FMI Quarterly

BUILDING LOYAL CUSTOMERS

FEATURES

This Quarter:
Giving Customers a "Boost"

Dear Reader:

Which has greater value, "satisfied customers" or "loyal customers?" While you can't get loyal customers without those customers being satisfied, satisfaction alone doesn't always mean that you get the next job. Those next jobs come from *loyal* customers. This issue of the *FMI Quarterly* provides some tools for helping you boost more customers into a loyal status.

In our featured interview this quarter, Sal Lascala with Turner Construction Company tells us about how Turner ensures loyal customers through their leader development effort. Michael McLin and Nate Scott offer some insights on spotting opportunities for productivity improvement through analysis of completed contracts in their article, *Increasing Profitability through Productivity Improvement.* Customers tend to reward highly productive vendors with more work and more profit. High quality work engenders more client loyalty than the alternative. Mike Putzer and Kelley Chisholm offer ideas in *Management's Choice — Quality Program or Rework?* Loyal customers often expect loyal contractors. That sometimes means growing beyond one's local geography in order to maintain favored status with customers. Growth that results in unkept promises will kill customer loyalty. Eric Sanderson addresses some of these concerns in his article, *Branching Out,* when he examines internal process issues that can impact customer relations. This is part two of a series that Sanderson began in 2005 Issue 4. Crossing cultural boundaries can stress customer loyalty and that makes Bruce Wilkinson and Mary Shippy's feature, *Cultural Intelligence,* a must-read if you are undertaking off-shore work or even operating in somewhat alien domestic areas.

As hurricanes Katrina, Rita, and Wilma recently underscored, being able to quickly respond to urgent customer needs fosters great customer loyalty, just
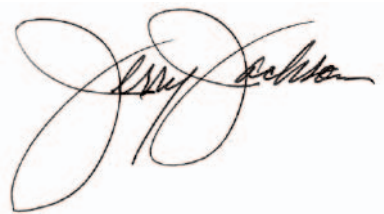
as inability to respond can shred that loyalty. Response ability is due in large measure to the degree of preparedness existing at the time of crisis. Kelley Chisholm builds upon a theme first introduced by Gregg Shoppman in his feature on disaster preparation and offers us business continuation assistance for other disasters in her article, *Business Continuity Planning in an Age of Uncertainty: Is Your Company Prepared?*

Bruce Wilkinson provides us with an example of a contractor adept at building loyal customers in his spotlight on the Cooper River Bridge project in Charleston, S.C. Tidewater Skanska has a project manager that knows how to earn repeat business with Project Manager Wade Watson. Manufactured housing is a viable option for helping many Americans afford their dream, the American Dream, of owning their own home. Heather Johnson discusses this growing market for residential contractors in her feature on the subject. Finally, Kelley Chisholm illustrates how viewing training and development as an investment rather than an expense can increase productivity in your firm and build loyalty among your employees and ultimately, your customers too.

Finally, our departmental editors provide ideas and experiences in their short pieces that should aid you in increasing the loyalty of your customer base.

FMI has a lot of loyal customers, for whom we are very grateful. Like you, we can never have too many. If there are topics that *FMI Quarterly* should cover that will help build your loyalty to our publication, please give me a call, an e-mail, or the rapidly disappearing regular letter.

Sincerely,

Jerry Jackson
FMI Quarterly Publisher and Senior Editor

Departments

BUSINESS DEVELOPMENT
More Than Paint is Needed to Change Your Spots

Changing a company's environment frequently proves to be difficult. That is why it is surprising that so many organizations go out of their way to make the change process even more difficult for themselves and their customers. You would think with the amount of time and effort needed to implement a successful change, companies would work hard to put their effort on those critical success factors that really generate results.

Customers have a simple mantra today: cheaper, better, faster. The message can be frustrating in its simplicity and tenacity. Customers of all kinds have grown accustomed to new product launches that provide more capabilities for the same or less costs. This year's handheld device cannot only remember your favorite music, but it can store the spreadsheet with key cost items for your customer's project, and play your favorite movie. Next year, we all expect that same product to be smaller, have even more integrated features, and be offered at a lower cost.

Cheaper—better—faster frustrates us as contractors. It frustrates manufacturers of commercial and consumer products, as well. But, the options are simple: we either need to change our approach to the market, get more sophisticated customers who somehow only buy on value, or get comfortable with the current realities of profit in the industry.

WHAT DOES IT TAKE TO CHANGE?

To understand that, let's start with what does not work. What does not work is trying to sell a customer the same service or product for a higher price if there has been no additional features or capabilities added. It might work for a few customers the first time, but it is not a long-term strategy for success in the construction industry. In a nutshell, you have to give customers the services they want and real value — not just a promise offered in the business development process, but a delivery on promises by the operations team 100% of the time. Delivering consistently is where many efforts to sell on value begin to fall apart.

Selling on value vs. price is the focus of contractors large and small, general contractors and subcontractors, commercial and residential builders. Contractors have realized that they do, in fact, provide services that add additional value to customers. So, some contractors try to reposition their companies in the mind

of customers by cranking up their marketing machine to position their firm as value-providers. They focus on the services they provide that customers have identified as valuable. They concentrate on communicating their message of value to the marketplace. They begin to "paint their spots" differently.

Instead of focusing their marketing messages on being "cost-competitive," the "spots" become pre-construction services, design/build, or negotiated work. Somehow, talking about these should magically transform the company into one selling on value and attracting the right kind of customers.

There are a few obvious challenges to this approach. Today, the sophistication level of the average construction customer is significantly higher than in the past. More educated on the process of construction, today's customers are better informed on alternatives and potential courses of action. In addition, they have access to a wider number of contractors who are also looking to get paid for the value they offer.

Simply put, if you want to get paid for the additional value you bring you have to do more than window dressing. It takes more than "painting new spots" onto an old company to position the firm to compete on value.

WHAT ARE THE KEY CHALLENGES?

Unfortunately, marketing departments are not always fully integrated in the thinking of operations. Sometimes, they are not even at the table when senior leaders of the construction company sit down to craft future plans because they are not thought of, and treated like, a strategic business partner in the organization.

> **You might be able to fool a customer with your new spots once, but continuing to fool them on the second, third, and so on project is simply an unrealistic expectation.**

What it takes to really change your "spots" and get paid for the extra value is more than marketing's change of words in your proposals, web page, and company brochures. From a customer's perspective, it is not about what you say you will do, it is about what you do. Changing the marketing message is a too-simplistic "paint" for today's sophisticated customers. They see through the process very quickly.

You might be able to fool a customer with your new spots once, but continuing to fool them on the second, third, and so on project is simply an unrealistic expectation.

What is needed is an actual change of what you do, making sure that it is different from what a competitor is willing to do for free, and aligning your internal machine to provide greater value.

In the future, we will offer more about what you need to think through to craft the right competitive positioning. Here, we want to share with you lessons learned in working with contracting organizations to embrace the real change

needed to transform their companies in the mind of the customer. What it means is moving change from the marketing department into the heart of operations.

WHAT IT REALLY TAKES TO CHANGE YOUR SPOTS

The following are keys that come from helping contractors to create real change in their organizations. The steps read fairly easily, but it is in doing them where the value is achieved and real results are generated. Simply put, when contractors change and are able to deliver that change 100% of the time, a customer takes notice — even in today's marketplace. When you can get and keep the attention of a customer, you have the potential to be able to sell what you do for just a little bit more.

Six keys form the backbone of what we call "traction." These keys enable organizations to take an idea from a concept to its implementation and weaving into the fabric of their companies.

KEYS TO IMPLEMENTATION SUCCESS

1. Measurement

If you believe the old adage that what gets measured gets done, this is the first step in creating and sustaining change. Create both leading and lagging measurements. Measurements should take into account changes that reflect the results of change, as well as those early behaviors that will lead to success.

2. Skill sets

What new skills and behaviors will be needed to support the change and drive it into the culture of the company? If a customer-focused culture is the intended outcome, then having accounting, administration, and operations trained in customer service is a great place to start. Just having business development and marketing focused on customers will not create the level of change necessary to change how the company is perceived by customers.

3. Roles, responsibilities, and organizational structure

The fast pace of business in the last few years has resulted in more and more duties being placed on everyone inside the organization. Introducing additional changes frequently just adds to the burden of already strained employees. A major change initiative is an ideal time to sit down and analyze the roles and responsibilities of those primarily impacted. If you are asking employees to pick up a number of new tasks (i.e. a project manager asked to be more responsible for tracking on-site costs, increasing the time that staff spends with customers in a selling mode, or using senior people to mentor and train new staff, etc.), it might be time to challenge what they are currently responsible for and streamline the expectations. In major change initiatives, the organizational structure may need to change. For example, if you want strategic business units to be more in control of their bottom-line performance, shift the reporting relationship, i.e. business development directly reports to a general manager vs. a vice president of business development.

4. Feedback and information

Everyone performs better when they know if they are generating the expected results with their efforts. Creating simple feedback systems to track progress being made allows everyone to keep their attentions focused on the change at hand. If you are trying to shift into a new market segment, this might include having a standing agenda item on the weekly staff meeting to review the number of new contacts made the prior week, discussing the word on the street about potential new projects, or talking through strategies to win the attention of a potential new customer. These are all simple ways to provide feedback on how people are doing and the successes being achieved.

> Creating simple feedback systems to track progress being made allows everyone to keep their attentions focused on the change at hand.

5. Resources

Not all change initiatives can be neatly tucked into the existing business structure. Some times additional staff, technical capability, access to senior leaders, or a subscription into a new lead source is needed to drive the right results. Every change initiative needs to be evaluated to determine if existing resources are adequate to support the change or if additional investment of time, money, or resources required.

6. Rewards

People, perversely, do what they think that they are paid to do. If your project managers are compensated only for the profit performance on a project, getting consistent customer-focused behavior may be difficult. By simply expanding what they are rewarded for to include profits AND satisfied customers, you can reinforce a more balanced approach to working with customers.

Using all six keys in concert enables organizations to jumpstart their change initiatives and drive lasting results. Without them, the wheels can frequently fall off the change wagon in 12 to 20 months.

Getting an organization to embrace and implement change takes work, but the results are real. Contractors who follow this six-step formula get traction on their goals and strategies through positive change. The majority of change efforts do not work because the infrastructure needed to drive the change into the fabric of the company is either too little or missing altogether. Without reinforcement, people return to their old behavior soon after a change effort is begun.

These six keys give you and your organization the structure needed to make your goals and strategies a reality in the day-to-day operations of your company. ■

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CONSTRUCTION MATERIALS
A Case Study: Customer Buying Practices for Construction Materials

The following scenario is based on a real client case with some alteration of names and data to protect confidentiality and simplify the analysis for this article.

The CEO and planning team of Powder Inc., producer of portland cement, considered various structures for their sales and marketing force. As part of their overall strategic development effort, the team came up with several options before it became apparent that there was not enough information to support one approach over another.

The planning team needed a better idea of which structure would suit their overall strategy for improving market share and profit margins. The decision would affect staffing and investment levels for the sales, technical services, and operations functions. For example, if they focused on being the low-price competitor in the market, then Powder Inc. would need to invest in plant modernization and productivity improvement, impacting sales and marketing budgets. Since the team's strategic planning decisions would have long-range effects on the company's direction, they commissioned a market study to gain a deeper understanding of their customers' expectations and needs.

BUYING PRACTICES SURVEY

Powder Inc. surveyed their geographical market to discover the buying practices of different types of customers and prospects. (See Exhibit 1.) Their aim was to obtain a clear picture of how customers choose cement suppliers so that they could then develop a systematic customer classification process to manage its accounts more effectively. Ultimately, the company would use the information to determine the structure of their sales and marketing force.

The study defined the different buying practices among customers by analyzing *order qualifiers* and *order winners*. Order qualifiers are the basic criteria that buyers have determined they must satisfy before making their purchasing decision. Order winners are the criteria that differentiate the products and services of one supplier from another, resulting in a purchase decision.

To illustrate, think of order qualifiers and order winners in terms of an automobile purchase. Most customers have some predetermined level of quality, luxury, or reliability that they are looking for as minimum requirements for their

Exhibit 1

Survey Results from Powder Inc. Customer Buying Practices

Survey Order Qualifiers	Ranking (Order Winners)	Powder Inc.	Competitor 1	Competitor 2	Competitor 3
Price	1	1*	2	3	4
Delivery	2	3	2	1	4
Quality	3	2	3	4	1
Product Availability	4	2	4	3	1
Technical Support	5	2	4	3	1
Relationship	6	1*	3	4	2

* Powder Inc. was surprised to learn that they were both the price leader and the relationship leader, which meant that they spent time and money building relationships with customers, yet gave price concessions to clients more often than the competition.

new car (the order qualifiers). Any vehicle that does not meet these qualifying standards is removed from the list until the field is narrowed to just a few choices. If several cars are equally qualified, then the consumer's decision defaults to the offer with the lowest price. Price, then, is the order winner. Often there will be a qualifier that captures a price premium from the buyer — for example, a longer warranty, a certain color, better fuel economy, or even something less tangible like "more exciting."

In the absence of a true differentiation among order qualifiers, price becomes the default order winner. This situation plagues the construction materials industry, and the only marketing strategy available to many manufacturers is to compete on price and strive to be the low-cost producer.

To refine their market strategy, Powder Inc. wanted to create a means of developing customers based on unique order qualifiers. This would allow the company to sell on value rather than just price, but better intelligence about its customers was needed to implement the plan. Research was undertaken to gather this information, including the selection criteria for Powder's customers and prospects.

RESEARCH RESULTS

The survey population consisted of Powder Inc.'s customers and prospects. Researchers collected data on each customer's expectations of its cement supplier and the criteria used to select one supplier over another. Portions of the survey asked how well cement suppliers met expectations rating each major competitor in the market against key selection criteria or order qualifiers.

> In the absence of a true differentiation among order qualifiers, price becomes the default order winner.

When all the results were in, the data was charted, comparing competitors and order qualifiers. Each company's position on the chart reflected its position in the marketplace. It was not surprising to learn that the customer's purchase decision was based on price most often. In fact, approximately 43% of those surveyed said price was the highest-ranking order qualifier. These companies were targeted by Powder Inc.'s account management plan to receive reduced levels of sales attention, service, and technical support. The group of firms with order qualifiers consisting of something other than price as the most important decision criteria (57%) was further narrowed. This subgroup's order qualifiers included product quality, product availability, industry development, and technical support. Powder would focus its sales and marketing efforts on this group to command a higher price.

Some of Powder's planning team felt the company was conceding a large share of their market by reducing sales efforts to those customers focused solely on price. Others on the team and the researchers explained that Powder would not be stepping away from price-sensitive customers; instead, the company would be strategically deploying resources to enhance profit margin and increase overall customer satisfaction.

A critical portion of the survey results focused on supplier performance related to meeting customer expectations. Those surveyed were asked to respond to the following statement: *"My primary supplier's performance generally (falls below, meets, or exceeds) my expectations."*

The survey found that the primary supplier in the market exceeded customer expectations only 11% of the time, leaving room for another company to step in with better service, quality, delivery, etc. Based on these results, it was possible that customers lacked high expectations from their suppliers since suppliers were unwilling to deliver more service than required to keep the relationship.

The survey also found customers perceived most suppliers as lacking in performance, including their services, quality, technical support, and delivery. Related to this, 32% of respondents said they considered all suppliers in the market as equal.

This parity among supplier choice is the basis for product commoditization. It is unclear if these customers' perceptions are the effect of low performance, but it is certain that this opens the door for a supplier to beat out the competition by delivering higher performance in the key order qualifiers.

Another survey question asked respondents to rate supplies on various criteria. Powder Inc. was rated highest in many key categories — a result that was encouraging to management. Most surprising was the finding that a disproportionate number of respondents rated Powder Inc. as the most price competitive supplier. Management's analysis of this perception was that their sales people had focused so much on price that they were conceding more than customers were demanding. For those accounts, they were missing some clear opportunities for margin enhancement.

A SYSTEMATIC PROCESS

By researching and mapping customer preferences and buying behavior according to order qualifiers and order winners, a construction materials producer can develop a systematic process for managing its customers. Identifying potential customers for whom price is not an order qualifier allows management to focus limited sales resources where they will yield the highest returns. For customers solely focused on buying at the lowest price, reduced promotion, entertainment, and other account-focused spending will reduce the cost of capturing and maintaining their business.

For Powder Inc.'s strategy development efforts, the results of the survey provided more than just information for determining the structure of their sales and marketing organization. It served as a baseline for future research that would help measure the effects of their strategic plan and map market trends affecting plant operations and product mix. ■

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MARKET RESEARCH
Are You Trying to Become a Powerful Client-Focused Market Leader? Focus First

Becoming a client-oriented market leader is difficult work. Leading companies typically invest significant amounts of time and money to understand their competitive landscape, including how to leverage their strengths, differentiate their services, and improve their customers' satisfaction. These are no small tasks — so you may be asking yourself how your firm can successfully accomplish these initiatives. The best way to begin is to take steps to hear clearly from your current and potential clients. The contractors who hear the most and the clearest become the strongest competitors.

The following tools of competitive intelligence can help your firm listen effectively to your market:

- Focus Groups
- Market Surveys
- In-Depth, One-on-One Interviews.

Focus groups are listed first since they are the preferred first step for companies that want to know more about their customers but don't know where to start. You may have heard about focus groups since they are widely used in consumer goods research. Few people have actually experienced a focus group, however, and many are not familiar with the actual mechanics of this research method. Let's review the specifics.

WHAT IS A FOCUS GROUP?
A focus group is a semi-structured gathering of eight to 10 people who discuss various topics with the guidance of an impartial and objective moderator. Each session lasts approximately two hours.

Focus groups are a form of qualitative, exploratory research. They provide perspective and context but not definitive numerical information. A construction company might use a focus group to:

- assess a market's needs for new services
- assess a market's response to a new product or service
- gain guidance on the effectiveness of promotional materials and branding
- develop an understanding of the buying and decision-making processes
- explore customer satisfaction issues
- research competitive positioning.

The purpose of a focus group is to explore, define, and describe. Often, focus groups are employed to prepare a company for a survey of their market. Focus groups offer their sponsor a lot more than the respondents' top-of-mind beliefs, knowledge, attitudes, and practices. Holding a focus group allows you to be the proverbial fly on the wall. As the focus group sponsor, you will be able to watch and listen to the discussion through a one-way mirror in a room adjacent to the room where the session is being held, facilities permitting. Although you will be able to see and hear the participants, they cannot see or hear you. With their interactive nature (from the viewing room you can submit instructions to

the moderator for probing into issues you hear) and the opportunity for capitalizing on "group effect" (the synergistic dynamic of how a group can generate more new and useful ideas than can the same number of individuals separately), focus groups have great value for any company trying to become a client-focused market leader.

HOW DO FOCUS GROUPS WORK?

A company using focus groups as a research tool will need two or more groups per market or geographic segment (i.e. cities, gender, occupations) that they want to learn about. Results from each group will build upon the other. Let's review the experiences of ABC Company, a fictional company created for this example.

