Process-Critical Forms and the Mobile Workforce
- making the digital savings

Introduction

Look around any business and you will see a myriad of forms-centric processes. Processes are triggered by forms, monitored by forms and approved by forms. And in most businesses, the majority of these forms still involve paper. In some cases, the forms are scanned in advance of the process and the data is captured electronically for use in the process. In others the blank form is distributed electronically as a PDF file or as a fax image. But in most cases, the form is actually pre-printed on paper, distributed physically, filled-in using a pen – often just to collect a signature – and managed through the process as a paper document.

These days, of course, there are many forms that can be filled in entirely electronically on the web, most famously the tax forms that we are all familiar with. We are quite used to filling out order forms, survey forms and registration forms on the web. It is generally more convenient, the data is likely to be more accurate, and it certainly achieves a much quicker result than mailing and manual processing.

But it only works if we are next to a computer screen. And that is a problem if we are walking round a factory or a shop, or if we are at a patient's bedside or a customer's house, or we are walking down a street or in a vehicle. This is where we traditionally resort to filling in paper forms or checking off printed lists. And we frequently place the form on a clipboard for convenience. The physical form, and its hand-written signature, may often form the basis of a quality system, a customer or patient approval, or a legal agreement.

This is not to say that handheld data collection devices are new or unusual. Shelf-stackers in stores, courier delivery drivers, and even waiters in restaurants have been using them for years, and some will collect signatures as well as numerical data. What is new is the ready availability of slim, lightweight, always-on and always-connected tablets, such as the iPad or the more specialized "digital clipboard" products. These products also offer the possibility of taking photo-images or voice recordings, and they know where they are geographically.

In this report, we will look at how these products open up forms capture and mobile-to-process applications to produce dramatic savings in turnaround time, data accuracy and productivity. We will also look at the trade-offs between ubiquitous "personal tablets" and those dedicated products that are built specifically for mobile data capture, incorporating encryption, secure communications, pre-built process interfaces and a degree of ruggedization.

The True Cost of Paper

The financial and environmental arguments for reducing the amount of paper used in the office are well rehearsed. It is not the purchase cost per sheet that matters, but the handling and add-on costs that result from photocopying, faxing, mailing, storing and disposing of paper. In a recent AIIM survey in our Industry Watch series[1], respondents estimated an office floor-space saving of 8% would result from an electronic-only filing policy after five years. When it comes to handling costs, however, forms are very much a special case.

Forms printing, distribution, collection and sorting represent a considerable overhead even before we try to strip the data from the completed form – whether manually or by scanning and capture. No matter if the blank forms are volume printed and mailed to customers, or are 15th generation photocopies distributed in an ad hoc way to employees, they represent a cost – not least of which is the policing of out-of-date and superseded forms. If the forms are personalized or part pre-populated, the costs rise further. However, the costs mount dramatically once the forms have been completed by the user, and need to be transported safely, securely and quickly to the start of the appropriate process, wherever that may be, and whether or not it includes a scanning and capture element.

In the AIIM survey mentioned earlier[1], we asked respondents to estimate how much it costs them, per document or form, in printing, distribution, mailing, collection and sorting, prior to either scanning or paper-based processing. Eliminating 14 responses of over $75 per form (which may well be valid for certain very specialized applications or remote locations) the average cost per form is $4.56. The median (mid-point) is $2.00, but for 20% of respondents the cost per form is $10 or more. In all cases, it is somewhat more than the raw cost of the paper itself.

In the next section we will see how scanning and capture of forms into electronic format provides a considerable productivity saving within the process itself, but even so, if the form was initially completed on paper, the scanning cost needs to be factored in, and here we included the preparation, scan and capture process costs, including QA (Quality Approval). In our survey, the average cost of capture per form or document was $2.84, and the median $1.50, with 25% reporting $5 or more per form. Taking these two numbers together, we can consider that a direct entry mechanism for forms data will generally save between $3.5 and $7 per form compared to paper origination, even if the core process is paperless.

