—which will be discussed in the next section.

Avoiding the Hidden Costs of Data Collection Implementations

Now that you understand the minimum requirements—the features that all vendors should be able to offer out of the box—it is time to consider enhanced functionality. “Enhanced functionality” encompasses all of the features you may not have considered in the initial project plan, but will likely require as the project grows and changes over time. Whether you realize it or not, the ability of a software vendor to provide enhanced functionality will directly impact both the flexibility and the long-term cost of your ADC system. Would you rather choose a vendor experienced in offering enhanced functionality, or one who begins developing your system from scratch only after the purchase order is signed?

With this in mind, the following section breaks down the most commonly requested functionality enhancements by recent purchasers of ADC systems.

Uninterrupted Data Collection

In the real world, systems go down. When patches are installed, back-ups are performed or network hardware fails, an ERP system becomes temporarily unavailable. Simple logic dictates that if an ADC system relies on an ERP to operate, data collection activities will come to a grinding halt every time the ERP is down.

Assuming your data collection system must continue to operate even when your ERP system does not, it is imperative to actively seek a system capable of continuous operation. Currently, middleware solutions exist that provide transaction execution, data storage and data validation regardless of the ERP's availability—which can ultimately save your company thousands of hours of downtime over the life of the system.

Disconnected Mobility

Is your ADC system going to be used for inventory management at remote sites? Field service operations? Asset management? If so, your search for ADC software must include applications that are purposely built to be frequently disconnected. When remote users are out of RF range or do not have continuous coverage, data will need to be stored for batch transmission into your ERP. ADC vendors offering ‘terminal emulation’ systems simply cannot provide this type of mobile data collection, unlike those who market client server-based systems. Handling remotely collected data is no small task, which makes it critical to find a software vendor who can offer the functionality in their base application—and not after the fact through expensive add-ons and custom software development.



Web Enablement

A Web-enabled ADC solution is mandatory for those employees who will be administering the system or using it to make business decisions. With a Web-enabled system, events can be monitored via the Internet as they happen. Users can view graphical data, access management information and generate a variety of reports, which provides a real-time ‘dashboard’ view into the heart of the data collection system. For IT managers, Web enablement also means there will be no software to load and virtually no administration at remote user sites, making administration, maintenance, upgrades and support exponentially easier—and less costly.

True Internet Integration

If your corporate logistics system includes remote locations, third-party warehousing or international sites, Internet integration will likely be key to the success of your ADC system. In the context of ADC, Internet integration means that data collection can be supported across virtually any device that connects to the Internet. This allows an ADC system to support mobile terminals and desktops in places where LANs or WANs are not available. As a result, remote data collection terminals can be run from any location where operators have access to a phone line and an Internet browser. The net effect of Internet integration is the ability to quickly deploy an ADC system across multiple remote sites, including public contract and outsourced warehouses, using existing Internet infrastructure and data collection devices.

Avoiding the Hidden Costs of Data Collection Implementations

Touchscreen Options

In many instances it is difficult to accommodate special end-user requirements with a standard hand-held terminal. How can you guarantee accurate data entry in situations where operators are wearing gloves, entering long strings of data, or do not have access to a keyboard? With a touchscreen, of course. Touchscreen-enabled systems take advantage of the Windows® graphical user interface (GUI) to interact with the user, as opposed to utilizing text-based prompts. This ensures that drop-down menus, task bars and “clickable” icons can all be used in the entry and manipulation of data.

Additionally, touchscreen functionality utilizes the existing hardware and computers on the shop floor, and is designed to interactively operate with other production tools such as CAD programs and machine control systems. The bottom line is this: If there are no options to address special data entry situations, the ROI of your ADC system will be reduced substantially.

Paperless Capabilities

In virtually every manufacturing environment, there exists essential paperwork that travels from work cell to work cell or department to department. When researching ADC software providers you will no doubt find yourself placing vendors into one of two categories: those that can provide a completely paperless option and those that cannot. One of the primary benefits of a paperless ADC solution is that the system provides the operator with all necessary information, as opposed to the operator having to rely on paper-based work instructions. In this way, the need for paper documentation and instructions is completely eliminated.

Utilizing a paperless ADC solution also cuts down on errors and makes training new hires easier, as the system takes the responsibility of directing employees through their jobs. Implementing a new ADC system provides a great opportunity for your company to take a proactive approach to data collection. Make sure your vendor can handle it without customization.

