

Mobile Technology Usage  
in the  
Residential  
Building Industry



MANAGEMENT CONSULTING • INVESTMENT BANKING  
for the CONSTRUCTION INDUSTRY



## TABLE OF CONTENTS

Executive Summary	2
Methodology	3
Demographics	4
Survey Results	5
Benefits of Embracing Web-Based Collaboration Technology	12
Concluding Thoughts	13





## EXECUTIVE SUMMARY

While the rate of technology adoption and diffusion of new products in the residential building industry has continued to lag behind other industries, recent rapid growth has occurred in the utilization of mobile technology devices in the field. As builders seek to gain a competitive advantage by reducing costs, streamlining processes and improving project team communication, a growing emphasis has been placed on the need for collaborative construction work processes through web-based technologies. The use of wireless devices help to drive efficiency gains in the field among builders, trade partners and suppliers. Despite the growth of wireless technology usage in the field, most firms in the residential building supply chain have yet to capitalize fully on the capabilities of these devices to gain a competitive advantage today and in the future.

A key factor in driving technology throughout the industry will be the identification and alleviation of pain points not addressed by existing wireless technology and web-based applications. In December 2008, FMI Corporation launched a study on Mobile Technology Usage in the Residential Building Industry. FMI sought to obtain data from National, Regional and Local Production Builders regarding existing mobile technology utilization in the residential building industry, to develop an understanding of solution needs by end user groups and to identify the unique business processes and pain points experienced when using mobile technology in the field. In particular, the research team needed to understand how Project Managers, Purchasing Directors, Division Presidents and others use mobile devices to increase productivity, reduce cost, improve the customer's experience and enhance communication.

### Highlights

- Builders, trade contractors and suppliers must do more with less to compete in today's market. Mobile technology is a key tool, allowing everyone in the residential home building industry to operate more efficiently.
- SmartPhones are widely used across the industry – an opportunity exists to make better use of the technology many already have.
- Some builders, trade contractors and suppliers are using their mobile devices to complete a wide variety of critical business functions with improved efficiency, timeliness and accuracy.
- Because so many suppliers and trades play critical roles in building homes, compatibility of wireless platforms and applications is critical if home builders are going to realize the full efficiency and productivity gains available from wireless technology and applications.



- There is a wide variety of applications, both custom for specific organizations and web-based for general usage that can make use of wireless technology to improve business processes in the residential building industry.
- Builders need to develop plans to identify and implement the most effective wireless solutions for their businesses. This should be done in conjunction with IT professionals, internal staff affected, and wireless service and equipment providers.
- Wireless platform providers need to highlight the wide range of software and hardware solutions currently available to solve key business issues for their current and potential customers in the residential building industry.
- Wireless platform providers can offer the most value to their residential construction customers by identifying the key business process challenges faced by their customers and by helping them find and implement the wireless solutions available.