ABC Company has 50 years of experience building commercial projects in the Pittsburgh area. Recently, they have been losing out on projects to their competitors. They don't understand why. After all, their clients have told them they have an excellent reputation among their clients and the community.

> **A company using focus groups as a research tool will need two or more groups per market or geographic segment they want to learn about.**

Or do they? ABC decides to use focus groups made up of current clients and prospective clients to explore the issue. Having an impartial moderator may help respondents to discuss any issues or problems with the company honestly. The moderator sets up a series of four focus group sessions (two with owners and two with property managers) with a representative sample in their marketplace.

Focus group one begins, following a discussion guide that has been carefully prepared in advance of the session. The discussion guide lists the topics that the company would like to see covered as well as detailed questions that it would like answers to. The moderator asks the group to explain which contractors they would consider using for their next project and why. For ABC Company, this was an eye-opening experience as the moderator led a discussion about the group members' experiences — the good, the bad, and the ugly. They were surprised to learn that their competitors consistently excelled in leadership and follow-through communication whereas, ABC Company's performance in the same areas had been less consistent. At the end of the session, ABC Company representatives were surprised and puzzled. This is not an unusual reaction from observers.

Like many companies, ABC Company was surprised by what they heard and what they did not hear from the focus group. They learned there is a gap between their stated customer service goals and the perceived reality of what their company provided. ABC Company representatives began asking questions such as: To what extent does what I just heard reflect reality? How do I set priorities from these results? With those questions in mind, ABC prepared for the next focus group, which started 15 minutes later.

WHAT DID YOU LEARN?

The second focus group showed some consistencies with the first group as well as some differences. Group one focused on communication issues; group two focused on budget and timing. With some minor modifications to the discussion guide, the third and fourth focus groups of the day were able to clarify some of the most troubling conflicts from the first two groups. However, seldom are all the conflicts resolved.

After all the focus groups had ended, ABC Company asked: Which group's results are right? There are no "right" answers with focus groups. We do not know how well the collective results from the groups reflect the distribution of attitudes, behaviors, and needs of the greater whole of the marketplace. Fundamentally, focus groups are not about estimating the proportion of perceptions and behaviors in the marketplace.

WHAT CAN YOU TAKE AWAY FROM FOCUS GROUPS?

Focus groups provide the basic foundation on which you can build a level of understanding and from there gain a competitive edge in the marketplace. This research method exists to identify the range of opinions related to your business, including information about particularly sensitive issues. The following are the major benefits that the sponsoring company receives from using a focus group to understand their market's perceptions.

Sponsor obtains candid information.

An impartial and objective moderator can derive information that a client may not feel comfortable providing to a company. For example, in ABC's case, their customers had previously told ABC Company what they thought ABC wanted to hear. They probably would not feel compelled to do the same with the moderator. For ABC Company, the reality sunk in that they were losing contracts because their reputation in the marketplace did not match what they thought it to be.

Sponsor has first-hand experience.

For some sponsors, the most valuable part of the focus group experience is being there and feeling the visceral reality of how your company is experienced by others. Contrast your state of mind to that of not attending and simply reading a report of what was said by the groups. The meaning of the information you hear penetrates much deeper than from reading a report. You feel the information instead of just understanding the information.

Sponsor gains significant amount of in-depth and diverse information.

Focus groups produce a great breadth of information and enable issues to naturally surface. For ABC Company, the focus groups helped to identify what questions ABC should include in their survey. Some sponsors might even have the group participants complete a draft of the survey they plan to use. With the survey completed, sponsors can improve the wording of the questions and add and delete questions on the survey. The end result is a more refined survey, which will provide greater clarity and more effective and trustworthy results.

Sponsor gets rare, direct look into the buyer's mind.

Focus groups give the sponsoring company a look into the specific mind-set of their buyers. The sponsors come away with a more refined and accurate understanding of Owner A, including where he is coming from, what he needs from the next proposal presentation, and what the sponsor should monitor if it does get the project so the owner will be highly satisfied.

REFINING THE FOUNDATION FOR A SUSTAINABLE COMPETITIVE ADVANTAGE

The focus group sessions are over. You have witnessed the experience and you have read the summary report of the key points from the groups, as well as the recommendations for improving the survey.

Following the focus groups, the research methods that build the strongest foundation for developing a sustainable competitive advantage include a performance-assessment/competitive-positioning survey of the marketplace followed by a very targeted and selective set of in-depth, one-on-one interviews.

The performance assessment/competitive-positioning survey is conducted on a sample of clients and prospective clients and provides results that should be representative of the whole marketplace. The detailed results from the survey will include ratings of your performance/competitiveness on a wide variety of aspects along with inferred measures of the leverage these aspects have on the marketplace's overall opinion of your services. The results from this type of research are powerful, but impersonal whereas, the results from the focus groups are intensely personal, but insufficient.

> Focus groups produce a great breadth of information and enable issues to naturally surface.

By reviewing the numbers from the survey and then re-reading the summary of the focus groups, sponsors begin to get the complete view. For ABC Company, the focus groups suggested that their follow-through communications were weak and that they weren't delivering the projects as on-time and on-budget as they believed they were. The survey confirmed this and quantified the extent of the problem by showing what proportion of ABC Company's client base believed these areas to be underperformed. The survey also showed that this problem was tied to the probability of ABC's clients recommending them to other companies,

yet ABC's performance in these areas was no less than other contractors in their area. This was a big "aha," giving the company areas that might potentially lead to a strong competitive advantage. ABC needed to know more. Why did people perceive the projects to be not on time and on budget since ABC did? For this information, ABC conducted one-on-one, in-depth interviews.

ONE-ON-ONE IN-DEPTH INTERVIEWS

The third tool of exceptional competitive intelligence is one-on-one interviews. Results from the focus groups and survey will point to key issues that need more examination. Ten to 20 or more one-on-one telephone interviews can be conducted to clarify the reasons for some of the responses seen in the survey and to explore how to deliver services that not only improved but that also exceed those of the competitors.

Once the interviews are complete, the final report provides a powerful, accurately triangulated perspective on your marketplace's view of you and your competitors. It will also guide you in what direction to take in your strategic competitive efforts. In most cases, a company will take away not only general results from this research, but also very specific results. In ABC's case, it turned out that their owners believed "on-time" completion included all close-out items, whereas ABC had been thinking these items were outside the on-time criterion. Armed with clear information about their client's expectations, ABC began crafting strategic plans. These plans will help ABC to develop their capabilities in the most important service areas — on which they can build a sustainable competitive advantage.

> Results from the focus groups and survey will point to key issues that need more examination.

If you want to become a leading competitor in your market, consider these three power tools of exceptional competitive intelligence. These three tools are complementary and synergistic. Individually, the components have value, but combined, they produce great insight for guiding strategy. ■

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"A handshake is as good as a signature for us."

Quarterly Interview

Structured Learning:

Sal LaScala,
Turner Construction

In August 2002, **Turner Construction Company founded the Turner Knowledge Network as part of Turner University** — an online learning web site designed to deliver knowledge to Turner employees. Since its implementation, the network has grown to include more course offerings and is now available to the public.

FMI's Tom Alafat talks with Sal LaScala, a senior vice president with Turner Construction and instructor of courses within Turner University, on behalf of *FMI Quarterly* about Turner's effort to develop leaders and build loyal customers through their initiative.

FMI Quarterly: Sal, tell us what went into the creation of Turner University and Turner Knowledge Network and what were some of the factors that drove your decision to do it.

LaScala: It started as a business strategy. We saw the construction industry market coming back strong, and we felt we had the strength of presence across the nation and depth in the markets that we could grow the company 10% to 15% per year in terms of volume. The challenge was finding the workers to make that growth possible. We met with the president and chairman of the company and discussed different ways to recruit people. We knew we weren't going to get all the people we needed just from hiring college recruits. We also recognized for the first time in our history that we had to take a serious look at bringing in experienced, new hires. Our challenge was: How do we share information with the 45 business units around the country and at the same time deal with the people that are coming into the company — both college and experienced, new hires? We needed a concept, and what we came up with was the idea of a knowledge network. Turner Knowledge Network (TKN) allows us to integrate learning with knowledge and to share it with all employees.

FMI Quarterly: Is TKN all online?

LaScala: Yes. It became our employees' portal to company information. In addition to an internal communication tool that complements our employee newsletter and other platforms, employees have access to our knowledge network and a learning management system. Skills can be measured and posted against a common competency model for the individual's level and position within Turner. That allows the individual to identify skills and development areas. The employee can then sign up for a course within TKN. It allows employees to seek out the learning opportunities online that we've developed. It not only helps the employee, but it helps their manager with the process of developing his or her people.

FMI Quarterly: Are the courses standard across the board for all employees, or are these differentiated by your level within the organization?

LaScala: They are differentiated by the individual's level and business focus. We have a core curriculum that we say most everyone needs — just like you would receive in a regular university. Based on what your specialty is or your level, you may need to take other courses, and then, if you need to improve a particular skill there is a place for that as well. We are striving to deliver learning to every individual in a unique way.

FMI Quarterly: Can you talk about Turner's values a little bit and how Turner University supports and informs your company values?

LaScala: Our core values for over 100 years have been commitment, integrity, and teamwork. Turner University allows us to deliver consistent communication and learning and gives us a vehicle for emphasizing and explaining how to apply our core values. We actually have a course on what our core values are on TKN that anybody can read, go back to, and understand why we believe in these values. It takes the definition a step further to see how those values should be lived out in the business context. What does commitment mean to us at Turner? We are talking about the promises that we make and we keep. A handshake is as good as a signature for us. We talk about integrity, and there is no tolerance for any blunders. We spell it out in the company document what this means and ask people to commit to these values. Teamwork is all about the development of your team and your people. It is not just about building buildings. We

COMPANY PROFILE

Turner Construction Company is a seven-billion-dollar building services firm. In August 2002, Turner founded **Turner Knowledge Network**™ (TKN). After extensive research and planning, the company implemented the information-rich knowledge network as an online learning and document management tool to attract and retain qualified talent.

Turner's staff of more than 5,000 employees as well as the general public can choose from 130 construction-specific, technology-related and general business skills web-based courses. Through TKN, individuals can transfer knowledge and collaborate real-time.

want more than good builders. We want our client to say, "Hey, I got good value for hiring Turner. I got a project delivered on-time. It was built safely. I like working with the staff, and the project was a success." If that's said by a client at the end of a job, then we have just reinforced our core values to that client. We also want our staff to develop their own skills and participate in their own career path.

FMI Quarterly: How many employees do you have within Turner now?

LaScala: We are a little over 5,500 people.

FMI Quarterly: Within such a large organization, there is a continuous need to develop your leaders. Can you describe a little bit about your current leader development program for our readers?

LaScala: Our leader development program starts at entry levels. Most of our recruits come from colleges with majors in engineering or a building construction management program. Early in their experience, we take them away for a week of orientation and expose them to the Turner way of doing things. We give them some of the basics about the actual functions of Turner, but what makes us a little different is the fact that we are here to build leaders, and that's what we want. We believe that we can develop leadership skills in any person. We've done it, and we have the right program to make that happen. Our people were hand-picked out of thousands of other college graduates through our recruiting program, and they come from all over the country so I like to say to the people in the room, "You are the best of the best." That process allows us to make a better selection, and we hope we are picking people with natural leadership skills.

> **We believe that we can develop leadership skills in any person. We've done it, and we have the right program to make that happen.**

FMI Quarterly: I know that Turner invests a lot of resources into developing leaders. From your perspective, what justifies a significant development in leader development?

LaScala: Ideally, we want to grow our leaders from within, and this has always been part of Turner's teamwork value of growing people. We've always developed and trained our staff from the day they come in the front door. If you look at our history, most of the senior leadership of the company are people who have been here many years. So it's evident that our investment in leadership does pay off. However, in today's environment, if you want to grow the company, you also need to go out and find experienced staff.

FMI Quarterly: Once you get these experienced people, do you find that you need to invest a lot in them so that they are doing things the Turner way, or how does that work?

LaScala: Our leadership development program, again, starts from entry level, but it also operates at every level within the company up to the executive level. When we hire experienced people, we need the flexibility to figure out what areas they need training and development in. We are not going to take someone with 20 years of experience and say, "You have to take Leadership 101."

> We still talk about "training" our people, but what we really want people to do is "learn." One of the ways we have found people learn best is from each other.

It just doesn't make sense. But what we try to do is assess their skills. First, in the interview, and with reference checking, we find out what those skills might be. Then later on, within six months of employment, we sit with the experienced person and talk about the things we see. Perhaps we see that they need to be a better coach. In that case, we might have them attend a "coaching leader lab" where they can get some exposure and some training through an instructor-led course that teaches them how to be a better coach. In some cases, we recommend our course on how to deal with difficult people. Sometimes we have high-profile jobs with stressful situations, and we need staff who are capable of managing that stressful time. So those are two examples of what learning we might deliver to an experienced hire.

FMI Quarterly: Do all 5,500 employees participate in the program?

LaScala: Yes, we are probably not as extensive with the administrative staff, but we have nine families within the company that we develop because we see ourselves as being diverse and different and in need of unique development. We provide learning and development opportunities for every individual in this company.

FMI Quarterly: There is a lot of talk today about return on investment and clearly Turner has made a huge investment in TKN and Turner University. What have you done to try to measure the kind of return you are getting for your investment?

LaScala: We still talk about "training" our people, but what we really want people to do is "learn." One of the ways we have found people learn best is from each other. We want our people to come back to their units after a learning

program is completed with practical tools they can put into use. We want to go beyond some PowerPoint that an instructor delivered. We want something useful — a checklist, an idea, something that you could follow up with when you get back to your project. It could be an idea that you get from an instructor. It could be a best practice from somebody in a business unit miles away. One way we measure the effectiveness of the learning opportunities is to survey our staff between 60 and 90 days after the course. We even do this for web-based courses. When people complete a course, they will receive an internal survey that asks: What are the things you learned, and how well are you using these tools in your present position? What would you recommend we do to help you? Is there any other information or learning you wish to have at this point to make it a success? So our employees understand that they are there to learn and that we fully expect them to implement what they have learned when they get back to their business unit, their project, and their department. We ask them how it is going. Sometimes we hear, "I haven't been able to implement it yet." Many times we hear: "It has been a huge success. Thank you for the checklist. I find it invaluable. I'm sharing it with my staff." Those are the ones you want to frame and put on your wall. We've found that the most enduring learning occurs when people are given practical tools and have opportunities to use what they learned with each other.

> We've found that the most enduring learning occurs when people are given practical tools and have opportunities to use what they learned with each other.

Turner employees participate in the instructor-led Adaptive Leadership course.

FMI Quarterly: That leads into my next question. Can you share specific examples of people who have taken part of a course and made significant changes or benefited as a result?

LaScala: I'll give you one story. It is a very recent one, and we are quite proud of it. It is called our Adaptive Leadership Program. It is aimed at our senior project leaders, executives, and senior department heads. We start with the premise that as leaders their job is to really do three things. We want them to build profitable projects. We want them to build relationships, and we want them to build people. This program reinforces those goals through group exchanges, case studies, hands-on exercises, and practical tools that we give them. For example, we will teach them differences in how to lead and motivate the experienced, new person and how to identify and lead in the midst of generational differences. The concern is that we want these executives to feel that they own the project and that they are responsible and adaptable enough to make the project a success. In the end, the corporate office doesn't really do anything in terms of getting the job built. It is the people in the field through operational excellence and their client relationships that drive the success of the project. So we want to single them out and say, "You are leaders, and we hope this course will give you some tools to take back with you to help you adapt to the people we now see on projects." They learn from each other, through the case studies, and the lessons learned about what has gone right and wrong on other jobs. It is not just the people skills that we are interested in. We are also interested in reinforcing their ability to build a profitable project and to maintain a client relationship for today and for tomorrow.

FMI Quarterly: What has been the general reaction from your participants since you've put into place the Turner Knowledge Network?

LaScala: It started out slow because initially we had a great tool, but we recognized that you have to deliver the learning and that is totally reliant upon connectivity. When you build 1,500 jobs a year, most of the staff assigned are working in trailers someplace and may be in a remote location. In 2002, there wasn't much in the way of wide bandwidth in America. Today, it is a lot easier to go online and download a course we have available. Most people even have the ability to do it from home. I think it has been a great success because they really can use the system as a tool for their development and learning, seeking out knowledge and accessing information. This is especially true for the younger generation who has grown up with the internet. For some of our more senior people, it has been a bit of a challenge, but they understand that they, in fact, need to get the learning. One of the great things that we did with TKN

was to become the first company in America to have OSHA-30 web-based courses online. In conjunction with the Department of Labor and OSHA, we developed the course. We have branded it, and our employees are required to take it. It is 30 hours, but the last eight hours are instructor-led. They do have to go to a classroom, and they get the certificate, which they would get in any registered program. We are quite proud of that, and we actually offer that course to the industry.

FMI Quarterly: So you don't have to be a Tuner employee to take some of the courses that you offer?

LaScala: No you don't. We have extended our Turner University to the industry at large. We have subcontractors, architects, and other people that go into our university and take courses that are relevant to them. We have a complete program that's called Turner Construction Management Training for Emerging Businesses that's offered to small businesses and minority or women-owned businesses where they can understand what it takes to work in our industry. We talk about bonding. We talk about safety. We talk about contracts. We talk about financing. So when you go through the course you really have a better understanding of what it takes to be successful as a vendor or subcontractor and what needs to be done in order to get on the bid list. It has been well received around the country. We at one time offered these courses in an instructor-led format only, but we couldn't reach enough communities that way. So we made the investment and developed them as web-based programs. In fact, we are working on the next generation of that community-based learning tool, which is more like a graduate program. Across the nation, we've had great minority-owned and women-owned business participation in our program. We now award 20% of our work to these groups, an outstanding number that we are very proud of.

> **Technology has helped us in terms of how we deliver learning, how we capture knowledge, and how we share that knowledge.**

FMI Quarterly: You are on the cutting edge of what's happening with training in the construction industry. It sounds like technology has enabled you to get TKN out to more of your people and to others who are interested in taking courses. Do you see other waves of technology coming, and are you anticipating some changes in how people are going to be learning through Turner University?

LaScala: Technology has helped us in terms of how we deliver learning, how we capture knowledge, and how we share that knowledge. There is no doubt

about it. One of the ways we feel that we will grow as a company is to develop communities of practice or communities of interest where, if you are looking for an answer to a problem and you want to be able to discuss issues, that tool/community will be available to you. There will be subject matter experts involved in

Sal LaScala teaches the Adaptive Leadership course.

this community. When someone says, "Hey, I've got an issue," that person will go to the Turner community, ask the question, have the dialogue electronically with the experts involved, and get their answer. Collaboration, sharing of knowledge, and learning take place across countless business units and all within a very short period of time. Of course, we post our best practices so the issue could be something we've dealt with, something we know about, and so it is simply a matter of looking it up. It is like going to an electronic library. Technology will help us in the road ahead because it allows us to capture knowledge, to share experiences, and experience real-time dialogue with subject matter experts. Who knows — maybe someday it will be an industry thing where you can ask anybody in the industry all sorts of questions and get answers. If we were that open with one another and if we really collaborated who knows what we could accomplish as an industry.