Process Benefits of Capture

The business process management and workflow benefits of using electronic forms within the process itself are well documented. In one AIIM survey[2] we asked, "How much more productive do you think the administrative staff in your organization would be (or are) if their processes were work-flowed, using scanned forms and documents, with automated data capture." The average was a 33% improvement with a third saying 50% or more. We consistently measure a payback period for the investment in scanning and capture of 18 months or less for more than half of organizations[1]. In

terms of customer response, nearly 30% of a recent survey[1] estimated that speed of response to customers, suppliers, citizens or staff has been improved by 10 times or more following their investment in scanning and capture.

If we play that out to electronic data capture at first point of entry, then a number of additional benefits flow. Firstly, we remove the costs of handling paper forms and of either scanning them in, or worse, hand-keying the data. Secondly, we speed up turnaround times as the data will be ready for processing immediately on creation, without the elapsed time of collecting and scanning the paper form. Thirdly, we are likely to improve the accuracy of the data entered, as it can be validated against data held in the application – no more unreadable forms, invalid ID codes or out-of-range answers.

Mobile Capture

As we mentioned in the introduction, on-screen forms filling becomes more difficult away from the office. As we can see in *Figure 1,* 36% of organizations use mobile devices for forms capture for field service personnel, ranging down to 6% who capture mobile data directly from their customers. In some applications, the availability of immediate connection to the process provides a step-change in customer service or staff productivity. For example, immediate loan or claim approvals, customized contract sign-off, appointment scheduling options, triggered health or safety warnings, etc.

Figure 1: Which of the following employee roles make use of forms capture from portable/mobile devices in your business unit? (AIIM IW Survey1, N=69 with staff who use mobile devices)
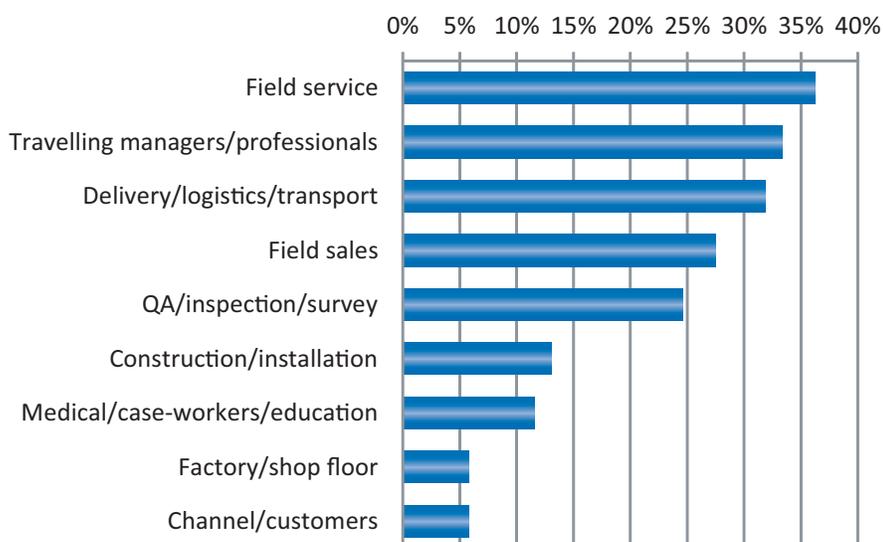

Quite a range of devices are in use, including portable scanners, smartphones, tablets and specialist terminals. In the survey cited, 14% use portable scanners to capture supporting documents, and 11% use them for scanning forms. Smartphones are more likely to be used for capturing photo-records (12%) with only 6% using them to scan and possibly OCR (4%) forms or supporting documents. Tablets are seeing rapid growth with 6% of organizations using them to directly capture forms data. We can see from *Figure 2* that the always-on benefits of Wi-Fi and 3G are making big inroads on more traditional batch download.