## METHODOLOGY

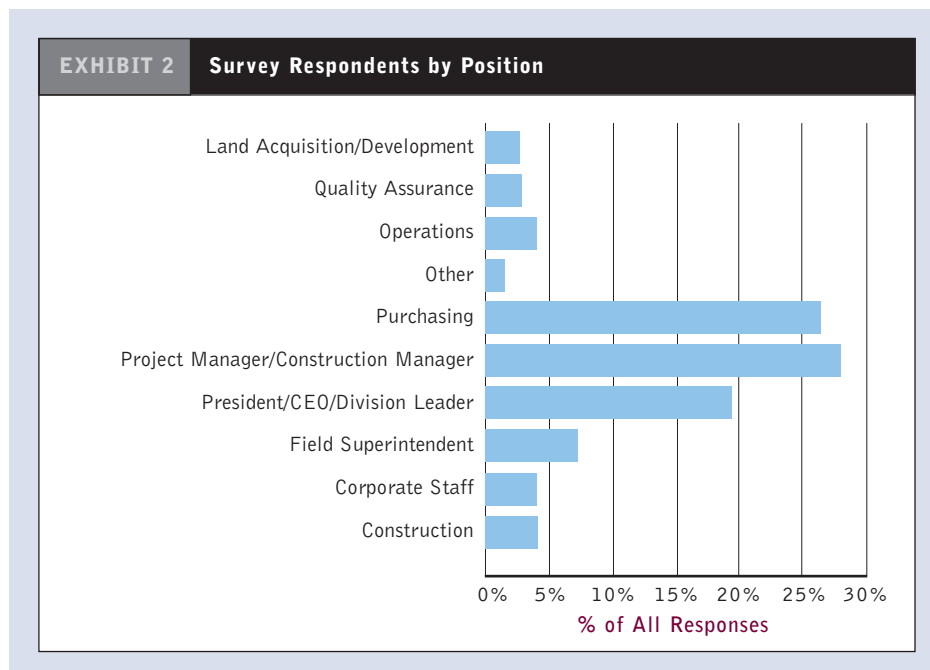
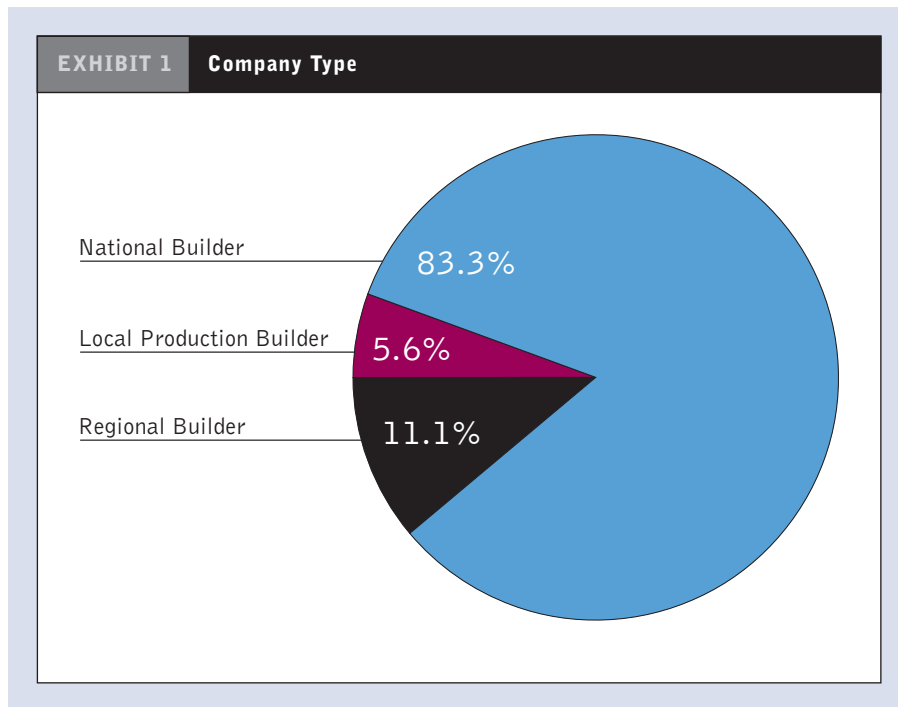
For this study, it was determined that a descriptive research methodology approach was appropriate given the information needed could be provided through personal interviews and an electronic survey. Prior to developing the survey question set, executives from both single and multifamily builders were interviewed, and an extensive secondary research review was conducted to ensure the survey instrument captured the data integral to the research objectives.

The residential builder sample for this research was selected from FMI's database, which included approximately 240,000 individual contacts at the time. In December 2008, an e-mail including a link to the survey was sent to 3,143 contacts. Of these, 1,691 e-mails were successfully delivered, and 72 professionals responded, yielding a response rate of 4.25%. The survey was online for a period of 10 days and an e-mail reminder was sent to non-respondents in an effort to increase response rates.

While the rate of technology adoption and diffusion of new products in the residential building industry has continued to lag behind other industries, recent rapid growth has occurred in the utilization of mobile technology devices in the field.

## DEMOGRAPHICS

The survey respondents were comprised of National Builders (83%), Regional Builders (11%) and Local Production Builders (6%) (See Exhibit 1). A majority of the 72 individuals who completed the survey were Project Manager/Construction Managers (28%), Purchasing Staff (26%) and President/CEO/Division Leaders (19%) (See Exhibit 2). Other survey respondents included field superintendents, corporate staff and staff with roles in land acquisition/development, quality assurance, operations and construction.



## SURVEY RESULTS

### Impact of Technology

Respondents were asked to describe how technology has changed the way they communicate and perform their job. The following six categories were identified as having the biggest impact in the last two years:

- Real-time communication with all project stakeholders, including subcontractors and vendors
- Web-based project scheduling
- Web access for processing purchase orders and contractor payments
- Wireless warranty scheduling and processing
- Real-time updates on the progress of the home
- File scanning of all documents

### Greatest Challenges

Respondents also were asked to describe the greatest challenges in improving their ability to communicate with the office, subcontractors, suppliers and customers. The following six categories of challenges were identified:

- Subcontractors and vendors not having the appropriate technology, including email
- Getting vendors and subcontractors on board with web-based scheduling
- High cost of implementing wireless products
- Lack of education on software applications and lack of training on how to utilize the technology
- Lack of reliability of wireless connection and phone service
- Lack of user-friendliness of web-based systems

### Device Utilization

Respondents reported using several devices for communicating and exchanging data in the field, including SmartPhones (69%), laptops with wireless access (43%), cell phones with push-to-talk (39%), basic cell phones (14%), tablet PCs (8%) and other devices such as desk PCs and palms (7%) (See Exhibit 3).

### Who is using these Devices?

In addition to understanding the concentration of mobile technology utilization within the industry, FMI sought to identify who is using the technology within a builder organization. In the survey, the top users of mobile technology were the Project Manager/Construction Manager (21%), Purchasing Staff (15%) and President/CEO/Division Leader (14%) (See Exhibit 4).

This breakdown is significant, as the Purchasing and Project Management Staff are two heavy operational user groups within a builder's organization that have the experience to effectively articulate the value of new technology. This experience can help them provide indispensable feedback to the executive user group who ultimately decides which platform to embrace. Gaining executive buy-in is crucial in demonstrating commitment to a wireless platform and software solutions throughout an organization.