A leader needs to have a vision. I define vision as a step in the direction where you want to go.

FMI Quarterly: What are the basic components of leadership, as you view them?

LaScala: Probably not too much different than you might believe. I say that because I have learned a lot from FMI. The FMI Leadership and Organizational Group has a great knack for putting things in a very easy way to learn. A leader needs to have a vision. I define vision as a step in the direction where you want to go. I want to deliver a well-built project. I want a satisfied client. I want to develop a knowledge network. I want to build a relationship with a national design firm. Whatever that vision is, whatever that road, it has got to be a clear, repeatable message, but it takes more than that because those are just words. The leader has to create the structure and alignment for that success. The structure could be in how a department is organized, or it could be

where and when the staff is assigned a project. In order for a leader to accomplish his goal, his vision, he's got to align his team, and he's got to have the right people on board to do it. He also needs to motivate people. Who wants to follow someone who isn't passionate about his goals? So that is something else that I would expect of a good leader. Great leaders have a bigger view than just the project or even maybe the company. We need to consider the communities that we work in and actually get involved in that community — call it a worldview. Maybe it is just a local view, but it is something beyond just the business that we are in. Turner encourages its staff to have community relationships. One of the leadership attributes that we rate in our evaluation system is called "community leadership." It is something we say is an attribute, and we score it. The last thing I would say about the qualities and behaviors of a leader is that always, always, they must instill in others and live out in themselves, the highest ethical standards. They have to believe it, and they have to live it.

FMI Quarterly: Do you think you can develop those components, or are people born with those?

LaScala: I think it is a little bit of both. Was she the captain of the team? Was he the head of the chess club? There are things you look for, questions you ask, and answers you examine. It could be a lot of things, but it could be as simple as: What have you done on your vacation? Has he sat around and read books? Did she seek out some knowledge and try some different things? So those are the subtle things you look for, but I also really believe that we can develop leaders. I think that what we try to do here at Turner is build people and develop them. To me, most of it is about strong people skills. I see great leaders in this company that weren't the best builders, but they were great leaders because they had great people skills. They communicated vision. They inspired people. I think that we can teach that. I think that we can learn that to a certain extent. Of course, not every person is going to be the president of the company, but we have leaders at different levels. We have leaders of projects. We have leaders of departments. We have leaders of business units. So leadership comes to play at every level. A good project superintendent is a leader of the field staff on the job. A good estimator, who is running a major project in preconstruction, leads the architect, the client, and the Turner team through completion of that phase of the project. To me, those are all leaders.

> I see great leaders in this company that weren't the best builders, but they were great leaders because they had great people skills.

FMI Quarterly: What's your view, Sal, on having invested in people's development and training who subsequently leave Turner?

LaScala: The people I have talked to over the past several years all say the same thing — there is a talent war out there. With training, the retention rate is much higher, but what are you going to do if they leave after you have invested a lot of time and energy in their development? Are you going to not develop people and have them working for you without performing to the levels they are capable of? It is in this way that Turner believes and practices like we are a family. We are dedicated to the growth and development of our staff. Of course, that's a core value. This is a company where you can build your career. We are fair with our staff. As I've said, we give them opportunities to grow and succeed. So we have to make those opportunities available. We've also noted that many of the staff, who leave Turner, eventually come back to our family. We have a pretty good return rate. So I think we will just continue to invest in our people, our future. There will be some disappointments, but you can't, even when the market is down, ignore the investment and development of staff. You just can't abandon your family.

FMI Quarterly: Have you had any resistance to participating in the development and training?

LaScala: No, actually, it has been just the opposite. People are excited about the opportunity to come together to candidly talk about their issues, needs, and problems. They get a lot out of it. They develop their own relationships with other leaders around the country, and we encourage it. You could learn just as much from the next guy because maybe he's been through it, and you learn from a group discussion about an issue or a problem just as much as you could learn from any person standing in front of a room.

FMI Quarterly: Does Turner Talk play into that? I've heard a little bit about Turner Talk. What is it?

LaScala: Turner Talk is an enhancement of an online risk management tool, where our staff uses the internet to exchange information via a data center that is in a secure environment. Essentially, it is a depository of project information. What happens then is the architect, owner, subcontractor, and contractors all collaborate on this web-based system. We monitor the shop drawings and the submittal information so it is done timely and works with the required on-job dates. We monitor any requests for information from the architect and his design team. One of the things we are really good at is we monitor the project

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cost so the owner can always see what the bottom line is. This is real-time so the owner can log in and review the status of the project. He can see what is approved, the items signed for, and what is currently pending, but he can also see the approximate costs of what is coming. We may have a set of drawings that we haven't been able to price yet through the subcontractors, but through a cursory review, we might decide that the revised drawings mean an increase in the project size of say $5,000. We get a good sense of where the project is going. So Turner Talk helps the client and our staff manage the indicated out-come of the project budget.

FMI Quarterly: So Turner Talk is a tool that you use within the project. I've heard some of the staff talking about an online chat-room environment. Do you have that type of thing as well where people are communicating within the company?

LaScala: We don't have any formal blogs yet, but they're coming. We believe in developing communities of practice where we have like-minded people who are interested in issues, concerns, and problems, being able to communicate and post ideas and exchange thoughts. I think the intranet, in this case, is a great place to post those thoughts, and to find information and post questions. "Ask the expert" — that sort of thing. That's probably what they are starting to talk about.

FMI Quarterly: This leads right into my next question about where you see Turner headed in their leader development over the next five to 10 years. Blogs, that's a relatively new term for people, but maybe that is part of it.

LaScala: Leader development has to fall in line with the diversity of our nation. We are going to have more women and more minorities in our workforce. I think our leadership development needs to be more, and it needs to be customized for them. For example, I think we need to develop programs aimed directly at working mothers. These women want to be mothers, and they want a challenging career as well. They want to be good builders, good engineers, and good estimators. How do we help them do that? How do we provide a better work/life balance to that special worker? We need them. In addition, we need to be better at developing staff in a multi-cultural, multi-lingual format. I think we will change the way we deliver learning because we are going to cater to the individual more, and not deliver a one-size-fits-all approach. Those are the workers of tomorrow that we have to get ready for.

> Leader development has to fall in line with the diversity of our nation. We are going to have more women and more minorities in our workforce.

We definitely need to attract more people, and in order to do that, we have to improve our image — the image of a builder in America.

FMI Quarterly: Through Turner University and the Turner Knowledge Network, you've been able to see these trends and hear what your staff, your subcontractors, and others are asking for. Is there any other information about the future needs for the construction industry that you would feel comfortable sharing with our readers?

LaScala: We are all cognizant of the fact that in our industry we have a shrinking labor pool. The people are not entering the construction industry like they were 20 years ago. We definitely need to attract more people, and in order to do that, we have to improve our image — the image of a builder in America. We need to be better communicators and collaborators with each other and with agencies and associations that we belong to. We have to begin to figure out how we can learn from one another and not be so protective. We have to ask: What can I share that might make everybody just a little bit better? I think that we have to bridge the gap between the design community and the subcontractors who do the work. Most of the work contracted in America is design/bid/build. But we really should be thinking of it more as team building. I think we have to do more to further that concept. Design/build is going to be a predominant form of contracting in the future. It is inevitable. Clients want single-source responsibility and a company like Turner can do well in that environment by teaming up with the architect, the owner, and the subcontractors.

We talked about technology before. Technology changes on a regular basis. Just when you think you have it, somebody changes it again. We have to be cognizant of the fact that technology is going to force us to change whether we like it or not. I think we better get ready for it, start embracing it, and learn how to manage change, how to bring change through an organization, and not just resist it. Of course, you don't want to be foolish by changing everything at once. In a company like Turner if you wanted to change a risk management system every year, that would be a mistake. However, risk management could evolve to the point where we need to move to another platform because we want to integrate multiple database systems. If we don't embrace the changes that technology will drive we are not going to survive.

Turner employees can choose from 130 construction-specific courses.

The work/life balance issue is another one of our adaptive leadership themes. We grew up in an industry where, and even today, we are proud of saying, "We work 12-hour days; we work six days a week." But the knowledge workers of today, the young people coming in tomorrow, they are not interested in that. They want more time for their family. They want more time for their friends. And they want more time with their community. They don't want to live to work. They want to work to live. I think that might be one of the most important things that we need to change — our mindset about the work/life balance. We need to be flexible and adaptable about a lot of things — how we work, where we work from, etc. I think that is going to be a significant difference in the construction industry in the not too distant future, if we want to be a viable industry of choice.

FMI Quarterly: A recent book *The World is Flat,* holds the premise that several factors, including technology, have come together in order to level the playing field for talent. Things are being outsourced now to India and other nations. Technology is making that easier and easier to do. Have you seen that at all within Turner? Are different aspects of your projects getting outsourced? If so, what challenge does that present for your leaders?

LaScala: I certainly see outsourcing as a viable option when it comes to basic things like the human resources information system, benefits, and those sorts of things. It certainly makes a lot of sense to do it that way. We do a little bit of outsourcing right now, without always knowing it. Today some concrete and foundation contractors send the contract drawings to a third party, and they will provide a rebar count, by size and by weight. It makes sense for a lot of reasons, including financial ones. The same might be true of some structural steel contractors. They may outsource the entire shop drawings to a third party, but they have a registered professional engineer on staff who does the final checking. I think the subcontractors, to a large extent, understand that they don't have the in-house talent any longer to do all those tasks that are asked of them to do. So the only way to solve that is to outsource it to someone interested in doing that. It could very well be at much less expense to them. That person could be anywhere in the world. It doesn't have to be some small shop down the block. It could be some small shop in a different country. Another use of technology is putting drawings online. We can review drawings online. We have virtual-reality

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buildings where we can see things in three-dimension. Today, the technology is there. I think we are on the verge of accepting it, where the coordination of a building can be done remotely via computer and LCD monitor. We can all look at it, and communicate over the web about what needs to be moved or changed to make something fit, and it is not five people in a room with different-colored pencils. It is being done online in three-dimension with the team. The change is made. The fit is done, and the cost is insignificant. In fact, in some cases, that technology is an outsourced firm itself. With computer-based modeling, you enter the data, and you look for hits or constructability conflicts. You don't have to know how to build the entire building. What you need to know is how these things overlay in terms of the technology, the drawings, and where the hits are coming. This technology is available today.

Leaders who can learn how to manage the changes presented by the next generation of workers will get the quality results they are striving for while retaining and developing their team.

FMI Quarterly: With all these changes — technology, workforce, outsourcing — you can see that the leader of tomorrow is going to be someone who can really manage change. That is going to be a critical skill.

LaScala: It all comes down to the reality that the leader of the future needs to learn to be adaptable and to manage change. Baby boomers realize that their livelihoods really depend upon developing those skills. They've got another 15 to 20 years of work time, and they realize if they don't adapt they may not make it. I think they truly want to understand the worker of tomorrow, the young people who come into our industry who don't want to work every Saturday. They don't want to work until seven o'clock at night. They have other interests. We have to be more flexible so it is a win-win for everyone. Leaders who can learn how to manage the changes presented by the next generation of workers will get the quality results they are striving for while retaining and developing their team.

FMI Quarterly: How does Turner target future leaders?

LaScala: That's a question I get asked often. People ask me: How do you know who the future leaders are, and are they in a special program? I usually define these individuals as the high-potential staff. Are they different? The answer is obviously, yes. We talked about everybody being in a leadership program, but when we look at high-potential people, we do a bit more. We take the time to make sure they have assignments that stretch and challenge them. These assignments may mean that they work alongside people that they will benefit

and learn from, or it may be that they get on the jobs that are more complicated, faster-paced, or in more difficult surroundings. It may be a tough client or a signature architect. Anything we can do to really expand their experiential learning, we try to do.

Of course, they do participate in leadership and other skill building courses, but we may also enroll them in our executive leadership development program where the instructors are senior leaders within the company. We are talking about unique business skills that our senior leaders want to pass on to this group. "This is what took me 10 years to develop so I am going to pass it on to help you." Or, "I'm going to help you on this one specific subject so you can learn some tips and tricks, and you won't make the same mistakes I did." So it is a great program that we only put our high-potential people through. It has been very successful and well-received. Today, we have 4% to 5% of our staff that fall into this high-potential group.

High potentials must have the desire as well as the talent and capability. We are talking about our special leaders, people who will lead the company in the years ahead. We spend a lot of time on that, and they come from all across the country. Part of leadership is identifying special talent. These leaders of tomorrow should be candidates to run business units, lead regions of the country, and someday lead the company itself. We realize if they are that good, we are not going to keep them all. Our philosophy is to develop, expand, and grow people. They will always be the beneficiary of that development. You have to make the investment knowing that it is worth the effort and cost to help your people and company be the best they can be.

FMI Quarterly: Sal, thank you for sharing your insights and Turner experience with our readers. ■

Training and Development = Increased Productivity

Training and development initiatives should be an integral part of key business strategies and be considered an investment and not an expense.

By Kelley Chisholm

Continuous learning is critical for any company to remain competitive. Organizations that invest in the education and development of their workforces and take advantage of the latest technologies realize increased business results through enhanced teamwork, greater productivity, and more effective management. Staying competitive is the key to sustainability. Training and developing employees, and keeping them motivated and up-to-date with industry trends is vital to achieving that goal.

Unfortunately, many companies view employee training and development as an expense rather than an investment, and training budgets are frequently the first to go when costs are constricted. In addition, many employees do not see the value training and development can bring to themselves and their company, especially if there is no support from management. The challenge is to create an environment in which all employees regard continuous learning and professional development opportunities as a personal investment in their careers instead of just considering it as time away from their work. Companies as a whole must realize that the benefits resulting from training and development are translated into further profits for the enterprise, due to the real improvement in productivity levels.

For well over a decade, FMI has conducted its annual survey of U.S. construction firms in order to identify the current training and development practices, challenges, and trends making an impact on the construction industry. Consistent with our findings over the past several years, the construction industry continues to struggle with the changing workforce. With shrinking labor pools and continued demographic changes, developing and growing employees becomes increasingly critical to the success of any company. The *2005–2006 U.S. Construction Industry Training Report* includes recent industry, management, and training challenges, and offers insights into how organizations are handling these challenges by developing future leaders, measuring the results of their training programs, and focusing on a high-performance workforce.

SURVEY RESPONDENTS

Surveys were sent to approximately 660 construction firms of all sizes and specialties. Eighty-five percent of the responses were received electronically, with general contractors making up over half of the respondents (see Exhibit 1). Fifty-six percent of the responses were from firms with revenues between $100 million and $499.9 million, which was very consistent with previous surveys. Also consistent with previous surveys was the number of employees at season peak, with almost half of the respondents employing 100 to 499 workers.

Sixty percent of the respondents identified themselves as either training or human resources directors, which was an increase from 53% in our 2004 survey, and 42% in 2003 (see Exhibit 2). This data indicates that construction companies are taking an increasingly proactive approach to the development of their employees by hiring professionals to achieve organizational goals through training and development initiatives. Presidents/CEOs, vice presidents, and owners represented the next highest category of respondents. Support from the top is essential for the success of any training and development program.

DEMOGRAPHIC TRENDS

Eighty-three percent of survey respondents in management or supervisory positions indicated that they were white and not of Hispanic origin. This number has decreased since last year's survey, where the percentage of minorities represented only 7% of supervisors and managers. The survey also revealed that 9% of management or supervisory positions in the construction industry are held by women. This number has slowly risen over the past couple of years, up from six percent in 2003 and seven percent in 2004.
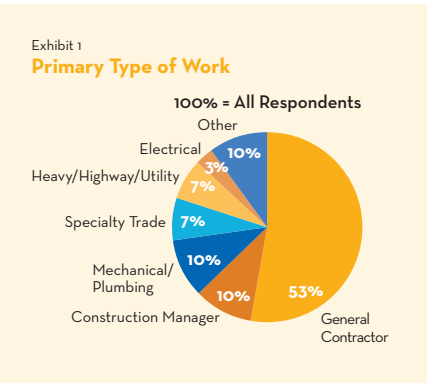
According to the Bureau of Labor Statistics, between 2002 and 2012 there will be over one million new jobs for workers in the construction industry. More jobs will continue to become available as baby boomers retire and as new jobs are created as a result of industry growth. In order to fill this demand, the construction industry will need to become very creative in attracting people to the field.

Exhibit 1
Primary Type of Work

100% = All Respondents

- Other — 10%
- Electrical — 3%
- Heavy/Highway/Utility — 7%
- Specialty Trade — 7%
- Mechanical/Plumbing — 10%
- Construction Manager — 10%
- General Contractor — 53%

Exhibit 2
Role of Respondents
Percent
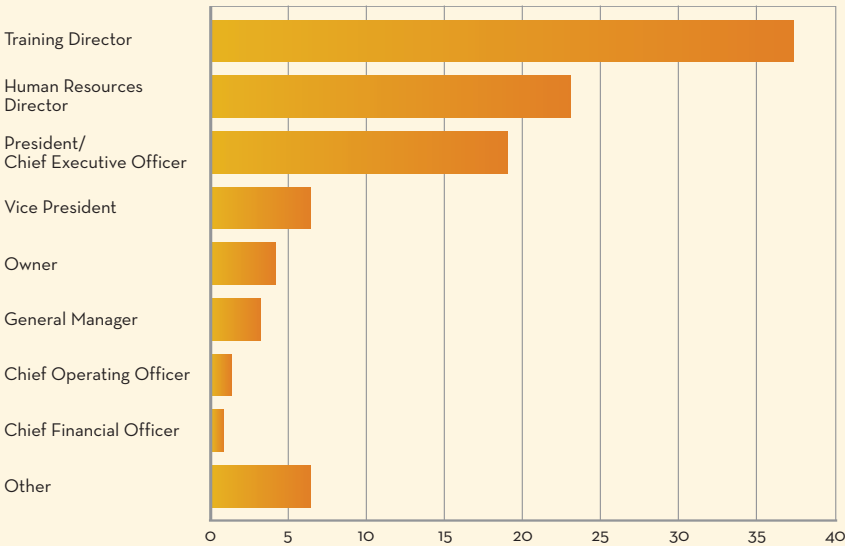
TOP FIVE TRAINING CHALLENGES

Survey respondents listed their top five training challenges as:

1. Finding time to train people
2. Obtaining measurable results
3. Training people at multiple or remote sites
4. Delivering comprehensive training
5. Using training to drive organizational change.

Finding time to train people has been one of the top five training challenges that construction companies face in several of our recent surveys, and this year it was the No. 1 concern. There are only so many hours in a day, and finding time just to do one's job efficiently and effectively is hard enough, especially with already stretched construction schedules. However, if rework occurs due to a lack of skills resulting from not taking the time to properly train employees, then additional costs are incurred, including the time it takes to correct the mistakes. Thorough training does takes time and effort, but in the end will increase worker productivity, decrease confusion, and provide satisfaction for all involved.

ORGANIZATIONAL INCENTIVES FOR PROVIDING TRAINING AND DEVELOPMENT

The top reasons that companies commit to developing their staff included improved productivity, retention of employees, growing the company, and gaining a competitive advantage. Other incentives that were cited included improving employee motivation and morale, providing a safe working environment, ensuring consistent performance across the organization, and instilling a culture of continuous learning throughout the company, to name a few.

