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In Business, the Pen Is Mightier than the iPad

Since the iPad's release this year, questions have emerged as to whether tablet PCs will become a mainstream business tool. More specifically, does the tablet form factor address business needs better than other options that currently exist? If an organization has a significant number of field-based employees where mobility is an issue, the answer may be no. Tablet PCs can often be too expensive, too fragile, and too training-intensive to be effective. There is a clear need for a solution in the market to fill the "white space" that currently exists to capture and transmit information, particularly for enterprises with a significant mobile workforce. Digital pen technology offers an alternative to screen and keyboard solutions and can easily capture, process, interpret and transmit information in real time.

Case Study: Safelite

Safelite AutoGlass was looking to find a way to improve the company's field task processes. Safelite is a windshield replacement specialist based in the United States. With more than three million customers annually, the company was interested in replacing its existing paper-based dispatching system. The process at the time involved far too many steps, as field technicians were forced to drive to a central location to pick up work orders and then return at the end of their shifts to drop the work orders off. The amount of time wasted was evident in the loss of productivity. It wasn't unusual for employees to cancel jobs due to the delays. The process also slowed the ability to issue claims to insurance companies and keep track of the billing cycle at the home office. On top of that, the process led to a significant waste of paper. On average, each work order was printed five times a day.

Safelite wanted to create a solution that could manage field tasks wirelessly without the inordinate number of steps and paperwork previously needed. The company explored several technology options, including tablet PCs. However, Safelite found tablet PCs fell short when it came to matching the essential criteria it was looking for: reliability, cost-effectiveness, and a minimal impact on the productivity of the company's field technicians. As a result, Safelite turned elsewhere, choosing the technology of digital pen and paper.

The decision proved to be a game changer for Safelite. Each field technician now completes one extra job daily, generating more revenue for the company. Digital pen and paper has also led to an 80% reduction of work order paper used, lowering Safelite's costs. Moreover, the solution has proven to be cost-effective and easy enough for field technicians all over the U.S. to use.

Why Mobile Employees Are Difficult to Automate

It's no secret that laptops have been beneficial to worker mobility. The portability factor allows employees to work virtually anywhere. But, when it comes to field service workers, it's proven time and again to be a poor solution:

- **Costly:** Laptops are an expensive investment, as each employee requires his or her own machine.
- **Training Required:** Each worker needs to be taught how to properly use laptops. There are also constant upgrades/updates each employee must contend with.
- **Theft:** Having the machine stolen remains a concern, as laptops are expensive to replace and the data stored on them contains essential information to the business.
- **Damage:** Moving laptops from location to location often leads to the machine getting dropped, spilled on, etc.

Consequently, most field service workers continue to use the age-old method of data collection: pen and paper. By doing so, the expense, training, theft, and damage concerns of laptops may be gone, but

plenty of other drawbacks remain. For one, using pen and paper is time-consuming. Workers must re-input the information into a computer every time a form is turned in at the office. It's also a method that's error prone, as it is manual.

The number of field workers who continue to use pen and paper despite those obstacles is staggering. According to a [survey by Anoto, Inc.](#), 86% of businesses are still using paper-based forms in either their own business or in their clients' business. That's compared to 13.9% who say they're no longer using them at all. And although the majority of businesses continue to employ pen and paper, the numbers confirm it's not a method businesses find to be optimal. In fact, 75% said they would be interested in a solution that could digitally capture handwriting, convert it into data, and then instantly transmit the data to a back-end database.

Are Tablet PCs the Answer?

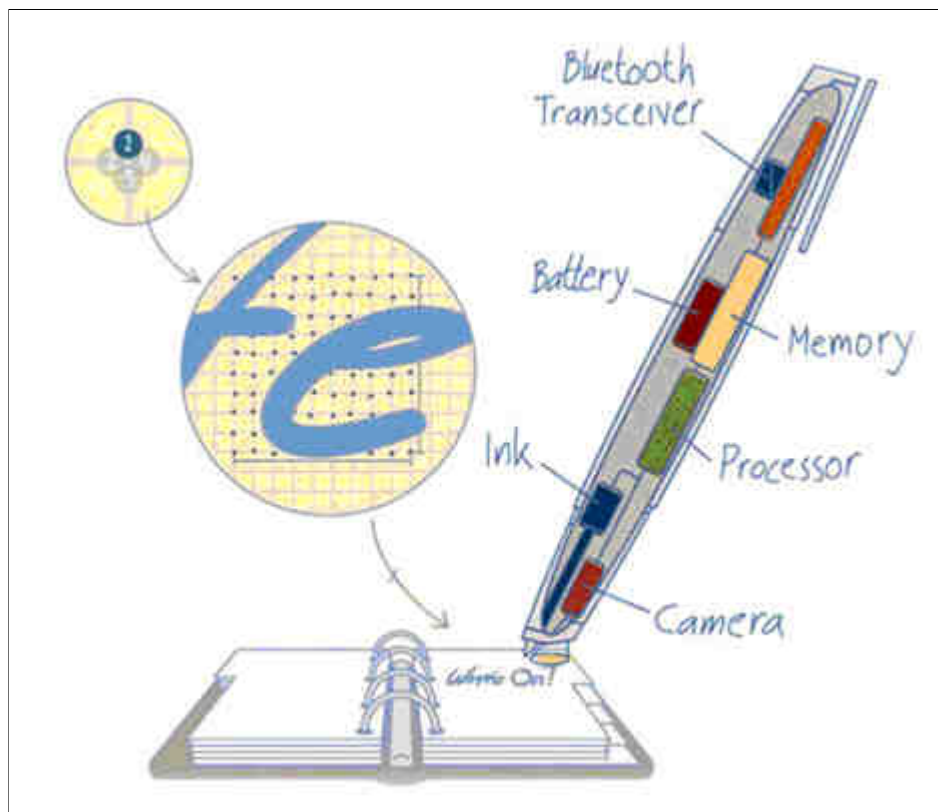
As discussed earlier, there has been significant buzz surrounding tablet PCs, especially with the recent launch of the iPad. Users have boasted about a number of advantages compared to using a laptop:

- **Mobile:** iPads don't have the same weight and bulkiness as laptops, and are great to use in meetings because they can lie flat as opposed to having a barrier screen.
- **Functional:** iPads and tablet PCs in general oftentimes include the same programs as laptops.
- **High Quality Resolution:** Provides a better experience for users when reading and watching videos.

Despite the benefits listed above, the overall improvements are marginal. Just like laptops, tablet PCs are expensive, require training, are an attractive theft target and are fragile. In fact, the argument's been made that tablet PCs are even more delicate than laptops, many times requiring a special cover just to protect the screen. For business executives, those concerns aren't a deal breaker. Tablet PCs including the iPad are well suited to serve as a "convenience technology" for when executives attend meetings or work in the office. However, it ends there. When it comes to field service workers, it's simply not a favorable solution.

What Will Fill the White Space?

As was shown with Safelite Autoglass, a technology currently exists - digital pen and paper - that is a mobile data capture solution that behaves like an ordinary pen, but actually "reads" the handwriting and translates it into computer-readable code. The image below illustrates the components of the technology:



For field service workers, the benefits of digital pen and paper are striking:

- **Highly portable:** Since the majority of the technology is merely a pen, it is easy for workers to travel from location to location with it.
- **No training required:** Employees don't need to be taught how to use a complicated machine like a laptop or tablet PC. Instead, they are using a technology that's innate: pen and paper. It just happens to be digital pen and paper.
- **No workflow interruption:** Workers avoid having to travel to multiple locations to drop off signed work orders or print multiple copies. All of the technology is right there with them.
- **Not fragile:** Digital pens don't pose the same risk of getting damaged if dropped or spilled on as laptops and tablet PCs do.
- **Not a target of theft:** The concern that someone would steal the technology is simply not there, because it resembles an ordinary pen.

Case Study: British Airways

British Airways turned to digital pen and paper when it needed to improve its process of flying in and out of Heathrow and Gatwick Airports. At the time, the airline was grappling with the difficult task of load control communication. For those unfamiliar with the term, before a pilot can take off, passengers, baggage and cargo need to be distributed correctly. Any changes made to the loading calculations must be communicated quickly and securely to the airline's Central Load Control Department, which, in turn is transmitted to the cockpit for the pilot to see.

Previously, information was sent via fax or telephone, or even delivered personally. The system many times led to delays, missed take-off slots and disgruntled passengers. British Airways knew a change needed to be implemented and considered switching to laptops or PDAs. But, evaluations found digital pen and paper to be the best solution due to its pocket size and longer battery life.

The digital pen contains a small, built-in infrared camera that stores the handwritten information. The load data is then registered into an A4-size form with an almost invisible dot pattern. Then, the information is sent via a mobile handset to the Central Load Control servers, where it is displayed in the form of a webpage. The entire process takes only a few seconds and is carried out by the turn-round coordinator at the side of the aircraft, regardless of where the plane is parked.

According to Linda Findlay of British Airways, the decision "modernized the way the airline does things..." The decision has allowed for quick and manageable load-control communication, prompter departures and a reduction of lost take-off slots.

Tablet PCs like the iPad can be a valuable asset in the business world. They are mobile, highly functional, and provide quality resolution. For executives in the boardroom, owning a tablet PC can be an advantage. They're more discreet, lying flat on a surface as opposed to laptop screens which inhibit conversation by blocking people from seeing each other. But that's the key: tablet PCs are beneficial to executives. When it comes to field service workers, particularly in industries such as home health care, transportation, construction, power and energy, etc., it's a different story. They require a technology that's cost-effective, durable, easy-to-use and doesn't interrupt workflow. In that regard, tablet PCs such as the iPad fall short. Despite the buzz surrounding them, they're only suited for a specific area in business.

As both Safelite AutoGlass and British Airways demonstrate, digital pen and paper technology suits a variety of industries. It's also portable, cost-effective and easy-to-use, making it a perfect fit to fill that "white space" in business computing that exists between laptops on the high end, and paper and pen on the low end.

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