**EXHIBIT 3** Devices used for Communication and Data in the Field

Device	% of Responses*
SmartPhone	69%
Laptop with Wireless Access	43%
Cell Phone with Push-to-Talk	39%
Basic Cell Phone Only	14%
Tablet PC	8%
Other (Desk PCs and Palms)	7%

\*Does not total 100%, as many respondents use multiple devices

**EXHIBIT 4 Device Utilization by Position**

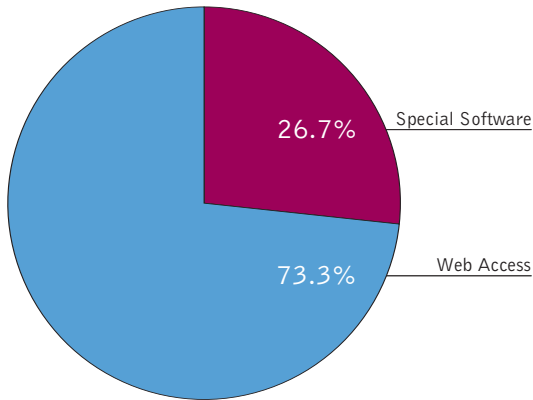
Position	Device	Response Total	Response Percentage
<b>Construction</b>	Cell Phone with Push-to-Talk	2	3%
	SmartPhone	3	4%
	Laptop with Wireless Access	3	4%
	Tablet PC	1	1%
<b>Corporate Staff</b>	Basic Cell Phone Only	1	1%
	Cell Phone with Push-to-Talk	1	1%
	SmartPhone	1	1%
	Laptop with Wireless Access	2	3%
<b>Field Superintendent</b>	Cell Phone with Push-to-Talk	3	4%
	SmartPhone	3	4%
	Laptop with Wireless Access	2	3%
<b>President/CEO/Division Leader</b>	Basic Cell Phone Only	2	3%
	Cell Phone with Push-to-Talk	6	8%
	SmartPhone	10	14%
	Laptop with Wireless Access	7	10%
	Tablet PC	1	1%
	Other	1	1%
<b>Project Mngr/Construction Mngr</b>	Basic Cell Phone Only	3	4%
	Cell Phone with Push-to-Talk	6	8%
	SmartPhone	15	21%
	Laptop with Wireless Access	7	10%
	Other	3	4%
<b>Purchasing</b>	Basic Cell Phone Only	3	4%
	Cell Phone with Push-to-Talk	8	11%
	SmartPhone	11	15%
	Laptop with Wireless Access	8	11%
	Tablet PC	1	1%
<b>Other</b>	Cell Phone with Push-to-Talk	1	1%
	Smart Phone	1	1%
<b>Operations</b>	Tablet PC	1	1%
	Basic Cell Phone Only	1	1%
	SmartPhone	2	3%
<b>Quality Assurance</b>	Laptop with Wireless Access	1	1%
	Cell Phone with Push-to-Talk	1	1%
	Smart Phone	2	3%
	Laptop with Wireless Access	1	1%
<b>Land Acquisition/Development</b>	Tablet PC	1	1%
	Smart Phone	2	3%

## System Integration

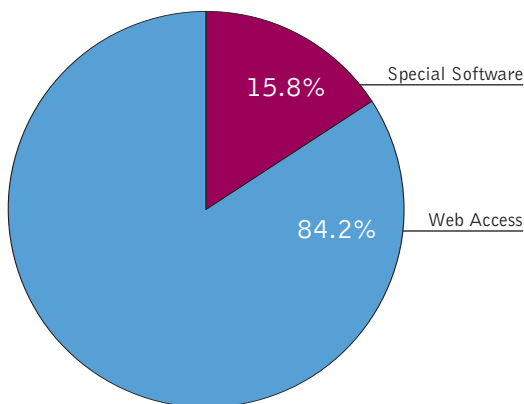
When asked whether the devices currently used by respondents integrate with existing office systems such as email, accounting, payroll and inventory, 83% said yes (See Exhibit 5). Seventy-four percent indicated the integration occurs through web access as opposed to special software (27%) (See Exhibit 6). When asked whether the devices currently used by respondents integrate with their vendors' and subcontractors' systems, 51% indicated they did not (See Exhibit 7). Of those devices that do integrate, 84% indicated the integration occurs through web access (See Exhibit 8).

As demand for wireless technology increases, the ability to easily integrate with existing applications will continue to be a factor as leaders determine which technology investments are most appropriate. Builders will seek tools that are easy to deploy within their respective organizations, that integrate with their vendors' and subcontractors' systems and those with user interfaces that their staff can quickly learn to use.