Improving productivity was the No. 1 incentive for employee development. There is a direct relationship between the level of investment in employee training and development and increased levels of productivity and profitability. Competitiveness is based upon the concept of productivity, which is in turn very closely linked to that of training. Continuous learning is essential to a company's sustained success. Increased productivity leads to further profits for the company.

By its very nature, construction is a dangerous business, and *safety* is paramount to the success of any company. According to the Occupational Safety and Health Administration (OSHA), there were 1,131 fatalities in the construction industry in 2003, which accounted for more than one out of every five fatalities that year. Being able to obtain and afford workers' compensation and general liability insurance is considerably influenced by a company's safety record. Most companies strive to improve safety for their workers by requiring their participation in safety training programs. OSHA now provides safety training in both English and Spanish. Most importantly, employers have a moral responsibility to ensure the health and safety of their workforce.

Training efforts that are not standardized and do not have clear objectives and goals can lead to inconsistent performance in any organization. This is particularly true in large organizations with offices in different geographic locations. Training programs that are inconsistent can result in considerable duplication of efforts and a lack of a clear corporate vision. *Consistent training* increases retention and ensures that all employees are on the same page and have the same level of understanding and access to what is being taught. While it is not necessary or even recommended for trainers to be carbon copies of each other, it is important that a training program is consistent each time it is delivered. One way to achieve consistency is to have "train-the-trainer" sessions so that all instructors know what is expected of them and are clear about the learning goals and end results expected. Another is to routinely observe the trainers to ensure uniformity.

Creating a *culture of continuous learning* is becoming progressively more important to many construction companies. The competitive nature of the construction industry, changing demographics, and technological advances all have a significant

> **Training efforts that are not standardized and do not have clear objectives and goals can lead to inconsistent performance in any organization.**

impact on the workplace. The skill levels of all employees must be continually developed if a company wants to remain successful. In the ideal workplace learning situation, organizational culture supports and facilitates lifelong learning, which is included as an integral part of the strategic planning cycle.

HOT TRENDS IN TRAINING

Over the past few years, FMI has described some of the latest approaches contractors are using to grow their people. This year's survey looked at a number of training and development trends, including the use of simulations, mini-360 degree feedback, blogs, and online coaching. When used effectively, all can increase personal and team productivity.

Simulations have been used for years to train military personnel, firefighters, pilots, and workers in occupations where training to develop certain skills in the actual workplace exposes the learners to significant risks. In a simulated work environment, actual work conditions are duplicated so that trainees may learn new skills in a safe and cost-effective setting. As noted previously, construction is a dangerous industry by its very nature, and simulation training is on the rise. More and more construction companies are using simulations in their training initiatives, such as learning scaffolding, roofing, HazMat, and brick-laying skills and procedures. The use of simulation software is also becoming popular in the project management arena. Software packages are available that emulate the many challenges of project management in organizations, including areas such as scheduling, planning, budgeting, cost reports, organizing blueprints, and resource management. Unanticipated events such as earthquakes or other disasters may be introduced into the simulation by the instructor. Some simulation software provides a wide range of reports on all responses that take place in the project management scenarios.

If simulations are correctly designed to model the desired outcomes and competencies of the workforce, they can produce well prepared and skilled personnel without the expense of costly or unsafe mistakes on the worksite. And fewer mistakes add up to increased production, as employees do not have to spend time performing costly rework.

360-degree feedback has been around for years. Also known as multi-rater assessment or peer evaluation, it is a process in which feedback about an employee's behaviors, skills, and knowledge is given by that person's manager, peers, direct reports, and internal and external customers, as well as by himself or herself. The process provides a gap analysis on how an employee perceives himself/herself vs. how others perceive himself/herself, and serves as a basis for preparing personal development plans. Although the process

> In a simulated work environment, actual work conditions are duplicated so that trainees may learn new skills in a safe and cost-effective setting.

can be time consuming, customized, paperless web-based surveys help streamline the process. In addition, many companies are now conducting **mini-360's** that focus on a specific set of needed skills, such as customer relations, running effective meetings, effective communication, etc. By focusing on a specific narrow area rather than a range of topics, the turnaround time is dramatically decreased for gathering feedback, developing and implementing action plans, and following through to see if skills have improved.

The word **"blog"** is short for "web log." A blog is simply an online diary and often contains links to other web sites. It provides people with their own voice on the web and a place to share their thoughts on any topic that interests them. Readers may give their feedback through a "comment" feature. Blogs have gained immense popularity over the past few years and are quickly becoming a common and wide-spread means of communication and exchange of ideas. There are literally thousands of active ones. They have an immediacy unsurpassed by other media and have become a communications phenomenon, influencing politics and public opinion.

Many blogs have evolved into key sources of industry information. They can be used as marketing tools, giving companies instant feedback on their products and services. Group blogs are gaining popularity as well. They are like singleton blogs, but with one or more contributors posting original material. Group blogs differ from newsgroups and forums as only the author or authoring group can create new subjects for discussion on a blog. They serve as an excellent communication tool for small teams, departments, or other groups by providing space on the web for sharing news, links, and ideas. They are an excellent means to provide follow-up and share information and feedback with a group of people who have attended a training event.

> **Many blogs have evolved into key sources of industry information. They can be used as marketing tools, giving companies instant feedback on their products and services.**

As the popularity of blogging continues to balloon, companies and employees need to be clear on what information is acceptable to post. Developing a cohesive set of clear guidelines is crucial, and in many instances, it is possible to expand on existing company policies to cover blog usage.

Business coaching has clearly established its value over the past few years, and the benefits are numerous and diverse. One way to improve productivity lies in helping people establish a connection between their personal priorities and those of the organization. Coaching allows people to make that connection. Coaches can encourage desirable performance improvement, facilitate team-building, enhance leader development, assist in resolving workplace conflicts, and ensure the success of training programs. The results of a study published in the journal *Public Personnel*

Management found that training alone increased productivity by almost 23%, but when paired with coaching this figure exploded to an astounding 88%.

While coaching has usually taken place though formal or informal meetings, face-to-face, or over the phone, the Internet opens up another means of communication by allowing coaches and employees to conveniently utilize e-mail, instant messaging, and online chats. Advantages of **e-coaching** include its availability at any time day or night; accessibility anywhere there is an Internet connection; and affordability, especially when compared with the expenses associated with traditional in-person coaching. E-coaches are able to impart specific knowledge on a variety of subjects to an organization, and employees and managers can decide on the amount and range of coaching that is available and needed. E-coaching can occur "just-in-time," when it is needed. Another benefit is that when a company chooses online coaching, it is a resource for the entire organization, not just a few individuals. Many businesses that use e-coaching combine it with the more traditional methods of phone and face-to-face interactions, thereby allowing a variety of means to bring individuals together.

MEASURING TRAINING RESULTS

Companies must recognize the importance of constantly evaluating their training. They should measure its effectiveness in producing the learning outcomes identified when the training was planned, and examine where improvements are necessary to make the training even more effective the next time it is required. In addition, organizations are under pressure to justify all of their expenses, and when they invest in the training and education of their employees, they expect a return on that investment. Training initiatives should produce the desired learning outcomes, or else they are not favorable to the organization as a whole, and need to be revamped or discontinued.

Survey respondents were asked how they were evaluating the effectiveness of their training initiatives, based on Kirkpatrick's five levels of evaluation. (See Exhibit 3.)

As Exhibit 4 indicates, over 75% of the respondents evaluated reaction to their training programs. This is important because if the participants do not have a favorable reaction to the training, they will probably not be motivated to learn. Almost half of the respondents were measuring if new skills, knowledge, and attitudes were being learned as a result of training, and if the employees were transferring these skills back to the workplace. Over one-third of companies measured whether training had an impact on organizational performance. Only 10% were measuring return on investment of their training dollars. ROI can be very hard to measure because of the many aspects of training to be taken into account, some of which are difficult to quantify at all,

Exhibit 3

Kirkpatrick's Five Levels of Evaluation

Level 1: Reaction
How did the participants feel about the training?

Level 2: Learning
What skills, knowledge, and/or attitudes (KSA's) did the participants gain as a result of the training?
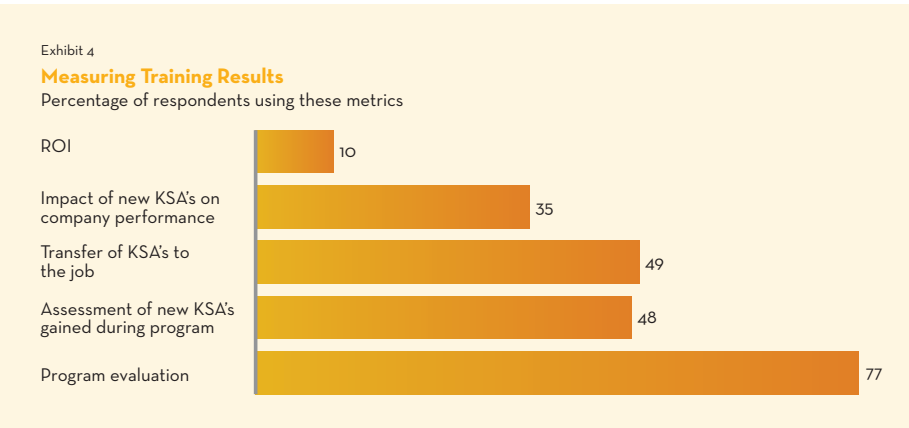
Level 3: Behavior
Are the participants applying what they learned in training?

Level 4: Results
Did the training and transfer of training impact the company's performance?

Level 5: Return on Investment (ROI)
Was the training worth the cost?

Exhibit 4
Measuring Training Results
Percentage of respondents using these metrics

Metric	Value
ROI	10
Impact of new KSA's on company performance	35
Transfer of KSA's to the job	49
Assessment of new KSA's gained during program	48
Program evaluation	77

particularly in exact financial terms. While the actual cost of training may be fairly easy to ascertain, the intangible benefits are often hard to isolate. For example, what value is placed on things such as improved morale, retention of staff, increased productivity, and a more qualified staff? All of these can be considered as returns on training investment, but are hard to measure. When training is effective and produces the desired results, there should be a positive correlation between the level of investment in the training and increased levels of productivity and profitability.

HIGH-PERFORMANCE LEARNING AND DEVELOPMENT PRACTICES

To be successful, businesses need to take full advantage of all of their resources, with the most valuable being their people. The concept of the high-performance workplace focuses on practices that enable and encourage employees to maximize their potential, which in turn should lead to increased business performance. Three of the high performance learning and development practices listed most often by the survey respondents included conducting annual performance reviews, holding regular meetings with their workforce, and providing train-the-trainer training.

Eighty-eight percent of survey respondents said they conducted **annual performance reviews** with their employees. Annual performance reviews facilitate the management and monitoring of company standards, and a structured system ensures that the reviews are fair and accurately represent employee performance. The appraisal process should be a positive experience for all those involved. Performance reviews should not contain any surprises to the employee, and they should not be used to discuss compensation issues. Many supervisors find it helpful to hold regular informal meetings throughout the year so that management is better informed, training and development needs are more quickly identified, and lines of communication stay open. Employees need to know exactly what is expected

of them; otherwise, they will not be as productive. And, if an employee is exceeding expectations, new goals may then be set.

Sixty-one percent of survey respondents said they hold **regular meetings** with their entire workforce. While meetings are a great way to share information, they can also be a great time waster, especially if they are disorganized. To make meetings more effective and therefore more productive, agendas should be developed and sent out to all participants in advance. These should then be adhered to during the meeting. The meeting leader needs to be able to keep the meeting on track, encourage full participation from all attendees, and summarize all decisions and action items. It is useful to have someone take minutes and distribute them shortly after the meeting so that everyone who attended is in agreement on what was discussed and decided.

More than half of those who responded to the survey indicated that they are conducting **"train-the-trainer" training** within their companies. There are two main reasons organizations provide this type of training: to contain costs and to grow internal expertise. Many organizations turn to their internal subject matter experts or other employees without training backgrounds to provide training to the rest of the staff. While these experts may be very knowledgeable about the subject matter, having them actually facilitate the training can be very unproductive, especially if employees do not gain the skills and knowledge they were expected to receive due to lack of training expertise on the facilitator's end. With train-the-trainer training, new trainers learn basic training concepts in order to become effective instructors. At the minimum, trainers should have excellent communication, presentation, and facilitation skills; understand adult learning principles; be able to give and receive feedback; effectively define goals and objectives; understand basic training models; know how to evaluate learning in the classroom; be familiar with various media and technology; and plan for transfer of training to the job.

CONCLUSION

Training and development initiatives should be an integral part of key business strategies and be considered an investment and not an expense. Companies must measure the impact that training and development of their people has on the overall organization to ensure they are indeed getting a return on their investment. In order to maintain sustainability and remain successful in the knowledge-based, global economy of the 21st century, construction companies must increase and continually invest in their human capital. Ongoing professional development is essential to any construction company's ability to thrive under changing market conditions. ■

For a complete copy of FMI's 2005–2006 U.S. Construction Industry Training Report, *please contact our subscription manager at: 800.877.1364.*

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Developing Cultural Intelligence

A company's investment in selection, development, and preparation of individuals for cross-cultural assignments is critical for success.

By Bruce Wilkinson and Mary Shippy

I n the summer of 2005, the number of tower cranes piercing the bright blue sky in Dubai, UAE was astounding. At 110°F and 90% humidity, which is quite uncomfortable, construction cranked along at a breakneck pace. In only one of several condominium developments, there were more than 80 condominiums under construction around the newly dredged harbor.

This in a country where less than 10% of the population is native. Juxtaposed between Europe, Asia, and Africa, the opportunities for an international construction company seem unlimited. One can hardly watch a Discovery channel show on mega structures and not see something being built in Dubai.

While many opportunities exist to build a multinational business and the barriers to doing so are shrinking, the challenges of blending multinational operations remain. Construction-specific and general economic data from sources such as the Bureau of Economic Activity, as well as numerous other sources, attest to the globalization of the economy along with the historical and projected growth of firms with ownership in another country. Fueled by the explosion of infrastructure and technology, this change is making significant impacts on the construction industry in all sectors including design, manufacturing, and contracting.

This article seeks to identify some of the trends associated with the international growth and expansion trend; identify some of the people-related challenges; define

the concept of cultural intelligence; and relay what some companies with significant multinational presence are doing to develop cultural intelligence in their companies.

HISTORICAL AND PROJECTED GROWTH RATES

The following are some quick facts about the international growth and expansion trend:

- The August 22/29, 2005, issue of *Engineering News-Record* noted that there was a 20% increase in the amount of work performed by international firms outside of their home country.
- U.S. companies' employment in foreign affiliates increased 40.5% from 1990 to 2000.
- Foreign companies' employment in U.S. affiliates increased 35.8% from 1990 to 2000.[1]

While these numbers reveal an increase in the numbers associated with international work, the operations of U.S. multinational corporations remain concentrated in the U.S. Their domestic operations consistently account for approximately three-quarters of their output, investment, and employment.[2]

Europe remains the largest international market with $60.3 billion in construction revenue produced by international firms, a 29.2% increase from 2003. Asia and the Middle East are at about half of that volume with $30.5 billion and $25.4 billion respectively; however, Asia only experienced 16.7% growth while the Middle East experienced a huge 54.8% change.[3]

GROWTH DRIVERS

More regional than global factors drive this growth. The increase in the price of oil has resulted in higher profits for many of the countries in the area. The UAE and other countries are pouring these profits back into the local economy in the form of industrial, tourism, and infrastructure expansion. Asia is seeing tremendous growth from outsourcing and offshoring opportunities as multinational companies explore ways to innovate, streamline, and reduce costs by moving elements of their business overseas or complete manufacturing operations offshore. India's growth as a call center has been well documented. In fact, Indian call centers are struggling to handle this growth as turnover in some of the call centers is incredibly high. Even so, their ability to train native Indians to communicate with Americans demonstrates Thomas Friedman's premise in his 2005 book *The World is Flat.* Friedman notes:

"… that no matter what your profession — doctor, lawyer, architect, accountant — if you are an American you better be good at the touchy-feely service stuff because anything that can be digitized can be outsourced to either the smartest or the cheapest producer or both …. Everyone has to focus on their value-add."

As a member of the World Trade Organization and host for the 2008 summer Olympics, China's explosive growth has influenced the price of construction materials worldwide, but it has also provided an opportunity for firms from all over the world to go to China to participate in both mega projects as well as smaller, traditional projects.

In the United States, where only a small percent of the largest international contractors and design firms are headquartered, 22.8 billion of 1.03 trillion total U.S. construction work was performed by internationally-owned firms.[4]

MODES OF GROWTH

This growth and international movement is happening in every way that growth has traditionally occurred and in some new ways. Some growth is occurring as companies pursue larger projects such as Build Operate and Transfer or BOT projects. These mega projects require firms with significant financial resources to fund them over a long period of time. These projects attract companies from all over the world to participate in the bidding process. One of the most traditional ways companies expand is to acquire companies in other countries such as the way Stantec Inc. (recent acquirer of multidiscipline design firm Dufresne-Henry), a Canadian-headquartered engineering firm with North American and Caribbean operations,[5] or Skanska AB, headquartered in Solna, Sweden, did. Other companies leverage their core competency and travel the world opening new offices as opportunities arise. Finally, engineering firms and contractors are increasingly exploring options in the outsourcing arena as they discover that routine design tasks or CAD operations can be performed efficiently overseas at a significant savings. Often, those involved are not even aware that their local structural engineering firm is having its structural designs performed in Asia or on some other continent.

REASONS TO GO

Companies go overseas or multinational for a variety of reasons. The globalization of the worldwide economy makes it easier for companies to take advantage of a number of potential benefits. Some companies go overseas to take advantage of hot markets where higher margins are possible. On the other hand, some companies may pursue a more stable market as a means to minimize risk for a portion of their portfolio. Publicly traded companies that cannot find sufficient work domestically often expand internationally to achieve the growth required to satisfy shareholders.

These companies see the potential efficiencies and savings offered by outsourcing and offshoring. The difference between outsourcing and offshoring is a matter of scale and location. Outsourcing involves moving elements of an operation to another

> **Publicly traded companies that cannot find sufficient work domestically often expand internationally to achieve the growth required to satisfy shareholders.**

company that can perform the function more efficiently. Outsourcing may be accomplished domestically or by finding offshore providers. Offshoring is associated more often with moving entire operations, like a manufacturing facility, overseas. Outsourcing can be a boon to domestic A/E/C firms looking for an edge while off-shoring can be the source of tremendous construction requirements to support the new overseas manufacturing base.

If a group of McDonald's in Cape Girardeau, Mo., can outsource their drive-up window services to a call center in Colorado Springs, Colo., and save money while making dramatic strides in performance, then who knows what advantages are available for those willing to innovate. Consider this quick list of items that can be performed remotely:

- Production of mechanical coordination drawings
- Production of as-builts
- Routine design of temporary construction shoring, electrical, mechanical, and other systems
- Operation of customer call centers for large projects
- Operation of service call centers for facility managers.