Figure 2: Which of the following locations/connection types apply to your portable forms apps? (AIIM IW Survey1, N=95)
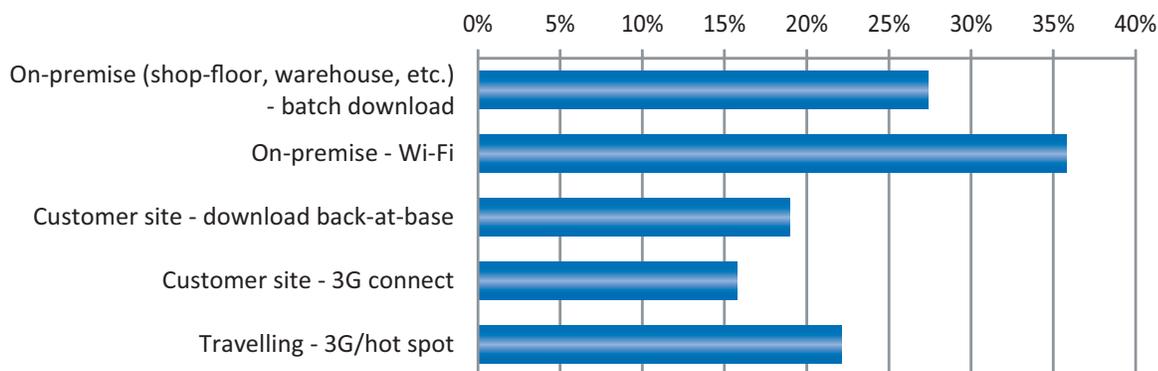
When it comes to benefits, users confirm that speed of data availability and better data accuracy are the most likely results, along with those that come from removing error-prone paper from the process.

Figure 3: What have been the three biggest benefits of your mobile/portable capture projects?
(AIIM IW Survey1, N=70)
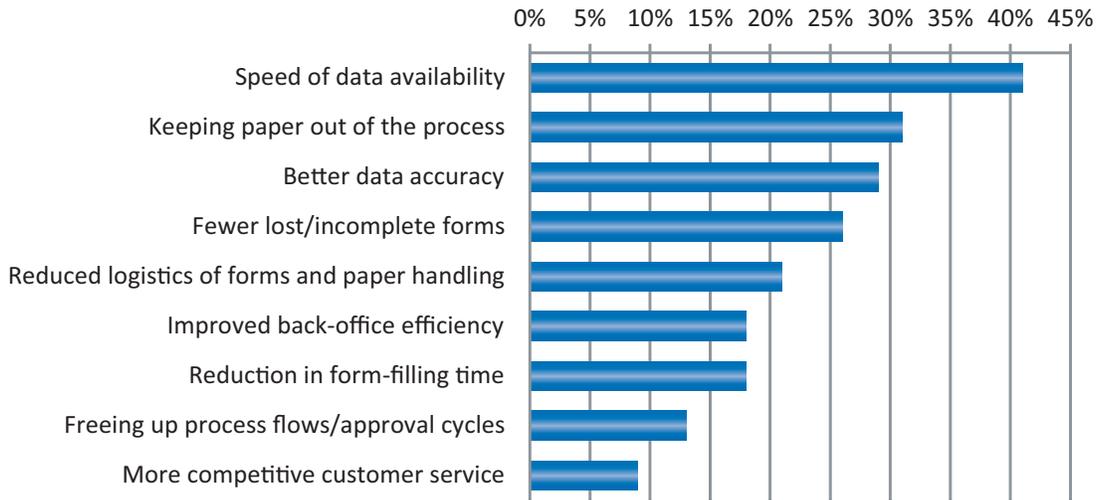
51% of our respondents reported a payback period for their mobile capture projects of 18months or less, with 71% seeing a return within 2 years. A significant 18% set out their business case on the basis of general benefits without setting a specific return.