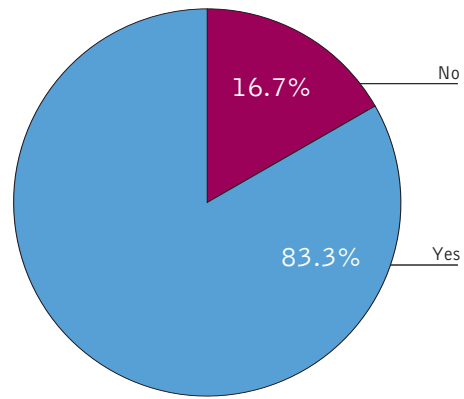
**EXHIBIT 6** If the device does integrate with your office systems, does this require special software or web access?



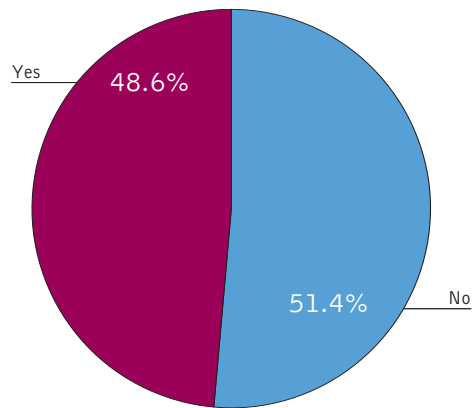
**EXHIBIT 8** If the device you currently use integrates with your vendors' and subcontractors' systems, does this require special software or web access?



**EXHIBIT 5** Does the device you currently use integrate with your office systems?



**EXHIBIT 7** Does the device you currently use integrate with your vendors' and subcontractors' systems?



## Performance Characteristics of Mobile Devices

When comparing each mobile device across a specific set of performance characteristics, BlackBerry® was viewed most favorably by respondents in four out of seven categories. Survey respondents viewed the performance of a BlackBerry strongest in terms of email capability, security, battery life and reliability (see Exhibit 9). Ease of use and durability were the highest ranked performance characteristics for a cell phone with push-to-talk, while web access ranked highest for a laptop with wireless access. When examining which device ranked lowest for each performance characteristic, the cell phone with push-to-talk was ranked last in terms of email capability, security, reliability and web access.

As illustrated in Exhibit 10, performance characteristic rankings were identified for each device. Email capability was the highest ranked function for a Treo or Windows Mobile Handheld, BlackBerry, Tablet PC and Laptop with Wireless Access. These results show a unique breakdown of performance characteristics for each device. As the mobile SmartPhone platform continues to evolve, functionality will become the ante and the winning platform will need to reduce or eliminate key business pain points of each end user group.

**EXHIBIT 9 Device Rankings by Performance Characteristic**

DEVICE RANKING	
<b>Email Capability</b>	
1	BlackBerry
2	Laptop with Wireless Access
3	Treo or Other Windows Mobile Handheld
4	Tablet PC
5	Cell Phone with Push-to-Talk
<b>Security</b>	
1	BlackBerry
2	Laptop with Wireless Access
3	Treo or Other Windows Mobile Handheld
4	Tablet PC
5	Cell Phone with Push-to-Talk
<b>Battery Life</b>	
1	BlackBerry
2	Cell Phone with Push-to-Talk
3	Treo or Other Windows Mobile Handheld
4	Tablet PC
5	Laptop with Wireless Access
<b>Reliability</b>	
1	BlackBerry
2	Laptop with Wireless Access
3	Tablet PC
4	Treo or Other Windows Mobile Handheld
5	Cell Phone with Push-to-Talk
<b>Ease of Use</b>	
1	Cell Phone with Push-to-Talk
2	BlackBerry
3	Tablet PC
4	Laptop with Wireless Access
5	Treo or Other Windows Mobile Handheld
<b>Durability</b>	
1	Cell Phone with Push-to-Talk
2	BlackBerry
3	Laptop with Wireless Access
4	Treo or Other Windows Mobile Handheld
5	Tablet PC
<b>Web Access</b>	
1	Laptop with Wireless Access
2	Treo or Other Windows Mobile Handheld
3	Tablet PC
4	BlackBerry
5	Cell Phone with Push-to-Talk

**EXHIBIT 10 Performance Characteristic Rankings by Device**

Functionality Ranking	Treo or Windows Mobile Handheld	BlackBerry	Cell Phone with Push-to-Talk	Tablet PC	Laptop with Wireless Access
1	Email Capability	Email Capability	Ease of Use	Email Capability	Email Capability
2	Web Access	Security	Durability	Ease of Use	Web Access
3	Security	Ease of Use	Security	Security	Security
4	Reliability	Reliability	Reliability	Web Access	Ease of Use
5	Ease of Use	Durability	Battery Life	Reliability	Reliability
6	Durability	Battery Life	Email Capability	Battery Life	Durability
7	Battery Life	Web Access	Web Access	Durability	Battery Life