Before telling your local customers that you have decided to move to India to help build wastewater treatment plants, consider this: There are still significant challenges and risks posed by working at the international level. From the unpredictability of terrorist activity to the potential for valuation fluctuations, the ability to reasonably predict and therefore manage the risks is difficult. Effectively leading and managing a tremendously diverse group of people also presents a significant challenge.

> The range of different cultural backgrounds in the modern business environment, even for construction, is significant and growing.

NECESSARY SKILLS

Certain skills and behaviors are needed to be successful in this new business environment. Technology, economics, and politics have shifted, but so have our day-to-day interactions and relationships with people who are culturally different. The range of different cultural backgrounds in the modern business environment, even for construction, is significant and growing. Depending on your market, your colleagues, business associates, and contacts may represent countries or ethnic groups from all over the world. This amalgamation of people creates a new and major challenge for everyone who works in globalized business. Whether you are owned by a multinational company, your company is breaking into the world market, or you transact business at home — globalization will impact you. Many of us find cultural differences hard to deal with. We have a tendency to want everyone to "be like me."

CROSSING THE CULTURAL BARRIER

One of the ways we fail to cross the cultural barrier presented in international business is by not being aware of the key features and biases in our own cultures. For example, Americans do not realize that their outgoing manners can be perceived by other cultures as overly aggressive, noisy, and disrespectful. Another way we fail is by being defensive or ill-mannered when interacting with people who are culturally or physically different. Yet another failure, preventing us from crossing the cultural barrier, is tending to see the behaviors of others through our own cultural lens, leading to misunderstanding and confusion. Finally, we often are unwilling as individuals or organizations to adapt to doing things differently. All these areas produce stress and anxiety and ultimately result in impaired performance and lost business opportunities.

Businesses and individuals can choose how to cross cultural boundaries. Here are three common paths taken. Some businesses and individuals expect everyone else to adapt to the "American way" and the English language. Although there is some evidence that our world is converging, many lost opportunities and failed business adventures litter this path. An alternate path leads some businesses and individuals to try to understand cultural differences by learning about the new culture. This cultural awareness and its relation to business behavior is an important step in crossing any cultural boundaries. Many businesses use this path to make serious investments in cross-cultural projects. Yet, without further exploration, these projects can encounter huge setbacks due to delays in deliveries, complex government custom issues and work-visa delays, skilled worker shortages, complicated communication and hiring issues, and unforeseen national festivals and celebrations that can shut down a site for weeks. The best path leads businesses to become culturally intelligent. This means being skilled and flexible when it comes to understanding a culture, interacting with the culture, and reshaping thinking to be more sympathetic and adaptable to the new culture.

CHARACTERISTICS OF THE CULTURALLY INTELLIGENT

Cultural intelligence is the capability to interact effectively with people from different cultural backgrounds. A person with high cultural intelligence grasps what makes us human and at the same time what makes each of us different from one another. A person with high cultural intelligence is able to figure out the behaviors and features of individuals and groups that are true of all people and all groups and at the same time, observe and appropriately react to individual situations.

To develop cultural intelligence, start with an understanding of yourself and your own cultural habits. Just like every family has certain traditions and rituals that they practice daily, your culture is rich with those types of customs. For example, as you go to work each day observe how people greet or acknowledge one another.

Do you see any common themes or patterns? If you spend time at the airport, sit and watch the way people are greeted when they come off the plane. Are they greeted differently or the same as your family greets you? Do the greetings vary according to the individual?

Another way to develop cultural intelligence is to rent a foreign film with subtitles and observe what is different and what is the same in the way people greet or acknowledge one another. Or, eat at an ethnic restaurant and observe how the wait staff and chefs interact with each other. Do they change language, tone, or their pace of speaking from one group of people to another? All of these examples are ways to become more aware of your own culture.

Cultural intelligence depends on having keen observation skills. Using these skills to pay attention to the subtleties of human interaction is an important part of becoming culturally intelligent.

Cultural intelligence depends on having keen observation skills. Using these skills to pay attention to the subtleties of human interaction is an important part of becoming culturally intelligent. Even within our own culture we can miss subtle clues of business clients, employees, and family members. Working in a sales environment, missing these clues can mean the difference between closing a deal and missing an opportunity. Try observing not just what people are saying with their words but what they are saying with their body language and tone. Ask questions about what you are observing. If someone looks at their watch, ask them if they are on a tight schedule. If you notice someone suddenly not maintaining eye contact with you or switching topics — could it be a subtle clue to something else that you missed? To take this process further, visit a local ethnic food market and pay attention to what is going on around you. Do you notice non-verbal and verbal clues that you don't understand? Do you feel uncomfortable and out of place? How might others have that same feeling around you? These exercises suggest ways to fine-tune your keen observation skills.

Another step in the process of developing cultural intelligence is to enhance your ability to demonstrate appropriate behavioral skills. Behavioral-skill development takes the willingness to be different, modify patterns of behavior, and acknowledge that it is about difference, not right vs. wrong. Behavior changes are the biggest stretch for many people working across

cultures. Adjusting to how business is done in different cultures often doesn't result in the same urgent time schedule as other work. Yet, non-adjustment to other cultures has caused many cross-cultural business transactions to sour. Tapping into resource books can provide access to information for your success. Inviting those from other cultures to your home can also open a window of opportunity and insight. In a similar way, being invited to someone's home from another culture can be an insightful experience if you put your first two cultural intelligence skills to work — knowing yourself and using your keen observation skills.

ORGANIZATIONAL SUPPORT FOR CULTURAL INTELLIGENCE

Organizations wishing to support the development of cultural intelligence must do so intentionally and purposefully on an organizational and individual level. Combining traditional methods with non-traditional approaches is a great way to start. Traditional methods emphasize learning about customs and cultures of individual people and groups through reading and language classes. This method also includes providing family support systems for adjusting to living in a new culture. For example, this may include helping a spouse find work and helping children find a comparable school. Non-traditional approaches include company field trips into cultural environments and providing cultural mentors or coaches in country. Both of these examples would provide a guided experience into the manners and customs of a culture and help with adaptation to the host culture. The final result would be to express to the host culture that you understand what it is like to be them.

> Organizations wishing to support the development of cultural intelligence must do so intentionally and purposefully on an organizational and individual level.

THE CONSTRUCTION INDUSTRY'S EFFORTS

Companies move people across cultures for different reasons. These include: 1) To develop specific skills that are not readily available within a specific cultural workforce; 2) To provide succession training where formal development and exposure to international opportunities are necessary for advancement; 3) To increase growth capacity and opportunities for individuals to achieve expertise within a company; and 4) To use global exchanges of people and ideas to spread organizational knowledge around the company.

A brief survey of international and multinational companies in the construction industry indicates that companies address the issue of cultural intelligence in many different ways. Our surveyed participants indicated that not every employee is suited for international work. In companies where the movement of individuals around the world has become commonplace, careful screening processes are in place to assess the skills, personality, and suitability of an individual to live and work in another country

and culture. Some of these companies have identified certain traits that, based on their experience, increase the likelihood that an individual will succeed in a particular situation. Assessments that address these characteristics can help evaluate the success of the investment being made to train and develop an individual.

Those who seek international assignments must have a desire to work abroad and look upon it as a challenge and a learning opportunity. Attitude, coping skills, flexibility, and adaptability are a few of the characteristics that organizations look for in their assessment process. The presence of family that shares these characteristics can become an important element in the success of those crossing cultures. Family can also act as a support system for mitigating the stress of adapting to a new culture. For the most part, companies are accessing both formal and informal processes to help their employees and companies be successful in these endeavors. Specifically, they rely on cultural consultants, cultural mentoring programs, executive coaching, internal formal training processes, and external fact-finding trips and informal exchanges. Consultants who specialize in preparing persons for foreign assignment can assist with training on the host culture norms, history of the host country, all the way down to the day-to-day details of living arrangements, schools, and religious accommodations. Mentor programs include sponsor contacts in the new host country and may well include mentors in the current country with knowledge of the new country. Fact-finding trips are a relatively inexpensive way to determine if the new location is right for an individual.

Clearly, a company's investment in selection, development, and preparation of individuals for cross-cultural assignments is critical for success. The win for companies is a strong mix of cultural identities, resulting in a more fully international identity throughout the organization. This positions organizations with greater flexibility and bench strength as they consider new business markets. Conversely, the failure of construction companies to be culturally intelligent costs not only in their own market potential but in the development of multicultural leaders for the future of the industry.

Research indicates that the global marketplace will increasingly need more aware, educated, and culturally intelligent organizations and leaders. ■

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Manufactured Housing: Helping Families Achieve the American Dream

Manufactured housing provides an option for builders, developers, and local governments seeking to provide affordable housing.

By Heather Johnson

Homeownership has always been a key component of economic development in the United States. However, many families are finding themselves priced out of the market. Given the skyrocketing costs of housing and land, technological advances in housing design, and the increased need for affordable housing, manufactured housing is emerging as one viable solution to America's housing crisis.

Homebuilders, local governments, and consumers can all benefit from the use of manufactured housing, particularly in urban cities where housing affordability is an ever-present issue. The purpose of the following research is to outline the benefits of manufactured housing as a means to provide affordable housing for urban infill and redevelopment.

WHAT IS MANUFACTURED HOUSING?

Manufactured housing, not to be confused with modular housing, are homes built in a factory that are required to meet the National Manufactured Home Construction and Safety Standards, also known as the "HUD Code." Administered by the U.S. Department of Housing and Urban Development, the HUD Code is a federal code, which regulates the design, construction, and safety of all manufactured

housing, and supercedes any local and state building codes where the home will be placed. Manufactured housing is typically built in single- or double-width units and has recently been made available in stacked two-story homes as well. According to the 2005 Grissim Ratings Guide to Manufactured Homes, Clayton Homes is the top ranked manufactured home producer in the U.S. (See Exhibit 1.) Model homes, another form of factory built housing, are also constructed in factories, but are built to state, local, or regional code. If the local building codes are different from the state, those codes are only applicable to the installation process and site-built features.[1]

According to the U.S. Census Bureau, the geographic dispersion of manufactured housing is largest in the Southern and Western regions of the U.S. In 2004, the greater number of placements consisted of double-section units in the South. (See Exhibit 2.) Census data also shows the average sales price for manufactured housing has continued to rise since 1996. (See Exhibit 3.) Increasing sales prices are due in part to the availability of universal design features and amenities that are

Exhibit 1

Top 10 Manufactured Home Producers

Manufactured Home Builder	Number of Units Built
1. Clayton Homes	28,166
2. Champion Enterprises	21,968
3. Fleetwood Enterprises	21,026
4. Skyline Corporation	7,736
5. Palm Harbor Homes	6,872
6. Cavalier Homes	6,642
7. Patriot Homes	3,835
8. Southern Energy Homes	3,606
9. Fairmont Homes	3,382
10. Horton Homes	2,861

Exhibit 2

2004 Placements of New Manufactured Homes by Region and Size of Home
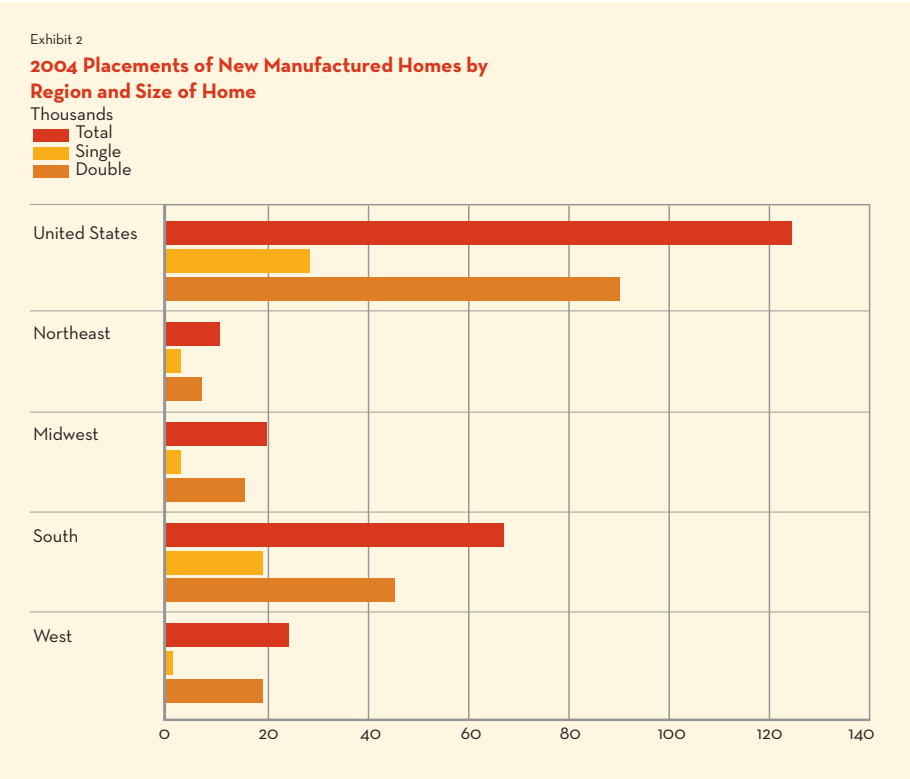
Thousands
■ Total
■ Single
■ Double

Exhibit 3
**Average Sales Price of New
Manufactured Homes in the U.S.**

$Thousands
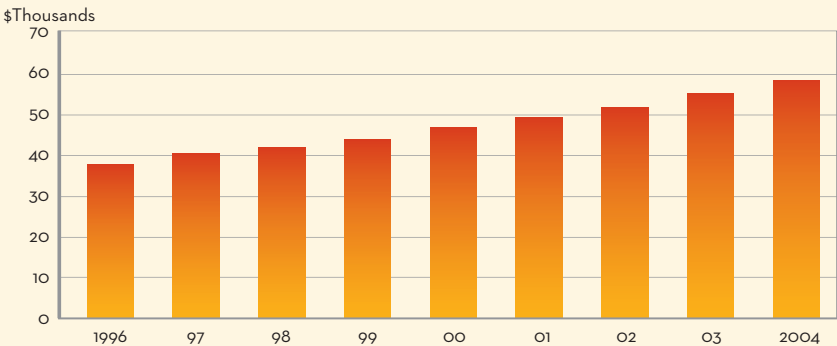
comparable to traditional site-built homes, the growth in unit size, and increased costs associated with industry and consumer demand for higher quality standards that go beyond safety. These factors will continue to impact the costs of manufactured housing, which will unfortunately affect the affordability of entry-level housing.[2]

MANUFACTURED HOME OWNERS

In a report published by the Foremost Insurance Group entitled *Manufactured Homes: The Market Facts 2002 Report*, owners and residents of manufactured homes throughout the U.S. were surveyed in an effort to better understand who these consumers are, as well as their demands and expectations. The following are highlights of the results:

- The average age of manufactured homeowners was 54.
- Married couples made up 56% of these households.
- Nearly 30% of the respondents were retired, while more than half were employed full-time.
- Thirty-six percent graduated from high school, while 29% had some college, but no degree.
- The average household income was $21,866.

The results of the survey support the reality that a diverse group of individuals purchase manufactured housing. As the manufactured housing market continues to grow, understanding who the consumers are will help manufacturers, builders, developers, and local governments provide better manufactured housing options.

BENEFITS OF MANUFACTURED HOUSING

Manufactured housing offers numerous benefits to homebuilders, local governments, and consumers. A report released by the U.S. Department of Housing and Urban

Development stated that the labor costs for building a modular or manufactured home averages eight to 12% of the total construction costs, whereas labor costs for site-built housing is 40% to 60% of the total cost. Such data supports the benefits of using factory built housing in urban areas characterized by expensive and scarce labor. Other benefits include the following:

- Manufactured housing is less expensive to construct than traditional site-built housing.
- Faster project completion is achieved through simultaneous construction of the home and site.
- Savings from reduced labor costs and faster construction cycles can decrease the need for financing.
- Increased efficiencies are gained in project time and labor through the factory production process.
- Factory environment allows for better quality control and less concern for weather and theft.
- Competitive advantages exist through the use of technology.

Technological advances in computer-aided design systems have also become beneficial in constructing both manufactured and modular housing. When asked to describe the technological benefits of modular housing, Eric Fulton, communications manager for the Building Systems Council at the National Association of Homebuilders, stated the following: "What has liberated modular housing is the use of computer assisted design software. This type of technology allows both consumers and builders to incorporate their ideas into the design of the home, which helps make the communication process more efficient between the manufacturer, builder, and the consumer." Fulton was also asked to provide insight into how easy or difficult it would be for builders to work with modular housing manufacturers, and he stated the following: "For a builder, it can be easier to work with the manufacturers to construct modular housing than it is to produce traditional stick-built homes. The manufacturer will ensure the builder understands how the construction process works, and considering the builder would be acting as a general contractor by overseeing the coordination of subcontractor resources, a builder can actually perform less work on a modular housing project. The reduced effort needed on this type of project can free the builder up to produce more homes each year."

Local governments can also benefit from manufactured housing. Manufactured housing offers local governments the opportunity to meet housing needs and

> **Technological advances in computer-aided design systems have also become beneficial in constructing both manufactured and modular housing.**

development goals, particularly in urban areas. For families being forced out of the market by rising home prices, manufactured housing offers them a chance for affordable home ownership. Other homebuyer benefits include the following:

- Quality housing at a low price
- Cost savings passed to the buyer because of speed of project completion
- HUD code helps to ensure uniform quality
- Energy Star Homes are now available
- Increased use of universal design is appealing to a wider base of customers.

MANUFACTURED HOMES, AFFORDABILITY, AND URBAN INFILL DEVELOPMENT

Manufactured housing is beneficial for use in urban infill development because it is cost effective and can be designed to be compatible with the existing architecture of the local community. When asked to speculate on whether the use of manufactured housing will continue to be an increasing trend for urban infill development, Associate Deputy Assistant Secretary Bill Matchneer in HUD's Office of Regulatory Affairs and Manufactured Housing stated the following: "Based on what I've seen, I'd say that manufactured housing could fit into any urban infill project. For example, I visited an infill project in Cincinnati that is a development of about 60 manufactured and modular one- and two-story homes that certainly don't look or feel like 'trailers.' There have also been manufactured and modular infill projects in Seattle, Milwaukee, Minneapolis, Atlanta, and Oakland." Given the cost effectiveness associated with the construction of manufactured housing, builders, developers, and local governments can partner to bring affordable housing back into the inner cities.

In a report released by the National League of Cities, The State of America's Cities 2005: The Annual Opinion Survey of Municipal Elected Officials, city officials across the U.S. were asked to assess 38 local conditions. When asked to identify the most important conditions needing to be addressed in their cities, affordable housing was in the top 10. (See Exhibit 4.) Despite the fact that affordability was an important condition needing to be addressed, when asked what conditions had changed for the better over the past year, affordable housing did not even make the list as a condition that had improved.