Figure 4: What payback period would you say you have achieved, or are on track to achieve, from your portable/mobile capture investments? *(AIIM IW Survey1, N=64)*
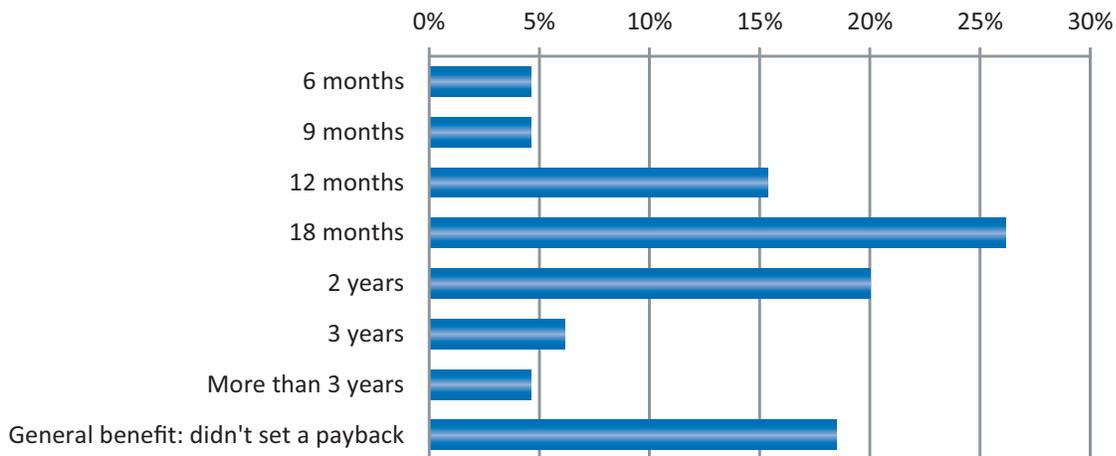
Signature Collection

One notorious process bottleneck that can be speeded up by use of mobile tablets is that of the approval signature, which may be a process confirmation, a payments approval, a professional sign-off, a customer contract or a patient consent. We found in a previous AIIM survey[3] that for 40% of organizations, half or more of their electronic workflows are interrupted by physical sign-offs, generally requiring multiple paper copies to be printed.

Figure 5: What percentage of the main business processes/documents in your organizational unit would you say require formal signatures? (AIIM Digital Signatures survey3, N=385)

We can see from *Figure 6* that the use of portable scanners to scan paper signatures is popular. We are all familiar with stylus signing for parcel deliveries, but it is interesting to note that touch-screens without a stylus are simply not good enough for this. A surprisingly high 21% make use of a digital signature app on the mobile device, although this may not necessarily be a full PKI encrypted and certificated mechanism. We can also see that many respondents see considerable potential benefit if approvals and sign-offs could be made by employees on the move or customers at their premises.

Figure 6: Regarding portable/mobile devices, do any of your portable forms applications involve capturing signatures? (AIIM IW Survey1, N=137)
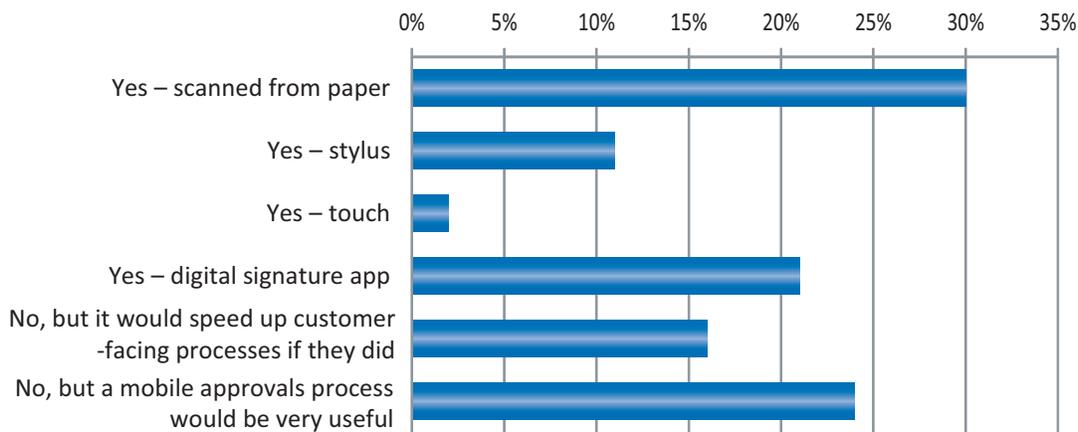
Tablets and Digital Clipboards