### Business Processes Completed Wirelessly

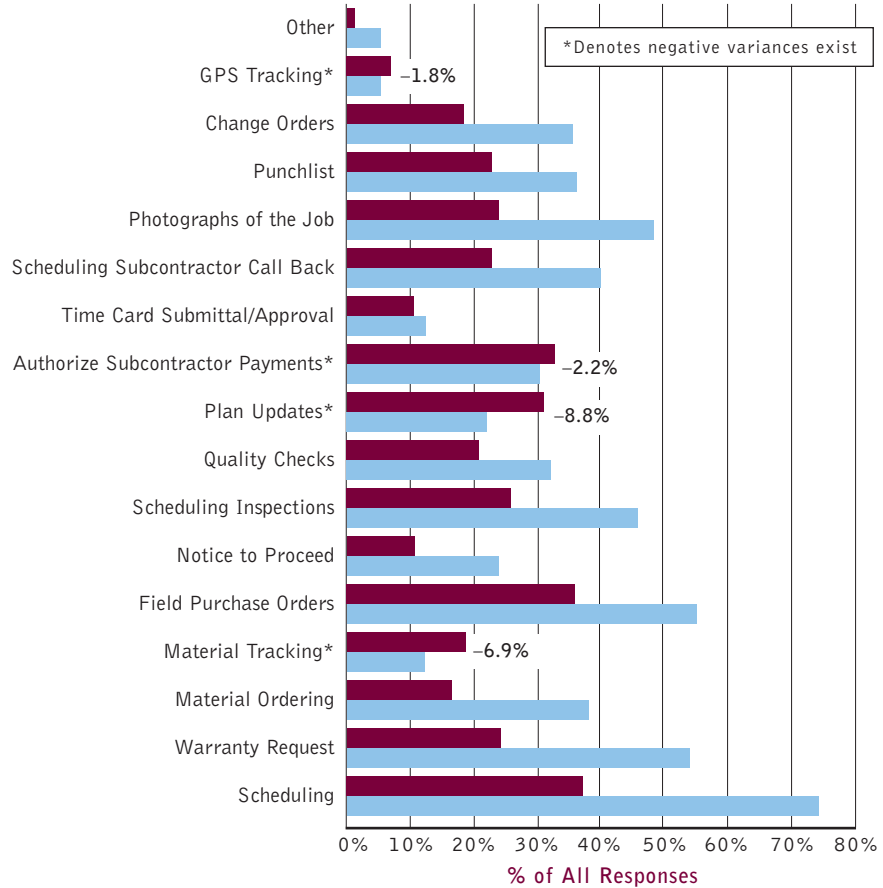
Although some builders have implemented wireless technology to address certain processes in the field, many are just beginning to utilize and leverage mobile devices and web-based applications. Scheduling, field purchase orders, warranty requests, photographs of the job site and scheduling subcontractor callbacks were the most cited processes completed wirelessly (See Exhibit 11). In addition, when asked which processes are not currently completed wirelessly, but would offer the most value, scheduling was cited most often. Respondents indicate processing field purchase orders, authorizing subcontractor payments and making plan updates are other processes that would offer value to the organization if they could be performed wirelessly. We also examined the data to identify processes where the percentage of respondents indicating the process would be valuable as a wireless process is higher than the percentage of respondents who are currently using wireless technology to execute that process. Such discrepancies existed for material tracking, plan updates, authorizing subcontractor payments and GPS tracking. This may indicate an unmet need in the market that wireless platform providers and independent software vendors could address to create value and competitive advantage.

As shown in Exhibit 12, when broken down by position, the ability to perform the scheduling process using a wireless device was the most cited process completed wirelessly by President/CEO/Division Leaders (79%), Project Manager/Construction Managers (65%) and Purchasing Staff (63%). Within these three user groups, we identified five processes where the percentage of respondents indicating it would be valuable as a wireless process is higher than the percentage of respondents who are currently using wireless technology to execute that process. For President/CEO/Division Leaders, discrepancies existed for material tracking and GPS tracking. For Purchasing Staff, plan updates, material tracking, change orders and authorizing subcontractor payments were found to have a negative variance.

There are several reasons why these organizations may not have adopted the wireless technology to address these needs, including cultural resistance to embrace new technology, economic constraints, lack of proper cost-benefit analysis, difficulty integrating systems and the challenges associated with providing staff the appropriate technology skills training. These results suggest there is an opportunity for technology providers to help address the unmet needs of these end user groups. Successful vendors and mobile operating companies will be those who can differentiate themselves by clearly showing how their products offer a return on investment.

In a December 2007 study conducted by the Aberdeen Group on The Impact of Location on Field Based Service, it was shown that location-based technology contributed to time savings resulting in at least one additional work order per day, per employee. This is due to benefits such as better workforce and fleet utilization, reduced fuel consumption due to decreased travel and lowered maintenance costs. This is a very important insight given the nature of field based service, service contracting and residential subcontracting. Each of these production crews are unit driven and the cost of these crews, while technically variable (varying with the volume of activity) are, for all practical purposes, fixed at the workday level. In other words, adding one more work order per day per employee results in zero additional labor cost, having a higher impact on the gross margin for the work order. The only incremental costs for the additional work order would be travel-related and materials and equipment based. Therefore, the value of some wireless solutions, while significant for the homebuilder, could be even more impactful for suppliers and installing contractors.