Affordable housing is typically defined as housing that costs no more than 30% of the occupant's income. For low-income families, spending more than 30% of the household income severely limits their ability to afford other necessities. According to the National Low Income Housing

Exhibit 4

Conditions to Address

	Percent*
Traffic Congestion	26
City Fiscal Conditions	25
Infrastructure	20
Availability of Quality Affordable Housing	18
Overall Economic Conditions	18
Impacts of Unfunded Mandates and Preemption of Local Authority	17
Vitality of Downtown and Main Street	16
Cost and Availability of Health Service	15
Economic Health and Vitality	15
Unemployment	14

Percent of officials listing item as one of the three most important conditions to address in the next two years.

Exhibit 5

Least Affordable Jurisdictions by Metropolitan Area

Metropolitan Area	Housing Wage ($) for 2-Bedroom FMR
San Francisco, CA	29.54
Stamford-Norwalk, CT	28.88
Oxnard-Thousand Oaks-Ventura, CA	28.12
Orange County, CA	26.77
Santa Cruz-Watsonville, CA	25.83
Oakland-Fremont, CA	25.75
Boston-Cambridge-Quincy, MA-NH	25.46
Westchester County, NY	25.31
San Jose-Sunnyvale-Santa Clara, CA	25.04
Easton-Raynham, MA	24.67

Coalition, as cited in "Out of Reach 2005," (NLIHC's annual report on housing affordability in every jurisdiction in the country), San Francisco was found to be the least affordable metropolitan area in the U.S. As shown in Exhibit 5, the housing wage needed to afford the Fair Market Rent of a two-bedroom unit in San Francisco is $29.54. (The Housing Wage is the amount a person working full-time has to earn to afford a two-bedroom rental unit at fair market rent while paying no more than 30% of income in rent.) In a direct comparison of the rental housing costs and income levels by state, Hawaii was found to be the least affordable, followed by California. (See Exhibit 6.)

As the disconnect between the cost of housing and household earnings continues to exist, the issue of affordability will persist. Manufactured housing provides an affordable option for housing due to the efficiencies in the production process. In the 2002 report to the Ford Foundation, prepared by the Neighborhood Reinvestment Corporation in collaboration with the Joint Center for Housing Studies, five factors are listed as drivers of efficiency in the production process of manufactured housing:

- Economies of scale in high-volume materials purchase
- Ability to better coordinate production using assembly-line techniques
- A controlled environment devoid of weather or other delays
- Standardized design and materials
- Reduced costs of securing approval from local code officials.

Exhibit 6

Least Affordable Jurisdictions by State

State	Housing Wage ($) for 2-Bedroom FMR
Hawaii	22.30
California	22.09
Massachusetts	21.88
New Jersey	20.87
New York	19.73
Maryland	19.62
Connecticut	19.30
Rhode Island	18.42
New Hampshire	17.58
Alaska	17.40

Oakland Community Housing Incorporated (OCHI), a nonprofit organization that develops affordable housing in Northern California, particularly the East Bay, has a goal to provide affordable housing and to develop the area without the stigma usually associated with manufactured housing. As the first

non-profit developer in Oakland to pursue affordable for-sale housing, OCHI has been successful in their mission to provide affordable housing with projects like the E-Street project. Completed in June 2005, the E-Street project provided housing to three low-income families and one moderate-income family. Amanda Kobler, acting director of real estate development at OCHI says: "This major improvement would not have been feasible without the cost savings in the home construction. It's a good example of how manufactured construction allows us to re-invest in the neighborhood."

Kobler also offered the following tips for affordable housing developers using manufactured housing for urban infill projects:

> # Learn to think like a manufacturer so that you can be successful in communicating your needs.

"**Do your research.** Don't assume that, because the people down the street used a particular manufacturer, the same manufacturer is right for you and your project. Different companies have different business models and abilities to deliver the product you require. Contact the Manufactured Housing Institute for industry information."

"**Hire a problem solver** as your point person in interfacing between the manufacturer and the on-site building process. At least in your first few projects, you can expect plenty of surprises. Find a project manager or construction contractor who will approach the project with creativity and an open mind."

"**Learn to think like a manufacturer** so that you can be successful in communicating your needs. Manufactured construction work is done at stations in specific time increments, in an assembly-line environment. The more you understand this, the better you will be in asking for modifications that add value to your project but don't compromise efficiencies on the factory floor."

"**Hire a design team that understands their limited role.** Many design decisions will have been made at the factory by the manufacturer's design team. Your designers have to be able to work inside the box."

"**Be patient and be prepared to educate everyone.** Building inspectors, loan officers, appraisers, and other gatekeepers, especially those located in urban areas, are often unfamiliar with modern, HUD-code manufactured housing. Plan to spend time showing them the details of your project and how it works, both before and during the construction process."

NEGATIVE PERCEPTIONS OF MANUFACTURED HOUSING

Despite the benefits of manufactured housing, challenges still exist for builders wanting to add manufactured housing to their product mix. The greatest challenge includes changing the negative perceptions towards manufactured housing held by consumers and local governments.

The stigma surrounding manufactured housing includes such beliefs as: they are cheap, they lower property values, and they reduce the quality of housing. Dwight Dickerson, OCHI's executive director offers a different view of affordable manufactured housing: "These homes not only provide an opportunity for low-income residents to buy their first house, they also help to improve the community by ridding it of a blighted location and instead filling it with homeowners who care about the property they live in. Owning a home empowers people — they invest in their neighborhood, send their children to local schools, and work to improve their community."

In a report released by the California Planning Roundtable and California Department of Housing and Community Development entitled, *Myths and Facts about Affordable and High-Density Housing*, numerous myths surrounding manufactured housing are dispelled with the following facts:

- High-density housing does not equate to affordable housing for low-income families.
- Individuals living in high-density affordable housing do not cause traffic congestion; they actually own fewer cars and drive less.
- The compact development of high-density housing can provide increased efficiency in the use of public services and infrastructure.
- Despite the belief that people needing affordable housing do not "fit" within traditional neighborhoods, many of these people are already members of their communities.
- No study in California has found evidence that property values are reduced by affordable housing.
- Affordable housing tenants seek community stability as much as other residents.
- Affordable high-density housing can be designed to fit within pre-existing communities.
- High-density and affordable housing does not increase crime, but the use of public spaces can help create safe communities.

Overall, manufactured housing provides an option for builders, developers, and local governments seeking to provide affordable housing. Affordable manufactured housing can help establish a broader market for builders and developers, support efficient community development patterns in urban infill locations, and provide housing to a diverse range of occupants. Despite the factors supporting manufactured housing as a viable housing option, a breakdown must occur in the negative perceptions held by community leaders and homeowners. Until then, the use of manufactured housing to help families achieve the American Dream of owning a home will not come to fruition. ■

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[1] *A Community Guide to Factory Built Housing,* September 2001. U.S. Department of Housing and Urban Development.
[2] *An Examination of Manufactured Housing as a Community and Asset-Building Strategy.* September 2002. Neighborhood Reinvestment Corporation in Collaboration with the Joint Center for Housing Studies of Harvard University.

Increasing Profitability Through Productivity Improvement

This real case study of a specialty trade contractor illustrates how a structured approach to productivity improvement delivers measurable results.

By Michael McLin and Nate Scott

The specialty trade contractor quoted below began a productivity improvement process in 2004. While the company finished 2004 with a $500,000 loss, the company earned a net profit of more than $2.5 million in 2005. Their work in the area of productivity led to a $3 million positive swing in profitability.

To make that financial turnaround, the contractor had to identify problems, develop an improvement process, and effectively implement change. In addition, company personnel had to accept the need for change and develop and employ the tools needed to drive improvement.

FMI Quarterly interviewed the president of this contracting company, who provided a review of the steps taken to achieve success. The company's identification has been kept confidential since actual performance results are included in this article. Nevertheless, this contractor's success story offers lessons to other organizations seeking to improve performance. Key

> "Our revenues were off from our annual forecast; we had some bad estimates, but we still could have recovered if we had performed better on our projects. At the end of the year, we lost $500,000 on $18 million in revenue."
>
> —*president of a specialty trade contractor.*

elements of the process undertaken are highlighted and insights provided as to how performance improvement was driven in this organization.

CALL TO ACTION

The president of the specialty trade contracting firm said he knew he had to make changes to the company's project execution based on the following reasons:

- A miserable 2004 with the loss of $500,000 on $18 million in revenue
- Revenue and gross profit below forecasted revenue and gross profit
- Ineffective operational execution
- Some unprofitable projects due to inaccurate estimates
- Several poor hand-offs from estimating to operations
- Lack of accountability for performance from operations.

The president said it was clear he could not continue down this path. The improvement process required the contractor to:

- Recognize the problems and prioritize the key issues
- Generate buy-in at all levels of the organization
- Assign a task force or process improvement team to each key issue to reengineer inefficient or ineffective processes
- Pilot the improved processes to ensure success
- Train on the newly refined processes and procedures
- Measure to ensure compliance with the new processes
- Measure to ensure improved financial results due to the productivity process.

ASSESSMENT

The first step in the improvement process requires analysis of an organization's problems in detail. The use of both qualitative and quantitative data typically provides the most comprehensive assessment of the situation. Employee interviews are an efficient way to perform qualitative analysis. Interviews conducted by an independent resource can provide an objective perspective. Financial statements coupled with information from completed contracts provide an effective basis for quantitative analysis. The goal of the assessment is to thoroughly identify and assess problems faced by an organization as well as their root causes.

COMPLETED CONTRACT ANALYSIS

A completed contract analysis is a powerful tool that provides a great deal of information about an organization's performance. The conclusions lend insight into strategy deployment, business development, and productivity improvement

opportunities. A completed contract analysis will look at the last three to five years of performance detail to determine:

- Where is the company making money?
- Where is it losing money?
- Who are the key clients?
- Where does the company overrun labor budgets? Where does it outperform labor budgets?
- What types of work are most profitable? Least profitable?
- What size projects are most profitable? Least profitable?
- What types of contracts are most profitable? Least profitable?
- With what contract role (prime contractor vs. subcontractor) is the company most successful?
- Are there individuals performing exceptionally well that the company as a whole can learn from?
- Are there individuals who may need assistance and training in order to improve performance?
- Is there cyclicality in the business? If so, how is it manifest, and what are the impacts?
- Are there specific geographic regions where the company is more successful?

To answer these questions, the information shown in Exhibit 1 is collected for each project the company has completed. From this database, a completed contract analysis is completed through cross-tabulations of factors and profitability. Both data tables and graphical results are useful in interpreting results of the analysis.

Our example contractor's analysis identified problems in project performance. One of the key findings was gross profit fade on projects, including:

- Average estimated gross profit of 32.03%
- Average final gross profit of 23.87%
- Gross profit fade of (8.16%) or (29.11%) from the original estimated gross profit
- Labor overruns, accounting for 94.36% of gross profit fade.

If we multiply the gross profit fade[1] by the cumulative revenue over the

Exhibit 1

Original contract value
Estimated gross profit (%, $)
Final contract value
Final gross profit (%, $)
Estimated labor dollars
Final labor dollars
Customer
Year
Contract type
- Time and material
- Unit price
- Cost plus
- Lump sum
- Etc.
Contract process
- Hard bid
- Negotiated
- Etc.
Sales and marketing source
Type of work
Location
Business unit
Private or public client
Estimator
Project manager
Superintendent

Exhibit 2
Sort by Contract Type

| Contract Process	Estimated Revenue	Estimated Gross Profit	Estimated Gross Profit Percent	Final Revenue	Final Gross Profit	Final Gross Profit Percent	Gain/ (Fade)	Number of Projects	Average Job Size
Negotiated	18,719,834	6,871,187	36.71%	19,969,573	6,562,161	32.86%	-3.84%	182	109,723
Hard Bid	17,591,208	4,874,000	27.71%	19,546,952	2,768,055	14.16%	-13.55%	104	187,951

Exhibit 3
Gross Profit Percentage by Job Size
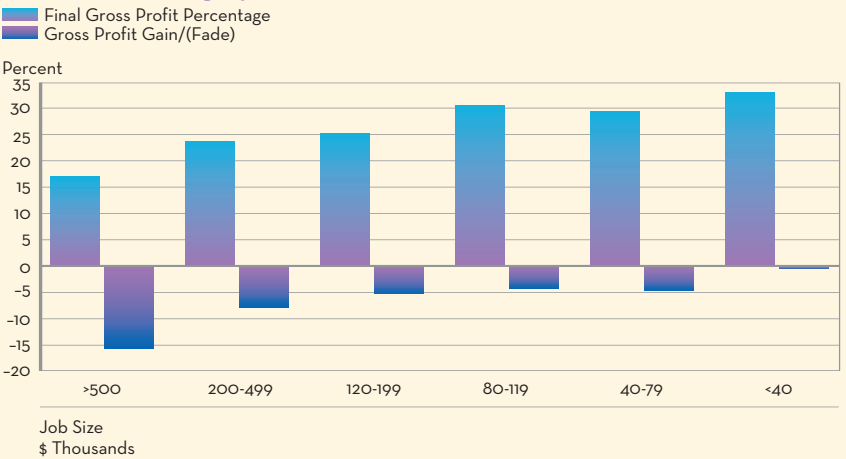
analysis period, we see that gross profit fade has cost the company more than $4 million (8.16% x $49MM in revenue) in lost profit over the last three years. FMI's experience shows that the vast majority of the profit fade is a direct result of labor overruns, as is the case with our specialty trade contractor. The estimated labor productivity rates were unrealistic, resulting in labor budget overruns. Low field productivity worsened the situation.

The next step in the analysis involves sorting the data to a greater level of detail such as by contract type. Specific sources of profit gains are identified. A typical sort looks like the one in Exhibit 2.

Sorting the completed contract information by customer, contract type, location, type of work etc., provides a clear picture of where the company is doing well and where it can improve. Project size typically provides a revealing sort. Competition on larger projects generally leads to lower bid-margins. Further, larger projects are often more complex to execute. The result tends to be reduced profitability due to thin bid-margins and profit fade due to challenges during project execution.

Sorting by profitability reveals interesting information as well. Trends typically emerge that reveal the most profitable types of projects, clients, and delivery formats. Ironically, the results are sometimes counter-intuitive to what the company believes are its core competencies. Projects where costs exceed revenues can also be highlighted, indicating clients and project types that the company should avoid in the future.

Exhibit 4
Revenue and Gross Profit Dollars by Job Size

■ Revenue
■ Gross Profit

Job Size
$ Thousands
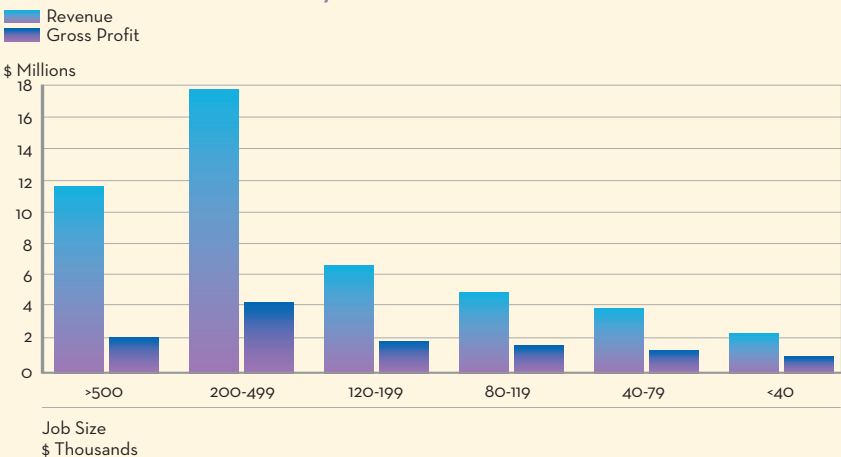
The analysis of our contractor's completed contracts uncovered some critical information. Performance on large projects was shocking as shown in Exhibit 3.

The graph in Exhibit 3 indicates that profit fade increased for the contractor as project size increased. Projects over $500,000 in size experienced a profit fade in excess of 15%, representing $1.7 million

Exhibit 5
Gross Profit Percentage by Contract Process

■ Final Gross Profit Percentage
■ Gross Profit Gain/(Fade)

Contract Process

in lost profit over three years. Profit fade in excess of 5% occurred on all but the smallest projects. Consistent profit fade, particularly when fade increases as the project size increases, generally indicates failure in a contractor's project controls systems.

The contractor's profit fade problem on large projects was a major concern. Exhibit 4 demonstrates that these large projects constitute the majority of the contractor's revenue.

Significant variations also appear in gross profit performance relative to the contract bidding process. Our contractor performed negotiated and hard bid work. Hard bid work is further subdivided into open bid (unlimited competitors) and closed bid (short list of competitors). Hard-bid-open work, in this case, required the thinnest margins to win and had gross profit fade of more than 13% as shown in Exhibit 5.

The contractor's gross profit fade on hard-bid-open work equaled $2.5 million in lost profit over the analysis period. The low margin, hard-bid-open work made up 38% of the contractor's revenue as shown in Exhibit 6.

The completed contracts analysis identifies the problems present in a company's project execution and provides a foundation from which to develop action plans. The results of the analysis highlight opportunities for improvement.

GENERATING BUY-IN

The next step in the process is to generate buy-in at all levels of the organization. The need for improvement must be important to everyone in the organization. To generate buy-in, a two step process is typically used. First, the results of the analysis are shared with the organization. Second, a workshop is conducted that demonstrates the financial significance of productivity to a contractor and the relatively simple things that can be done to improve it.

Estimating errors and operational inefficiency represent the largest contributing factors to poor project performance. Our example contractor shared the financial and completed contract analysis results with its employees during a training workshop, knocking out both buy-in steps at once. This sharing of results helps employees to recognize the problems, identify their roles related to the problems, and understand the need for change.

In sharing this completed contract information with an organization's employees, the goal is to show where the company is performing poorly and to brainstorm ways to improve these performance problems.