As we have seen, the benefits of mobile data capture are considerable, but before rushing to buy iPads for all of our staff, we should consider the issues found by our users (across all mobile devices, not just tablets).

Figure 7: What issues have you encountered with your mobile/portable capture projects?
(AIIM IW Survey1, N=94)
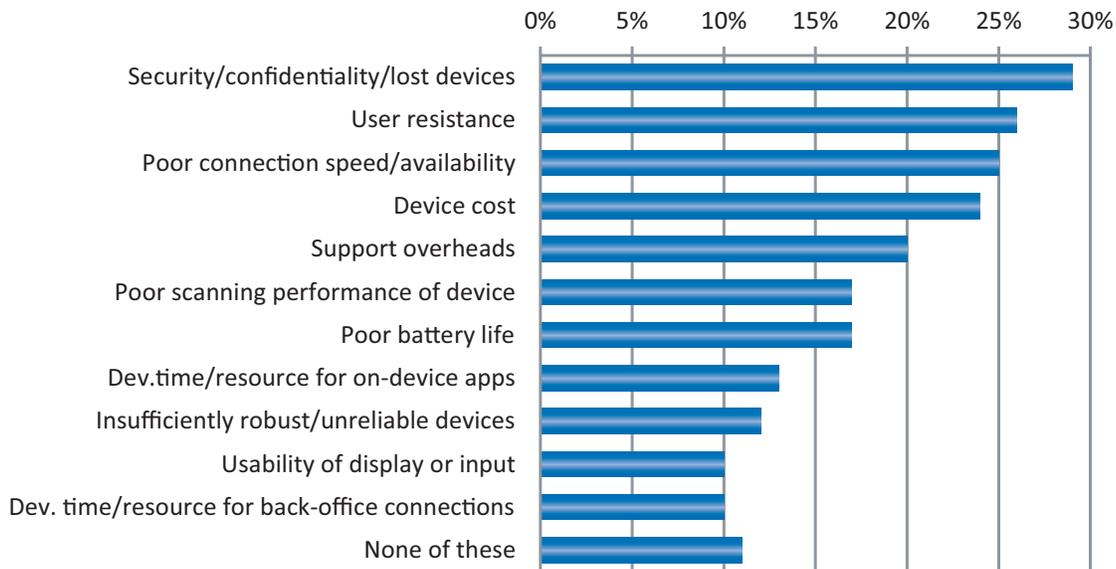
Despite the "gadget effect," user resistance to change from traditional paper is high. In the past, this would have been due to poor keyboard skills amongst the workforce, but that can hardly be claimed now. It is more likely resistance to the associated process change, plus a lifetime's familiarity with paper forms. We might reflect from this list how paper stacks up as a collection mechanism. It is highly portable, easy to use, suitable for physical signatures, robust, needs no battery, does not suffer from 3G issues, and is not prone to theft or loss. But is paper efficient, secure, reliable, immediate, intelligent, multi-purpose? No, it is none of these. And these last six are the all-important factors needed to improve productivity, data quality and customer service.