**EXHIBIT 11 Processes Completed Wirelessly and Those Most Valuable to an Organization as a Wireless Option**



■ Do Not Complete Using Wireless, But It Would Add Value  
■ Currently Complete using Wireless

**EXHIBIT 12 Processes Completed Wirelessly vs Not Completed Wirelessly by Position**

Position	Processes Completed Wirelessly	Response Percentage (Completed Wirelessly)	Response Percentage (Processes NOT Completed Wirelessly)	Variance
<b>President/CEO/Division Leader</b> (n=14)	Scheduling	79%	14%	65%
	Warranty Request	79%	7%	72%
	Material Ordering	43%	14%	29%
	Material Tracking	14%	21%	-7%
	Field Purchase Orders	79%	7%	72%
	Notice to Proceed	36%	7%	29%
	Scheduling Inspections	50%	14%	36%
	Quality Checks	43%	14%	29%
	Plan Updates	29%	7%	22%
	Authorize Subcontractor Payments	36%	14%	22%
	Time Card Submittal/Approval	14%	7%	7%
	Scheduling Subcontractor Call Back	64%	14%	50%
	Photographs of the Job	43%	21%	22%
	Punchlist	43%	7%	36%
	Change Orders	57%	0%	57%
GPS Tracking	0%	7%	-7%	
<b>Project Mngr/Construction Mngr</b> (n=20)	Scheduling	65%	35%	30%
	Warranty Request	40%	25%	15%
	Material Ordering	40%	15%	25%
	Material Tracking	15%	5%	10%
	Field Purchase Orders	40%	40%	0%
	Notice to Proceed	15%	5%	10%
	Scheduling Inspections	55%	25%	30%
	Quality Checks	20%	15%	5%
	Plan Updates	15%	10%	5%
	Authorize Subcontractor Payments	30%	15%	15%
	Time Card Submittal/Approval	10%	10%	0%
	Scheduling Subcontractor Call Back	30%	20%	10%
	Photographs of the Job	50%	20%	30%
	Punchlist	30%	25%	5%
	Change Orders	20%	15%	5%
GPS Tracking	10%	5%	5%	
<b>Purchasing</b> (n=19)	Scheduling	63%	32%	31%
	Warranty Request	26%	16%	10%
	Material Ordering	26%	11%	15%
	Material Tracking	5%	21%	-16%
	Field Purchase Orders	42%	32%	10%
	Notice to Proceed	21%	5%	16%
	Scheduling Inspections	21%	21%	0%
	Quality Checks	16%	11%	5%
	Plan Updates	16%	42%	-26%
	Authorize Subcontractor Payments	26%	32%	-6%
	Time Card Submittal/Approval	5%	5%	0%
	Scheduling Subcontractor Call Back	32%	16%	16%
	Photographs of the Job	32%	16%	16%
	Punchlist	16%	16%	0%
	Change Orders	21%	32%	-11%
GPS Tracking	5%	5%	0%	
Other	5%	5%	0%	

## BENEFITS OF EMBRACING WEB-BASED COLLABORATION TECHNOLOGY

The entire residential building supply chain can benefit from integrated technology platforms, mobile technology and increased collaboration. The inefficiencies associated with the use of traditional information management tools have provided incentives for participants to develop and adopt web-based collaboration tools and systems. Through project-wide collaboration, considerable cost savings may be captured in each phase of a project from conception, through pre-construction, construction and project close-out. Also, given the complex nature of construction projects, the ability to mitigate risk is essential to ensuring success for all stakeholders.

Benefits of embracing web-based collaboration technology include:

### Home Builders, Trade Contractors and Consultants

- Cycle Time Reduction
- Quicker response time for requests for information
- Reduced costs associated with plan distribution through online document management portals
- Better management of construction drawings
- Increased accuracy of job estimates
- Real-time processing of field activities and just-in-time delivery
- Ability to schedule on a real-time basis
- Faster mobilization of field staff
- Increased work productivity through the reduction of wasted time and rework
- Better access to purchase orders and work orders
- Reduction of overhead costs on transactional processes
- Improved communication and documentation between all project stakeholders

### Manufacturers, Distributors & Retailers

- Expanded customer base
- Ability to integrate with customer systems
- Improved customer service
- Ability to communicate with customers in a real-time manner
- Reduced time spent processing requests
- Increased productivity within sales staff
- Access to customer intelligence

The entire residential building supply chain can benefit from integrated technology platforms, mobile technology and increased collaboration.

## CONCLUDING THOUGHTS

The results indicate SmartPhones like BlackBerry and Treo® are becoming increasingly ubiquitous in the residential construction industry. However, most firms are only beginning to leverage the potential of this new connectivity. As the residential construction industry becomes increasingly more complex, the need to advance and leverage mobile technology to enhance the efficiency and effectiveness of a builder's organization will only continue. It is clear from the research that, the industry is on the cusp of transition from using mobile technology as a communication device (email, phone, etc.) to an application platform for significant business and operational functions. The stated interest of the respondents to use mobile technology for scheduling, processing field purchase orders, authorizing subcontractor payments and making plan updates is demonstrated evidence of this trend. The builders who embrace this new way of using mobile technology will position themselves for a distinct competitive advantage in the future, while those who do not, are likely to find themselves significantly challenged to keep up. Similarly, the applications and wireless platform providers who recognize first, the increasing sophistication of the residential building users by meeting these demands with a new wave of solutions and technologies, will have the best chance of becoming market leaders in the years ahead.