Exhibit 6
Revenue and Gross Profit Dollars By Contract Process

Legend:
- Revenue
- Gross Profit

$ Millions

Contract Process: Negotiated, Hard Open, Hard Closed

Exhibit 7
Gross Profit Percentage by Superintendent

Legend:
- Final Gross Profit Percentage
- Gross Profit Gain/(Fade)

Percent

Superintendent Number
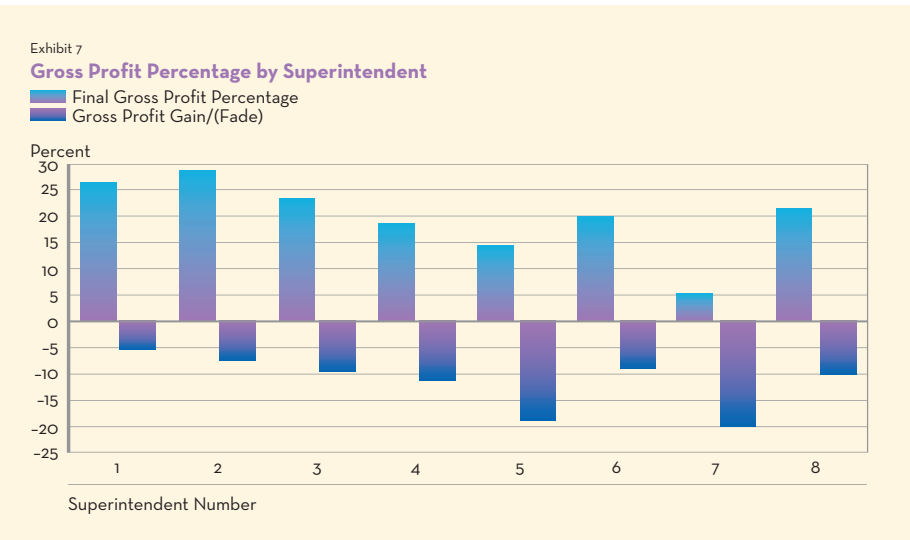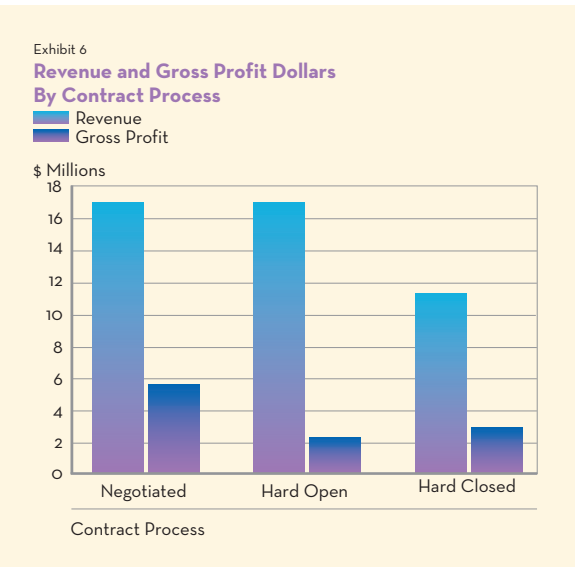
Individual performance results by estimator, project manager, and superintendent may also be provided — with the intent being to understand where the problems exist and not to place blame. These individual results also provide the opportunity to look for star performers in various roles. It is often possible to uncover systems and process improvements used by star performers that can be implemented across an organization to streamline operations.

Exhibit 7 illustrates the actual individual performance results for superintendents from our example contractor.

For our contractor, sharing individual performance results served two important goals. First, it demonstrated that gross profit fade was everyone's problem. Second, it drove a sense of individual accountability. Everyone's results were known and tracked. The president commented, "People could not believe we were showing names associated with poor performance." This open sharing of names was a critical step to driving accountability in the organization.

Moreover, the president said the experience of openly sharing the completed contract analysis produced an important realization for the group.

"The completed contract analysis was a great eye opener for the group — this candor and open sharing of information had a significant impact on all team members," he said. "Each team member could see the poor results and could not believe how bad the results really were."

The president had already recognized the need for change. Sharing the analysis information in an understandable and organized presentation allowed his team to see the same need. The group saw the bottom line financial results: the company was losing money. Low productivity and poor estimates contributed to the results. The president said, "We broke down the walls and were able to start over."

Another step in generating buy in for the contractor came during an interactive section of a training workshop on productivity improvement. Workshop participants broke into teams to build a small bridge. The teams competed against each other to see who could build the bridge the fastest with the least amount of rework. The exercise demonstrated for the group the dramatic effect planning has on productivity and the high cost of rework.

One of the biggest revelations at the workshop came during a discussion surrounding the economics of productivity. Using the contractor's own income statement, it was demonstrated that a 10% increase in labor productivity results in a 100% increase in profitability. The next part of the workshop revealed to the group that it was possible to improve labor productivity by 10% through planning.

The contractor's employees now had an understanding of the problems faced by the company and the economics of labor productivity. Buy-in had been created; the team just needed the tools to implement lasting change.

THE PRODUCTIVITY IMPROVEMENT PROCESS

Our contractor began prioritizing opportunities for improvement based on the assessment. Teams were formed to create action plans for implementation. These teams addressed specific issues and assigned tasks and deadlines for their implementation to team members. The action plans created individual accountability and a roadmap of what needed to happen by when.

More realistic sales goals and a consistent backlog for field crews were identified as opportunities for improvement to stabilize the workforce. The productivity improvement process established new procedures and guidelines for sales forecasting. The sales team began targeting specific projects when the backlog was insufficient to keep specific crew types with special skill sets busy. The result of this new process improved sales forecasting accuracy, achieved better crew utilization, and enabled a more stable workforce. Productivity rates increased since crews knew they had another job to go to once their current one was completed. The process prevented field forces from dragging their feet during the last five percent of a project because they were certain they had another job to go to.

> More realistic sales goals and a consistent backlog for field crews were identified as opportunities for improvement to stabilize the workforce.

Estimating accuracy was another opportunity for improvement for our contractor. The completed contract analysis and resulting financial performance indicated that estimated productivity rates were unrealistically high. During the analysis stage, the company's estimators began examining the company's costs to perform the most typical types of work in order to validate estimating rates. Overhead and profit were also analyzed to ensure that realistic markups were being added to projects. Once a clear picture of the true costs and production rates were established, several core competencies emerged. The contracting company found types of work where it had a competitive advantage. In addition, the core competencies identified opportunities to price projects more competitively, using crews with specialized skills.

The contractor also developed and implemented a pre-job planning process. This involved project managers and superintendents earlier in the project. The process also created buy-in from the project team since they had input into the project budget and schedule. Later, if the budget or schedule needed adjustment, the company would make these changes, provided the requests were justifiable. The goal of the process was to reduce the loss of information and prevent the estimating department from handing projects over to operations and declaring success before the work was even begun. This change offered the contractor the greatest opportunity for improvement since the biggest chance to affect cost on a project comes before mobilization. By involving the project team early in the process, the contractor was able to identify and exploit cost saving opportunities.

Exhibit 8
Pre-Job Planning Compliance: Company

■ Current Month
■ Cumulative YTD
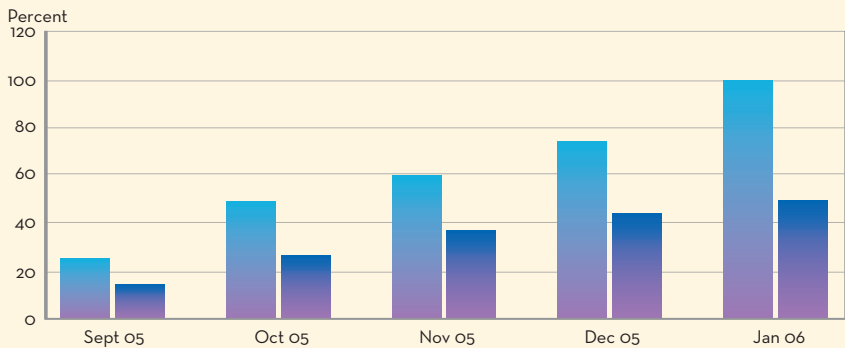
A daily labor tracking process was also put into practice. This process allows field managers to see the estimated production goals with quantity of units to install and the associated hours each day. Actual production quantities and hours are tracked against the budget. With this information, field managers can view their performance daily and proactively address variances.

Once these process improvements were developed for our contractor, then the process had to be implemented. Each process was piloted on a test project to ensure that any issues were resolved. This method of implementing change ensures that unproven initiatives will actually solve the problems identified.

The next step in the process was the rollout, including training employees on the new process. Training sessions included all parties affected by changes to the process. In some cases, multiple training sessions were required. Failure to provide this training would have ensured failure for the contractor's productivity improvement initiatives. Instead, our contractor spent the time and energy to conduct the necessary training and reinforced it with follow-up sessions.

The final step and key to implementing a lasting productivity improvement effort for our contractor was the installation of two types of measurements. (See Exhibits 8 and 9.) The first type of measurement tracked compliance with process improvements such as pre-job planning, short-interval planning, and the like, ensuring the improved processes were being used. Measuring process compliance ensures the right behaviors are taking place within the organization. The

Exhibit 9
**Percentage of Labor Variance:
$ Total Company — Closed Jobs Only**
Cumulative YTD
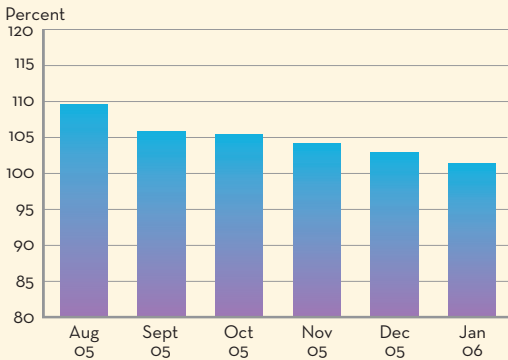
second type of measurement showed the global impact of the productivity improvement initiative such as labor dollar variance on all closed jobs. Global measurements allow the overall impact of the productivity improvement effort to be quantified.

In this case, the contracting company summarized key measurements. The summary was updated weekly and circulated internally so everyone could see the scoreboard. By providing both process compliance measurements and variance measurements, the company culture shifted toward increased accountability. The productivity improvement efforts have contributed to the company's success, and employees have been able to share in the success.

Byproducts of the productivity improvement process include improved teamwork, morale, quality, safety, and crew utilization. Managers and owners also report higher satisfaction with their work and the organization. The development of the process improvements also allowed the organization to identify future leaders in the organization. Cash bonuses were received and enjoyed by all for practicing the right behaviors (i.e., process compliance) that resulted in improved organizational performance (i.e., labor variance reductions resulting in improved profitability).

RESULTS

The specialty trade contractor, whose experience we've highlighted throughout this article, has seen dramatic improvement in the last year since the productivity initiative was implemented. Profitability improved by $3 million. Gross profit increased to 29.6%, an improvement of more than six percentage points. The gross profit fade experienced on most projects is virtually gone. Sales have improved. Crew utilization has gone up. The president credits the success to improved sales and productivity. This combination is driving the company towards one of its best years ever. Exhibit 10 demonstrates the dramatic improvement.

Performance on larger jobs has also improved. In the initial analysis, jobs over $500,000 in size experienced a gross profit of only 17% with a 15% fade. In 2005, these jobs experienced a gross profit of 27% with a fade of only 1.17%. Smaller jobs

Exhibit 10

Results of Productivity Initiative

2002 to 2004	2005
Revenue — $53,814,854	Revenue — $27,299,618
Estimated gross profit percent — 32.03	Estimated gross profit percent — 30.66
Final gross profit percent — 23.87	Final gross profit percent — 29.59
Gross profit fade — (8.16)	Gross profit fade — (1.08)

Exhibit 11
Gross Profit by Project Size
■ Final Gross Profit Percentage
■ Gross Profit Gain/(Fade)

Percent

Project Size
$ Thousands
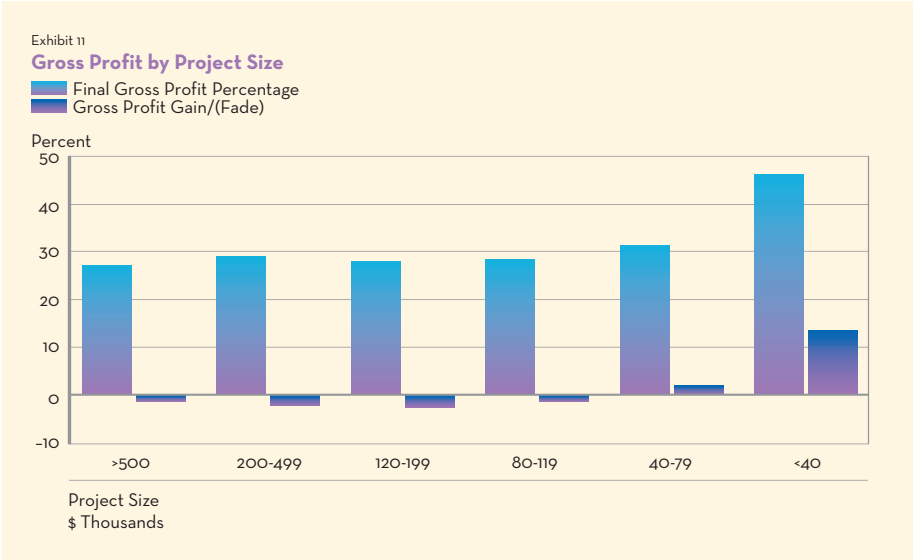
are now experiencing significant gross profit gain. Exhibit 11 highlights the consistent, predictable results the contractor is achieving across the various project sizes.

Success comes from effectively implementing the right changes in an organization. In this case, the company was open with its people about the situation. Information was shared, and everyone was involved in finding solutions. Second, practical tools were developed and implemented to help everyone play a role in improving performance. The process allowed the company to drive drastic improvements in a short time-frame.

Much like safety, productivity improvement must start at the top. Productivity is not a field problem but rather an important management and leadership issue. Whether it is people, systems, or a combination of both that need improvement, the change has to be led from the top in order to have a significant and sustainable impact on the bottom line. Having a structured approach to assessing and implementing productivity-related drivers is paramount. Successful implementation requires long-term commitment and ongoing assistance. ■

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[1] Calculate the gross profit gain and fade by taking the final gross profit percentage less the estimated gross profit percentage. A positive number indicates margin gain and a negative number indicates margin fade.

Business Continuity Planning in an Age of Uncertainty

The presence of a business continuity plan ensures a company can react quickly and effectively to a disaster, including an outbreak of the avian bird flu.

By Kelley Chisholm

O ver the past several months, it has been virtually impossible to pick up a newspaper or listen to the news without hearing reports about the spread of avian bird flu and the imminent threat of a pandemic. By the time this article is published, some of the information within, especially the statistical data, will be out of date. There is a chance that the avian bird flu will have found its way to the United States.

AN AVIAN BIRD FLU PANDEMIC

A pandemic is defined as a global disease outbreak, and occurs when a new influenza virus emerges for which people have little or no immunity, and for which there is no vaccine. It is challenging to predict exactly when the next pandemic will transpire or how severe it will be, but once it starts, everyone worldwide is at risk. Based on historical patterns, influenza pandemics are likely to occur a few times each century as new virus subtypes materialize and then spread from person to person. For example, during the 20th century, the emergence of several new influenza A virus subtypes caused three pandemics, all of which spread around the world within a year of being detected, and resulted in millions of deaths worldwide. (See Exhibit 1.) Both the 1957–58 and 1968–69 pandemics were caused by viruses containing a combination of genes from a human influenza virus and an avian influenza virus.

In the 2006 Issue 1 *FMI Quarterly*, Gregg Schoppman wrote an article on disaster preparation and recovery, which took a strategic perspective on disaster planning. The article highlighted the activities contractors should take in the event of general displacement and loss due to disasters such as Hurricane Katrina or tragic events like 9/11. This article looks specifically at the probability of an avian bird flu pandemic, and then outlines how to set up an actual business continuity plan. Finally, we interview Sundt Construction, who is in the process of finalizing their plan.

Recent research shows that the Spanish flu of 1918–1919 appears to have an avian origin as well.

With each passing day, the possibility of a worldwide avian flu pandemic draws precariously closer to becoming reality. A particularly virulent strain of the bird flu, known as H5N1, has spread from Asia to Africa and parts of Europe. The first report of this virus spreading from birds to people was in Hong Kong in 1997, with six reported deaths. This outbreak was quickly contained. It was not until 2004 and 2005 that H5N1 reemerged, causing additional sickness and deaths, and moved out of Asia. Health officials predict it is only a matter of time before it reaches the United States. The H5N1 virus can infect humans as well as birds, and the pressure is on to develop effective containment measures and treatments.

There is much debate in the scientific community about whether a human pandemic caused by H5N1 will ever occur. Currently, it is extremely difficult for the disease to spread from person to person. While the bird flu has infected tens of millions of birds, as of April 2006, fewer than 200 people have caught the disease, and nearly all of those people caught it from birds.[1] However, each time the virus jumps from a bird to a human, the risk of a new virus increases, and what frightens many health officials is that as the H5N1 continues to evolve and change genetically, it could in fact acquire the ability to become transmissible between humans.

VACCINES/MEDICATIONS

During the initial stages of a pandemic, a vaccine would not be available for some time after the bird flu influenza strain mutates to an efficient human form. It could take months and maybe longer for scientists to develop and manufacture a new vaccine that would offer the best protection against the particular strain of the virus. According to the Center for Disease Control (CDC), if a pandemic does

Exhibit 1

20th Century Pandemics

Names/dates	Influenza Type	Fatalities (approximate)	Fast Facts
Spanish Flu 1918–1919	A(H1N1)	40–50 million, worldwide 500 thousand, U.S.	— Mortality rate was highest among 20- to 50-year-olds, most of whom were healthy — Many died within the 1st days and even hours of infection — This virus still circulates today
Asian Flu 1957–1958	A(H2N2)	100 thousand, worldwide 70 thousand, U.S.	— Elderly had the highest mortality rates
Hong Kong Flu 1968–1969	A(H3N2)	700 thousand, worldwide 34 thousand, U.S.	— Those over 65 had the highest death rates — This virus still circulates today

occur, the U.S. government will work with many partner groups globally to make recommendations guiding the early use of an available vaccine.[2] The U.S. Food and Drug Administration approved four different influenza antiviral medications (amantadine, rimantadine, oseltamivir, and zanamivir) for the treatment and/or prevention of influenza A viruses. However, since influenza virus strains may become resistant to current medications, the drugs may not always be effective or work at all. For example, CDC research indicates that some of the 2004 H5N1 viruses isolated from poultry and humans in Southeast Asia are resistant to amantadine and rimantadine. There is also speculation that even if the current drugs are able to alleviate some of the symptoms, there will not be enough of them to go around.

A flu pandemic anywhere in the world is capable of shattering supply chains and significantly reducing available labor pools.

WORST-CASE SCENARIOS

A flu pandemic anywhere in the world is capable of shattering supply chains and significantly reducing available labor pools. The airlines and travel industry would feel the affects first, and imported goods including raw materials, medicines, and certain foods would no longer be available, predicts Laurie Garrett. Garrett is a Pulitzer-prize recipient, senior fellow for global health at the Council on Foreign Relations, and *The New York Times* bestselling author of the *The Coming Plague: Newly Emerging Diseases in a World Out of Balance.*[3]

Consider the run-of-the mill flu season. According to *Disaster Recovery Journal Express*, which started in 1987 as the first publication devoted to the field of disaster recovery and business continuity, it costs companies as much as $700 per employee for unplanned absences during the average flu season, which takes a toll not only on human capital but also on overall productivity. A worldwide outbreak of avian flu would far eclipse this, and make catastrophes such as Hurricane Katrina seem tame by comparison. According to a recent survey by Gartner Inc., a leading provider of research and analysis about the global information technology industry, only eight percent of survey respondents said they have business continuity plans that deal specifically with the avian flu.[4]

BUSINESS CONTINUITY PLANNING

The Institute for Business and Home Safety, a nonprofit association that engages in communication, education, engineering, and research to reduce the social and economic effects of natural disasters and other property losses, maintains that at least one-fourth of all businesses that close due to a disaster never reopen. Small businesses are particularly vulnerable since most have not created disaster recovery and business continuity plans. Since we never know exactly when a disaster, such as fires, terrorist attacks, earthquakes, etc., is going to strike or even if one is going to occur, such as an avian pandemic, then doesn't it make sense to have a plan in place?

