

**A Lagging Industry**  
In a survey conducted by Sage Software with over 600 construction professionals from small and midsize firms, it was found that 33% feel the need to improve communication and collaboration, 32% want to streamline processes and over 80% think that mobile technology is a high or moderate priority (Sage Software, 2015).

Three key factors are driving the demand for mobile technology in the workplace:

1. Executive demand
2. Increasingly mobile workforce
3. Growing need for real-time information

With demand so high there is no question a need for mobile applications that control and distribute information.

Does your jobsite have a problem with field to office communication?

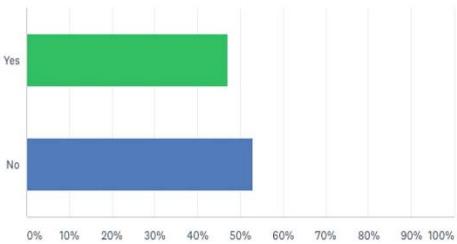


Figure 2: Survey Response From 20 Webcor Interns

**The Solution**  
The main areas where issues were identified included:

1. Daily logs
2. RFI/Submittals
3. Errors in shop drawings
4. Upper office management communicating effectively to the field
5. Relaying information in a timely fashion so changes can be made.

After this information was provided I called multiple construction software companies such as Procore, B2W, CrewTracks, PlanGrid, and eSUB. I requested full product demos of their software. After my research I concluded that these mobile applications could decrease the costs due to communication errors and rework by 10%.

Mobile applications such as Plangrid, eSUB, and others have the potential to mitigate rework and save time and money. These applications allow:

1. Information to constantly be updated allowing the field to have the current drawings
2. Constant flow of RFI information and other critical information to the jobsite.
3. Consistent stream of current information always the field to avoid rework mistakes

**Economics**

eSUB create a proposed cost for a small team of about 20 users. The average cost per person is around \$45 per month or \$544 per year. This is miniscule compared to the amount of savings improved communication could bring to jobsites.

In March 2009 the Journal of Engineering and Management stated that, poor communication usually contributed directly to rework and this adds an estimated 5% to the cost of an average construction project (CII, 2005). If we look at our trial project of 100 million dollars we can see that eSUB could potentially eliminate 3% of these costs. This would add up to savings of \$3 million dollars, which compared to the yearly cost of \$15,100, is tremendous.

# Mobile Applications to Aid Office to field Communication

**Abstract**

The advancements in new age communication technology are changing and shaping the construction industry more than ever, and this technology can be utilized to solve the many issues faced in the realm of office to field communication. Currently, many companies in the construction industry struggle to effectively manage office to field communication. In an industry where details surrounding RFI’s, change orders, and submittals are constantly changing, it is imperative that information is communicated effectively and in a timely manner to the necessary people. If communication is not flowing in an accurate and succinct manner, very costly mistakes can be made and projects can suffer serious consequences. Construction software apps for the iPad or iPhone have made this challenge of office to field communication easier but companies are still reluctant to adopt this technology. Applications using a connected network can reduce the communication mistakes that can lead to cost, schedule, and safety challenges. As more and more companies are moving toward integrating new age communication technology, the question arises as to how to best implement this technology. This paper will not only seek to demonstrate the best practice for implementing this new technology, but also exhibit how companies can improve productivity, safety, costs, and the scheduling process by adopting this type of technology.

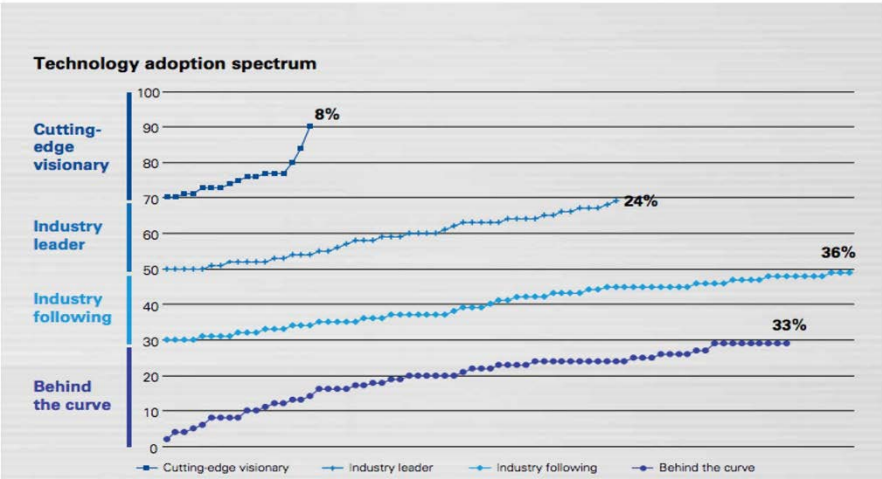


Figure 1: Industry Statistics for the Level of Adoption of Mobile Technologies

**Mobile Technology**

Mobile technology has made incredible strides in everyday life, however it still seems to lag behind for construction application. Based on Chen and Kamara (2008b), there are three types of mobile applications that have been used in the construction industry.

1. Mobile CAD Applications for interacting with drawings in construction sites.
2. Data Capture Applications for managing on-site information. This type of application can be subdivided into three categories, namely capturing data, the bar code system, and wireless sensor system.
3. Project Management Applications for dealing with project schedule in construction sites. Until recently construction mobile applications have been focused on one task whether it be in the field or in the office.

**Integration of Mobile Technologies**

Implementing project management and document-control software seems like a monumental task however it doesn't have to be. This is why I suggest that companies use a type of intergraded start program.

This method allows the current programs offices are using such as CMIC management software to be linked via an Internet storage cloud to the mobile app. This means that current office systems can stay in place while allowing the new mobile software to be integrated smoothly.

- **Mid-September:** Request a free eSUB demo with upper management present
- **Early-October:** Purchase app for use on test project
- **Mid-October:** Train employees via webinar on how to use eSUB software properly
- **Mid-December:** Conduct interviews with software users to see how the software improved their project's efficiency
- **Early-January:** If cost benefit analysis is positive, purchase it for other jobsites

Table 1: Integration of the Mobile Application eSUB

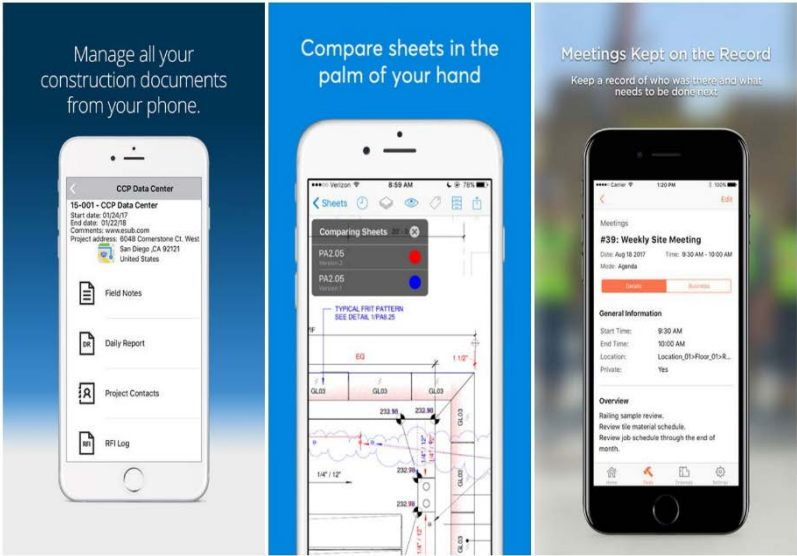


Figure 3: Examples of Mobile Applications