Mobile Information Technology Documents
Introduction

Background
• Mobile IT is the Use of Mobile Computers for Project Documentation
• Results In Digital Copies of Construction Documents

Communication
• Major Part of Every Aspect of Construction
• Quality of Communication Affects the Quality of the Project

Document Control
• Current Updating Process Can Lead To Inefficiencies

Paper Reduction
• Reduces Reproduction Costs
• Reduces Amount of Paper Used. Increases Sustainability.
Motivation

New Technology
- Majority of New Technology Is Aimed At Design Professionals or Construction Home Offices.
- Mobile IT Focuses On Field Operations

Streamlining
- Centralizes Construction Communications
- Minimizes Duplication of Efforts
- Minimizes Changes

Increase Use of Technology
- Ensure That The Technology Is Fully Utilized
Current Information Transfer Process

ARCHITECT \rightarrow CM \rightarrow OWNER
Costs of Accurate & Timely Information

2000 Economist Magazine Study
• 30% of construction projects cost attributed to the lack of timely information.
• 60% of which is labor costs
• 10% of which is material costs
Information Transfer Process with Mobile IT

ARCHITEC

CENTRAL SERVER

CM

OWNER
Uses of Mobile IT

• Digital Construction Documents
• Digital Updates/As-Builts
• Checklists/Inspections
• Communication in the Field
• Progress/Foreman Meetings
• Reduce Use of Paper Drawings
• Limited Only by the System and the Project Team
Contractor Perspectives

Advantages
• Information always in the hand of field workers
• Compact size compared to set of drawings
• Notes can be permanently attached to drawings
• Lessening of administrative functions

Disadvantages
• Changes may bypass the office
• Ability to view large drawings on a small screen
• Only as good as the effort that goes into maintaining the system

Will Paper Drawings Be Replaced?
• Many believe that the increase of digital drawings will reduce need for paper versions.
• Will further decrease as younger generations move into the industry
• Just in time printing would be a viable option
• Expansion of use will increase with decrease in cost
Roadblocks to Implementation

Roadblocks To Implementation

• Average age of construction workers: 39 years old
• 54% of CMs and 52% of Foremen were Baby Boomers
• Aging demographic not comfortable with computers
• Many have no experience with computers even at home
• Lack of experience = Lack of confidence
Implementation Plan

Training
• Give users confidence
• Allow Contractors to Buy Into the System Early On

Mobile Computers
• Basis of the whole system

Large Screen Displays
• Allows For Larger Viewing Areas During Meetings/Coordination

Digital Kiosks
• Large Screen Displays Located Within the Construction
Costs of Paper Construction Documents

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Sets</th>
<th>Purpose</th>
<th>Cost/Set</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>2</td>
<td>Staff</td>
<td>$1150.00</td>
<td>$2300.00</td>
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<tr>
<td></td>
<td>20</td>
<td>Subcontractors</td>
<td>$1150.00</td>
<td>$23,000.00</td>
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<tr>
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<td>20</td>
<td>Field Staff</td>
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<td>$23,000.00</td>
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<td><strong>Total Cost:</strong></td>
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<td></td>
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<td>$48,300.00</td>
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</table>

3 Copies/Project =~$145,000
Costs of Mobile IT

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost/Unit</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Seat License</td>
<td>$299</td>
<td>Month</td>
</tr>
<tr>
<td>Mobile Computer</td>
<td>$4000</td>
<td>Each</td>
</tr>
<tr>
<td>Elec. Pen</td>
<td>$300</td>
<td>Each</td>
</tr>
<tr>
<td>File Upload</td>
<td>$6</td>
<td>Each</td>
</tr>
<tr>
<td>Large Screen Display</td>
<td>$1000</td>
<td>Each</td>
</tr>
</tbody>
</table>

Example:
Project Cost: $5,000,000
Duration: 12 Months
Drawings/Docs: 1000
Licenses for GC: 2 (1 Office & 1 Field)

Cost of System: $13,000 (w/ Discounts)

Avg. Cost of Printing: 0.10% - 0.50% of Cost
Savings w/ Mobile IT: 80% of Printing Costs

Cost of Printing (w/o): $5,000 - $25,000
Savings w/ Mobile IT: $4,000 - $20,000

Cost For Entire Project: $50,000 - $60,000
Conclusion

• The Use Of Mobile IT Allows For A More Efficient Updating Process and Communication Flow
• The Reduction In Reproduction Costs Can Offset the Cost of Mobile IT
• If Implemented From the Outset Mobile IT Can Be A Useful CM Tool.

Special Thanks