Upgrades and After-Market Support

As the potential buyer of an ADC system, it is given that the solution must fit the needs of your business as they stand today. But what about your needs of tomorrow? The key component necessary to bridge the gap between the present and the future can be summed up in a single word: Adaptability. Your ability to select an adaptable ADC solution can—and will—be the difference between long-term success and ongoing cost overruns.

Ready or Not—Change is Coming

Your business will not stay the same forever. It will add employees, production capacity and warehouses. Customers will continue to push your company to deliver higher-quality products in less time. A new version of your ERP system will inevitably be released. The reality of constant change means that selecting the wrong ADC vendor could subject your company to years or even decades of being at the mercy of others to write additional and expensive custom software.

When your ERP is upgraded—and it will be upgraded—can you be sure that you won't have to re-write some or all of the data collection system? Or purchase a brand-new version? You can be, if you ask the right questions. To protect yourself from expensive upgrades and re-development, arm yourself with the following three questions when interviewing potential ADC vendors:

1. “Is the architecture truly adaptable?”

The best ADC systems will not require custom coding from outside vendors to make simple changes. Your IT department should be able to make these changes to the system without assistance, and the changes should be supported by the vendor. Otherwise, the total cost of system ownership will rise exponentially. When looking for hidden costs, be sure to consider the long-term implications of your purchase, and not just the initial software price.

2. “Does the product have ‘upgrade insurance?’”

When the ERP system is upgraded, will you have to re-install your ADC system or even re-write it? This could mean paying for a new implementation with all of the associated costs each time you wish to upgrade.

3. “Does the system architecture provide uninterrupted data collection even when the ERP system is down?”

Many vendors tout the benefits of their system as sitting “on top” of the ERP. But when the ERP is down, your operations stop. Having a separate server for your ADC solution provides insurance that operations can continue uninterrupted, regardless of the ERP server's schedule.

For a complete list of ADC vendor evaluation questions, please see the checklist at the back of this report.

Avoiding the Hidden Costs of Data Collection Implementations

What Happens After They Leave?

Once the system is installed and the vendor's developers have walked out of your facility for the last time, the question of support becomes paramount. Selecting a custom-coded solution means you will be relying on someone else's development staff to maintain and migrate your system for years to come, not to mention incurring significant associated costs. On the other hand, choosing a solution that does not contain custom code means having the option of migrating the data collection system at your own pace, with your own staff, and at a fraction of the cost.

It is also important to find a vendor with a demonstrated ability to be in business over the long term. This type of longevity will manifest itself in a diverse business model, a robust product offering and a comprehensive set of solutions for your ADC issues.



Conclusion

In these uncertain economic times, companies are under constant pressure to lower overhead and manage ever-shrinking budgets. Can your company afford the risk of purchasing an ADC solution that will require significant development and support dollars in the future? If not, then you are encouraged to think very carefully about the information presented in this special report.

By considering the big picture—basic functionality, enhanced functionality, upgrades and after-market support—your company can maximize overall ROI and design a data collection system that quickly and inexpensively grows along with your business. This, in turn, will allow your company to realize an outcome that most companies do not: a truly successful data collection initiative that supports your company's ability to achieve and maintain competitive advantage in the marketplace.

Avoiding the Hidden Costs of Data Collection Implementations

ADC Vendor Evaluation Checklist

Instructions: Below is a list of criteria that may be important to you when evaluating ADC vendors and their offerings. If a particular line item is not important to you or your company, mark it as “Not Applicable.” If it is a key consideration, be sure to ask the vendor about it in the initial interview and mark “Yes” or “No,” accordingly.

				Notes/Comments
Out-of-the-Box Product Functionality				
Real-Time Data Transfer to ERP System	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Scalable Product Architecture (in your terms)	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Seamless Integration Using Defined ERP Methodology	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Enhanced Product Functionality				
Uninterrupted Data Collection	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Disconnected Mobility	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Web Enablement	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Internet Integration	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Touchscreen Compatibility	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Paperless Capabilities	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Upgrade Issues				
Adaptable Architecture / Upgrade Insurance	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Custom Code Used	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Outside Development Resources Needed	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
After-Market Support – Vendor Specific				
Long-Term Business Concern	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Diverse Business Model	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Robust Product Offering	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	
Comprehensive Set of ADC Solutions	<input type="checkbox"/> YES	<input type="checkbox"/> NO	<input type="checkbox"/> N/A	