However, we might also pause to compare how an iPad or other generic tablet performs in these respects compared to a more dedicated "industrialized" tablet or digital clipboard. There can be no doubt that iPads will be more prone to theft, both within the workforce and outside it. This in itself leads to poor security, but there are many other areas that generic tablets can be vulnerable. Non-encryption of stored and transmitted data, virus and malware attacks and non-approved apps are all potential vulnerabilities. There are also, of course, physical issues, such as visibility in bright light, battery life, touch problems in "dirty hands" or gloved environments, difficulties with signatures, and of course, resistance to knocks and drops. There is also the employee differentiation between a device used solely for work, and a device which is also used for personal applications, which raises difficult issues about third party apps and immediate erasure of on-device data in the case of loss or theft.

Development resources are also an issue with generic tablets. Apps developed in-house may lack robust security features, and be susceptible to unilaterally imposed operating system upgrades and new versions. Connecting to back-office systems whilst maintaining logon integrity and data confidentiality, may also stretch in-house programming abilities. By comparison, dedicated devices and digital clipboards are likely to come with a development environment that includes a robust connectivity capability for both ends of the link, and may include APIs to popular back-office applications.

Conclusion

In the drive to remove expensive and unreliable paper, organizations have embraced scanning and capture to improve the productivity and response time of forms-based processes. AIIM surveys have consistently measured average productivity gains of a third, and payback periods of 18 months or less, particularly for centralized digital mailroom projects.

With more and more employees on the move and away from the office desk, paper forms become even more costly, slow and error-prone, and the need to provide immediate capture of forms data, supporting documentation and signatures has grown. Mobile data capture devices have been around for many years, but the new generation of tablet devices is set to change that game.

As well as providing online information access on the move, iPads and general-purpose tablets have certainly opened many people's eyes to some genuinely innovative and massively cost-saving applications. Their reputation as fragile executive toys shouldn't blind us to the benefits of mobile applications, particularly those that connect field staff and mobile operations staff directly to their back-office processing systems, eliminating delay, duplication of effort, lost or bad data, and most of all, those expensive paper forms.

Whilst iPads and generic tablets may be suitable for general issue to management or office staff, they have shortcomings in security, usability and resilience when used for field-based staff, shop-floor operators or peripatetic professionals. Dedicated or ruggedized "digital clipboards" can provide all the advantages of these multi-functional devices with much enhanced usability, longevity and security.

References:

1. AIIM Industry Watch, "The Paper Free Office – Dream or Reality," February 2012, www.aiim.org/research/industry-watch

2. AIIM White Paper, "Capitalizing on Content – a compelling ROI for change", March 2011, www.aiim.org/research/aiim-white-papers

3. AIIM White Paper, "Digital Signatures for documents, workflow and SharePoint", March 2010, www.aiim.org/research/aiim-white-papers

This report is underwritten by:

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About the White Paper

About AIIM

AIIM (www.aiim.org) has been an advocate and supporter of information professionals for nearly 70 years. The association mission is to ensure that information professionals understand the current and future challenges of managing information assets in an era of social, mobile, cloud and big data. AIIM builds on a strong heritage of research and member service. Today, AIIM is a global, non-profit organization that provides independent research, education and certification programs to information professionals. AIIM represents the entire information management community: practitioners, technology suppliers, integrators and consultants.

About AIIM research

AIIM survey results are based on responses from individual members of the AIIM community surveyed using a Web-based tool. Invitations to take the survey are sent via email to a selection of AIIM's 70,000 registered individuals. Respondents are predominantly from North America and Europe and cover a representative spread of industry and government sectors, and business sizes greater than 10 employees.

About the author

Doug Miles is Director of the AIIM Market Intelligence Division. An early pioneer of document management systems, Doug has been involved in their evolution from technical solution to enterprise infrastructure platform. Doug has produced a series of AIIM survey reports and white papers on user issues and drivers for ECM, Records Management, Capture, SharePoint and Enterprise 2.0.