### Implications for Home Builders

As wireless devices, platforms and applications continue to improve, home builders should consider the following priorities when determining how to leverage these opportunities to apply technology to their businesses.

- 1. How well does the platform integrate with the builder's contractors' and suppliers' mission-critical business systems?** Many wireless solutions provide ways for builders to improve their efficiency, productivity and profitability by addressing only their internal processes. The best platforms and applications will allow home builders to cement key relationships with trade contractors and maximize the value they derive from their suppliers, thereby enhancing their ability to exchange key information, and allow them to remove waste from, and improve the productivity of their shared business processes.
- 2. How well does the platform support maturation of the residential building industry supply chain?** Given the growing complexity of construction projects, strong collaboration between and among the network of project stakeholders is necessary for successful project management. With this cross-company dependency, home builders are uniquely positioned to help accelerate maturation of the supply chain by implementing collaborative web-based technology. Through this real-time connectivity and information transparency, home builders have an opportunity to actively manage business processes and relationships with trade contractors and suppliers in order to optimize cost, streamline product design and engineering and reduce cycle time to achieve a sustainable competitive advantage. Solutions that help make this happen must support collaborative business processes by making it easier and more convenient to capture, exchange, analyze and use data. Home builders securing the greatest competitive advantages will be those who successfully leverage mobile technology to optimize business processes, improve communication and drive innovation across project teams.
- 3. How does the platform help support a home builder's ability to control costs?** As home builders seek to reduce costs, particularly in difficult economic conditions, platforms and applications offering the greatest opportunities to improve operational efficiency, increase productivity, control costs and capture savings will significantly impact their decision when considering technology investments. For example, cost savings may occur through cycle time reduction when solutions reduce or eliminate schedule impacts due to time lost searching for information or requesting information from the home office or trade partner; if they provide access to purchase order agreements and pricing with immediate visibility for changes, or if they allow accelerated responses to RFI and change approvals.

## Implications for Trade Contractors

As the wireless devices, platforms and applications continue to improve, residential trade contractors should consider the following priorities when determining how to leverage these opportunities to apply technology to their businesses.

- 1. How well does the platform integrate with the contractor's suppliers' and customers' mission-critical business systems?** Any number of wireless solutions provide ways for trade contractors to improve their efficiency, productivity and profitability by addressing only their internal processes. The big winners for the future are those platforms and applications that allow trade contractors to cement key relationships with home builders and maximize the value they derive from their suppliers. This will enhance their ability to exchange key information among and between their customers and suppliers, and allow them to remove waste from and improve the productivity of their shared business processes.
- 2. How does the platform impact the contractor's most important asset, his production staff?** While building and construction production staff are typically categorized as variable cost or direct job cost, at a micro level these staff actually function as a fixed cost, meaning that increasing the productivity or output of these staff will link directly to higher profitability for the contractor. For example, when a framing crew leaves the shop, much of the crew costs become fixed within the context of that work day. The contractor will have to pay for the crew's labor costs, the equipment costs and the transportation costs, regardless of how much output the crew delivers. Investments in wireless technology platforms should drive increased productivity for these production staff and crews. If that framing crew is able to complete an additional 10% of the house on that day as a result of minimizing delays due to poor technical information (lack of plans or incomplete plans and specs), reducing downtime associated with waiting for materials to be delivered and minimizing wasted drive time associated with traveling to a site that is not ready for the crew, all of the above costs become 10% more efficient. There are wireless platforms and applications that will facilitate all of the above examples, as well as many more ways for trade contractors to improve their productivity and efficiency.
- 3. How does the platform impact the contractor's ability to demonstrate, correct and complete installation of their scope to the home builder?** As home builders and trade contractors have reduced their staffing levels to align with lower demand for new homes, their construction staff are expected to manage more projects and homes spread over larger distances. This has created challenges for trades to demonstrate that they have completed their given scope correctly as builders' staff often are not available to verify correct completion prior to the next trade putting its work in place. This can delay payment for the trade and also can lead to significant time spent defending against back charges levied by builders when they are not able to ascertain the responsible party for damage, waste or incorrect installation. Additionally, this can lead to challenges in defending against construction defect litigation brought by a homeowner later in the cycle.

Wireless technologies that are capable of high-quality digital photography with time/date stamp and GPS stamp can provide a viable solution to this problem. Even when utilized only as attachments to emails indicating correct completion, these photos can be very helpful. When integrated with a database that can assign these pictures to the job file for each relevant home, the photos can be cataloged, analyzed and searched to verify that the trade in question completed its scope correctly and is not responsible for the problems enumerated above. These types of systems also can protect the home builder against the same claims.

## Implications for Suppliers

As the wireless devices, platforms and applications continue to improve, residential material and product suppliers should consider the following priorities when determining how to leverage these opportunities to apply technology to their businesses.

1. **How well does the platform integrate with the suppliers' customers' mission-critical business systems?** As with the home builders and trade contractors, many wireless solutions provide ways for suppliers to improve their efficiency, productivity and profitability by addressing only their internal processes. The platforms that deliver significant value will help suppliers cement key relationships with trade contractors and home builders by enhancing their ability to exchange key information among and between their customers and suppliers, and that allow them to remove waste from and improve the productivity of their shared business processes.

For example, lumber suppliers who are able to quickly and efficiently verify that their drop tickets accurately reflect what was ordered and what was physically delivered, will be able to help home builders and framers improve efficiency of material usage, eliminate unnecessary shipments and reduce finger pointing when shortages arise in the field. These suppliers will find their products and services in demand even in the lower volume environment most markets exhibit today. The photo capabilities described above in reference to trade contractors can be used to verify physical delivery of material packages and link the verification to the job file as well.

2. **How well does the platform integrate with the sales forces from various building product manufacturers whose products the supplier stocks and sells?** Building product manufacturers have become more directly involved with home builders and residential trade contractors in the last 5-10 years. As a result, it has become more critical for suppliers to work with and support the activities of key building product manufacturer staff. Supporting these sales staff with samples and data for presentations, providing fast access to quotes and communicating product availability can help close opportunities for the supplier and the building product manufacturer.

3. **How well does the platform perform at integrating customer demand data with the supplier's own pricing and inventory management systems?** As the residential building downturn has accelerated, home builders have intensified their efforts to reduce the waste associated with their business processes. Suppliers who are able to support the builders' efforts to manage their material and building product waste will become more valuable to the builders and will be in a good position to achieve greater share of those builders' demand. Conversely, suppliers who are not able to support these efforts or are resistant to the idea will be exposed to the risk that one or more of their competitors will fill the gap.

The same information can be used to manage the supplier's inventory to minimize working capital and take advantage of the best terms and timing for sourcing. In an environment where every penny counts, suppliers cannot afford to miss opportunities to create tens of thousands if not millions of dollars of free cash flow from inventory reduction and material sourcing efficiency.

## Implications for Wireless Platform Providers

As builders and contractors become more technologically savvy and continue examining how they can leverage wireless devices, platforms and applications to improve their businesses, wireless platform providers should consider the following priorities when determining how to position new technology and capitalize on this market.

### 1. How well does the platform promote collaboration across the residential building supply chain?

The provider whose platform allows the easiest integration between home builders, trade contractors and suppliers will have the greatest opportunity to become market leader. Leaders within home building organizations will seek solutions that help them realize operational efficiencies through vertically streamlining operations. Leaders within the other participants in the residential building supply chain will seek solutions that help them align with their customers and suppliers.

### 2. How well does the sales staff understand the needs of each end user group participant in the residential building supply chain? In order for staff to successfully position and sell the platform and solutions, they must understand the specific value propositions that address the critical needs of these end user groups. Staff must be able to provide executives with a clear understanding of the economic value created by the platform and applications in their operations.

### 3. How strategically aligned are platform providers with the Independent Software Vendors (ISVs)? In order to achieve ubiquity in the market, a wireless platform must align with ISVs that can deliver customizable or at least highly configurable solutions to home builders and their supply chain partners. While operational processes share common elements, each builder's processes are different.

Winning ISVs will offer solutions that allow the home builder to access the productivity and efficiency benefits of their technology without forcing them to go through wholesale structure and business process changes. These platform provider – ISV partnerships must result in a significant increase in the addressable market, including the suppliers, home builders and trade contractors. By strategically aligning with vendors developing the right construction specific solutions, platform providers have the ability to supply solutions tailored to market.

## ABOUT FMI

Founded in 1953 by Dr. Emol A. Fails, FMI provides management consulting and investment banking for the worldwide construction industry.

FMI delivers innovative, customized solutions to facility owners; contractors; construction materials producers; manufacturers and suppliers of building materials and construction equipment; property managers and developers; engineers and architects; surety companies; and industry trade associations.

FMI's experienced professionals assist owners with the development of sourcing strategy, assessing design and construction unit performance and support for management skill development. Services provided to other construction industry businesses include strategic planning, leader and organizational development, business development, research, mergers and acquisitions, peer groups, private equity placement, project execution, and training.

### Raleigh—Headquarters

5171 Glenwood Avenue  
Suite 200  
Raleigh, NC 27612  
P.O. Box 31108  
Raleigh, NC 27622  
T 919.787.8400  
F 919.785.9320

### Denver

55 Madison Street  
Suite 410  
Denver, CO 80206  
T 303.377.4740  
F 303.377.3535

### Phoenix

5080 N. 40th Street  
Suite 245  
Phoenix, AZ 85018  
T 602.381.8108  
F 602.381.8228

### Tampa

5301 W. Cypress Street  
Suite 201  
Tampa, FL 33607  
T 813.636.1364  
F 813.636.9601

[www.fminet.com](http://www.fminet.com)