While insurance can protect company assets, it alone cannot guarantee the post-event viability of a company.

As you begin planning for how your company would handle a disaster and continue to operate, there are a few things to consider. Think about how a disaster could affect your employees, customers, and workplace. How would you continue doing business if your work site was closed, the streets were impassable, or your employees were all sick or disabled? How would you serve your clients?

There is no one-size-fits-all disaster-planning template — each company is unique and must take into consideration a variety of things when thinking about business continuity. These include the number of employees, the size of the client base, the number of offices, where these offices are geographically located, etc. Fortunately, since 9/11, the tsunami of 2005, and the recent rash of hurricanes, there are numerous resources available to offer suggestions and help companies create customized plans. All of these plans contain similar components.

Most experts agree that it is important to establish a disaster management team at the beginning of the planning process. This team is responsible for the overall planning. Alternate leaders should be assigned too, for obvious reasons.

Basic steps for developing a disaster recovery plan include:

- Conducting a risk assessment to identify the most important essential functions and personnel
- Categorizing assets and resources
- Developing loss prevention measures, especially for critical areas such as information systems and accounting
- Developing recovery strategies
- Writing the disaster recovery plan
- Communicating the plan to employees and customers
- Conducting training on the plan, including drills and periodic reviews.

Keep in mind that no checklist is ever complete because decisions and actions are based on emerging issues.

While insurance can protect company assets, it alone cannot guarantee the post-event viability of a company. A business continuity plan is needed to protect people and property, and to maintain business continuity in the larger community context.

INSURANCE CONCERNS

As mentioned above, recovery of information is critical for virtually every company in business today. It is critical to safeguard your base assets with adequate insurance, including property, equipment, software and inventory, and production processes. As you develop the business continuity plan, review all current insurance policies to

identify what is covered in the event of a disaster. If you do not have business income interruption and/or extra expense insurance, you should consider adding these.

The impact of being unable to conduct business for just a few days can be substantial. Alex Snotherly, principal agent of Snotherly Insurance Agency in Raleigh, N.C., agreed. Snotherly has been a Nationwide agent for more than 17 years, specializing in commercial and business insurance, and has worked with numerous contractors, tradespeople, architects, and engineers. Business interruption insurance pays what your business would have earned had a disaster not disrupted normal operations, he said. The business must first sustain an insured property loss before the business interruption coverage begins. "This type of insurance is particularly important to businesses that cannot relocate," Snotherly said. "Businesses may want to consider extra expense insurance, which can be useful for companies who can easily relocate. This type of insurance is useful if you have to rent another office space or set up new computers due to a loss. Many times, these types of coverage are automatically included in the basic policy. It's part of the package, and they are important types of coverage to have."

The impact of being unable to conduct business for just a few days can be substantial.

INFORMATION MANAGEMENT ISSUES

According to Steve Bittenger, research director at Gartner, Inc., global research analysts to the information technology industry, "Business continuity and IT leaders within a company are already ideally placed to plan for avian flu threats. Organizations rely on IT to keep the business running, and they can leverage IT to ensure their business operations continue in the event of travel restrictions, quarantines, and/or problems with vendors or employees due to illness or fear."[5]

One way to do this is to establish policies and resources that enable employees to work from home. Issues to be addressed include network access and appropriate security measures. Also, online options can be expanded for both employees and customers.

TRAINING

The viability of the business continuity planning depends upon the training of employees on parts or the entire plan. Employees need to know what to do in case of a disaster, including their individual roles and responsibilities. General training may include communication procedures, emergency response actions, and evacuation procedures. It should also include specific training for individual business units, such as information systems or accounting. Cross training ensures the restoration of operations in the absence of key employees. Employee training should be scheduled regularly and updated as needed to address changes to the business continuity plan. In addition, employees should receive clearly written procedure manuals.

Preparing for an avian bird flu pandemic also prepares a company for other disasters, including terrorism, weather disasters, nuclear attacks, fires, and earthquakes. While most people do not want to dwell on the above, companies must be armed

with a business continuity plan in case a disaster does occur. The presence of a business continuity plan ensures a company can react quickly and effectively. Without a plan, it probably will be too late.

AN INTERVIEW WITH SUNDT CONSTRUCTION

FMI recently spoke with Richard Condit, senior vice president and chief administrative officer, about Sundt's business continuity planning.

Sundt Construction provides general contracting, construction management, and design/build services to private and public sector clients with budgets ranging from $50,000 to more than $200 million. After more than a century of operation, Sundt has emerged as a highly diversified construction company, consistently ranked in the top 100 firms by *ENR* magazine. The company's completed projects have taken it to 21 states and 11 foreign countries.

FMI Quarterly: Tell us about Sundt's business continuity plan and its components.

Condit: We are combining some existing plans to form a single business continuity plan. Our disaster recovery plan — in case one of our buildings burned or there was an earthquake — is fairly well developed. A couple of years ago there were some terrible fires in San Diego, where we have an office. The fire was heading towards the office; luckily, it never got that far. However, it emphasized the need to have an evacuation plan and a means of communicating with our folks. We also need to be able to communicate with our clients. We have ongoing projects, and we need to let them know if their projects aren't going to be staffed on a particular day. Evacuation procedures are included in the plan, and are posted in each office.

Another component of the plan is our information systems (IS). We need to ensure that our systems are redundant. This is very important, and every night we do backups at three locations of all the day's work. This way, if something happens with our information systems, we are only one day out on all of our financials and internal correspondence, etc. These are redundant by state. One of the lessons learned from Hurricane Katrina is that even if you have redundant systems, if they are at facilities only 10 miles apart and both facilities are wiped out, you really have nothing. We also have a cache of food, flashlights, and spare batteries in each of our offices specifically for the IS people so if they are stuck at work trying to recover our systems, they have supplies. We have actually practiced various types of failures with all or part of our system.

The third part of our plan is succession planning. Whether a business is able to recover from a disaster is largely determined by management's job in preparing and identifying successors for all positions, especially key ones within the company.

We are currently pulling these three pieces together into a single business continuity plan that we hope to have ready in the next 60 days.

FMI Quarterly: What were the driving forces for creating this plan?

Condit: Really, 9/11 was probably the one thing that started it for us. Prior to that, the national commerce secretary and several construction executives were killed in a plane crash in the Baltic states. Many articles were written about the crash, and it really had an impact on our succession planning process. Then, 9/11 broadened all

of that. We asked: What do we do if all of our documents are gone, and our systems are gone? How do we get in touch with our people? Katrina and other hurricanes over the past several years have reinforced this. We have had several job sites affected by the hurricanes. A business continuation plan for a construction company cannot be focused solely on the main offices; it has to be focused on your projects and those offices as well.

FMI Quarterly: So you have different plans for different sites?

Condit: Some of it is the same. For example, the IS is centralized. What is more specific are evacuation plans for a particular site, such as MacDill Air Force Base (AFB) in Florida. When the hurricanes came through, we had to have a specific procedure there, which was obviously different from the procedures at our Tempe office.

One of the things that Katrina showed us was that cell phones go down. So we are now in the process of buying phones to maintain contact between our offices in the event of a disaster.

FMI Quarterly: Tell us more about the administrative end of this planning. How did you get started?

Condit: We gave the primary responsibility for the disaster part of the plan to our corporate safety director. We also have a facilities person who worked with the safety director, and they formed a committee. The IS component was prepared by our corporate IS director. I have had responsibility for the succession planning process. We asked our safety director to pull all of these parts together into a codified business continuity plan.

> **A business continuation plan for a construction company cannot be focused solely on the main offices; it has to be focused on your projects and those offices as well.**

FMI Quarterly: How long has each of the plans been in place?

Condit: The succession plans have been in place for almost eight years. The IS planning is about five years old, and the disaster/recovery component is three years old.

FMI Quarterly: Can you give some specific examples of when you have had to use any parts of the plan?

Condit: The closest we have come to using the disaster/recovery component were the fires in San Diego. Fortunately, we did not have to do any succession planning since no one was hurt in the fires. There were IS issues, and because of the plan, we were prepared. It was out of that experience that the toolkit for IS was modified. With the two recent hurricanes at MacDill AFB, we did talk through how we would prepare the project site for future hurricanes. We did not have nearly as much damage because of our preparations and earlier discussions. We also talked

through how we were going to communicate with the project team, subcontractors, and the client prior to, during, and after the hurricanes.

FMI Quarterly: It sounds like having these plans in place was worthwhile.

Condit: It was, and I think it will be even better once we get all of the components into one comprehensive plan because it's clearly too late when the fires come. It's clearly too late when the hurricanes hit, and it's clearly too late when the plane goes down, and your CEO has been killed. Most people think, "Oh, we'll take care of this at some point," and they never get around to it. You really need to have some discipline to anticipate what might happen, and then hope that you never have to execute the plan.

> You really need to have some discipline to anticipate what might happen, and then hope that you never have to execute the plan.

FMI Quarterly: How do you think your plan would work in the case of an avian flu pandemic?

Condit: I don't know. One of the things I've asked our safety director, Brian Murphy, to do is consider that issue because it brings a dimension to our thinking that wasn't there before. We have not talked about the avian flu or even a bad flu bug that could keep our office staff from coming to work. I'm not sure what we would do on the talent side. I suspect jobs would not be completed in the allotted time since some functions would not be able to be staffed. If this flu hits like some are predicting, the resource limitation is people. Everything will slow down. If you had 50% of your people out sick, and if that's happening to everyone in a certain area, you won't be able to get temporary help. There is going to be a time when things come to a screeching halt. Depending on how serious it is, jobs that were on a 12-month schedule may now be on a two-year schedule. To be honest, we are just starting to think now how the avian flu could affect us and how our business continuity plan would respond.

FMI Quarterly: Avian bird flu certainly has been in the headlines lately, and there are two different camps — those who think a pandemic is inevitable, and those who think it won't ever happen.

Condit: I think we are in the "let's not get hysterical" mode, but actually it's a good thing to think about. And not just the avian flu. I used to teach school, and there would be times when two-thirds of the kids were out sick. What would you do if two-thirds of your employees were out sick at the same time? Even for a week, that's a problem, and I'm not sure what is the answer.

FMI Quarterly: What training is in place for your business continuity plan?

Condit: We provided training on the disaster recovery part. There was a leader assigned in each of our facilities with whom we went through the plan. We only did

that once, and we haven't had any drills, but this is something we're thinking about doing with this new plan. We want to practice this plan so we are more proficient.

The IS part has been practiced. For example, we had a scenario in which our Tucson office burned down. We practiced how we would recover the system and get the people in our other offices up and working. We practiced how we would cover our jobs that were being served out of Tucson.

Fortunately, we haven't had to execute our succession plan.

FMI Quarterly: How will you communicate the new plan to your employees?

Condit: We have a variety of ways to do that, such as e-mail, newsletters, prepared documents, employee-owner meetings, etc. With our craft workforce, some of this information needs to go home. The spouses need to have the best understanding of certain types of

> **WORKPLACE DISASTER SUPPLY KIT**
>
> These are some of the items the American Red Cross recommends for an emergency supply kit. Your own kit should be based on personal needs.
>
> · Flashlight with extra batteries
> · Battery-powered radio
> · Food (non-perishable, no refrigeration, little to no preparation or cooking)
> · Water (store in plastic containers, avoid glass)
> · Medications (pain relievers, stomach remedies, prescription)
> · First aid supplies (bandages, gauze, tape, gloves, bacterial ointment, etc.)
> · Tools and supplies (scissors, tweezers, blankets, utensils, non-electric can opener, etc.)
> · Personal hygiene items (toothbrush, toothpaste, soap, contact lens supplies, feminine supplies, brush, comb, etc.)
> · Plastic garbage bags, ties (for personal sanitation uses)
> · Extra clothing and footwear
> · Extra eyeglasses.

information, and this may be something we want to share with family. In addition, as people are on-boarded into the company, they need to know about the plan. We are very concerned about the safety of individuals. Also, evidence suggests that companies who don't get put back together quickly after a disaster, often die. Since we are an employee-owned company, we need to understand our responsibilities should something happen. ■

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Management's Choice: Quality Program — or Rework?

A quality management system ensures continuous improvement in a company's overall performance.

By Kelley Chisholm and Mike Putzer

This is the third in a series of articles about best practices in project management. Where applicable, portions of this article will be mapped to the PMI® PMBOK®. Customers of construction services are seeking best practices in an ever-growing demand — best practices that can drive down the cost of construction and increase its quality.

OVERVIEW OF PROJECT QUALITY MANAGEMENT

A quality management system (QMS) encompasses all activities of an organization that determine quality policies, objectives, and responsibilities for a project. Project quality management processes include quality planning, quality assurance, and quality control. This article examines what comprises a QMS, the costs of not having a QMS, and includes an interview with a construction company that has built quality into its business objectives.

If you ask people what quality means to them, you will hear a variety of responses. Quality is subjective. What satisfies one person may not satisfy another. The PMBOK Guide defines quality as "the degree to which a set of inherent characteristics fulfill requirements."[1] Quality in construction is unquestionably about customer satisfaction, but that is not all. It is also about meeting

> "Quality means doing right when no one is looking" —*Henry Ford*

Quality planning is a crucial step of any quality management system, and should be completed well before construction work begins.

requirements to reduce defects, eliminating or decreasing rework, and bolstering profitability, in order to achieve overall business objectives.

QUALITY PLANNING (PMBOK SECTION 8.1)

Quality planning is one of the key processes of the project management plan. A quality plan spells out the specific quality activities and resources for a particular contract or project, and should be tailor-made for that project. It involves recognizing which standards are relevant to the project and deciding how to satisfy them. According to the PMBOK Guide, "one of the fundamental tenets of modern quality management is [that] quality is planned, designed, and built in — *not inspected in.*"[2] There are a number of inputs, tools and techniques, and outputs associated with quality planning. Inputs may include enterprise environmental factors, project objectives and scope statements, and a project management plan. Cost benefit analyses, benchmarking, and experiment design are some of the tools and techniques that are used in the planning phase. Outputs may include a quality management plan, quality metrics, inspection checklists, and a process improvement plan.

Contractors work for a number of clients on a variety of projects. Since each project has its own traits and requirements, contractors must be able to adapt their quality systems to meet specific project needs. Quality planning is a crucial step of any quality management system, and should be completed well before construction work begins.

QUALITY ASSURANCE (PMBOK SECTION 8.2)

The PMBOK defines quality assurance (QA) as "the application of planned, systematic quality activities to ensure that the project will employ all processes needed to meet requirements." Inputs to the QA process are varied, and may include work performance information, approved and implemented change requests, quality metrics and control measures, and implemented corrective and preventive actions. Quality planning tools and techniques, quality control tools, and quality audits are all used to perform quality assurance. Quality assurance outputs can consist of recommended corrective actions and updates to the project management plan and the quality standards.

Consistent quality can only be achieved when avoidable mistakes are circumvented in the first place. Preventive actions are necessary to minimize the risk of managerial

and communication problems. If consistency is expected from all staff in the organization, then there must be:

- appropriate organizational structure with clear lines of responsibility and open communication
- clear job descriptions
- accurate specifications and drawings
- proper training with ready access to necessary instructions
- complete resources and materials.

QUALITY CONTROL (PMBOK SECTION 8.3)

"Performing quality control (QC) involves monitoring specific project results to determine whether they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory results. It should be performed throughout the project."[3]

Inputs to quality control include many of the ones noted for quality assurance, as well as the quality management plan, quality metrics, quality checklists, and deliverables. Tools and techniques are varied with cause and effect diagrams, flow charts, statistical sampling, control charts, and defect repair review being just a few of the many methods that can be used to measure quality assurance. Many of the outputs for quality control are the same for quality assurance, and also consist of quality control measurements, validated defect repair, recommended defect repair, and validated deliverables.

Quality controls, such as inspection and testing, do not by themselves achieve consistent quality because the intended verification is not always carried out. Inspections constitute only a small part of the total quality assurance system. Instead, the quality system actually concentrates on preventing errors by systematic control of the construction process. If inspections do uncover problems that need to be fixed, the QA system also ensures that those problems are prevented by improving the construction process. A system of quality management complements the operational techniques of quality control by assuring "build-in quality" instead of "inspect-in quality."

> **Quality controls, such as inspection and testing, do not by themselves achieve consistent quality because the intended verification is not always carried out.**

COST OF REWORK

Rework, and specifically field rework, is one of the chief sources of unplanned cost growth and time overruns on construction projects. The PMBOK Guide defines rework as "action taken to bring a defective or nonconforming component into compliance with requirements or specifications."[4] In a similar vein, the Construction

Industry Institute (CII) defines field rework as "activities in the field that have to be done more than once in the field, or activities, which remove work previously installed as part of the project regardless of source, where no change order has been issued and no change of scope has been identified by the owner."[5]

Research by the CII suggests that as much as 10% of overall project costs can be saved when rework is substantially reduced or eliminated. In order to achieve a reduction in field rework, considerable effort must be made to improve the effectiveness of prior project phases with a view to preventing the all-too-frequent "catch-up" during the site construction and commissioning phases.

The Cost of Rework
1. Putting the work in wrong the first time (material, labor, equipment, tools and supplies).
2. Taking out the defective work.
3. First lost opportunity cost based on No. 2.
4. Putting the new work in correctly.
5. Second lost opportunity cost based on No. 4.

The cost of rework goes well beyond simply "doing the job times two." Actual expenses include performing the original work, undoing that work, doing that work again, not to mention the costs associated with lost opportunities and the inability to do other, income-producing work. Defective/wrong materials must be handled and removed, new parts and materials must be expedited, equipment leases may have to be extended, workers have to be reassigned and possibly paid overtime to make up for schedule delays, all adding to the overall cost of rework. There may be litigation costs as well. Intangible consequences of doing rework such as the negative effects it has on the crews must also be considered. Nobody feels inspired or motivated by having to do a job over. In order to reduce the cost of rework, a thorough understanding of its underlying causes is needed so that effective prevention strategies can be identified and instituted in order to reduce or eliminate it altogether.

In order to improve project quality and performance, the causes and costs of construction rework need to be isolated. Management should assess all rework to measure how quality is being managed and improved, and to identify problem areas within their company. There are numerous measurement tools that can be used by construction companies to reduce rework, some of which were mentioned earlier, including benchmarking, quality audits, and defect repair review,

> Intangible consequences of doing rework such as the negative effects it has on the crews must also be considered. Nobody feels inspired or motivated by having to do a job over.

just to name a few. In addition to identifying construction mistakes as they occur, recognizing errors or defects in construction after the fact will help companies to learn from the past and improve future work. Keeping this in mind, the measurement of rework costs obtained throughout a project can be used to help transfer the lessons learned to the company's next project. Elimination or the complete elimination of rework is a major driver for any Quality Management System.

QUALITY MANAGEMENT SYSTEMS

If rework is considered to be the unnecessary effort of correcting construction errors, then in order to reduce these errors and consequently the amount of rework, there is a need for construction companies involved in projects to implement quality management practices from the onset.

Many construction companies that have not formally implemented a quality management system don't realize they already have some type of structure in place. Where these companies fall short is in documenting the quality requirements that they are already performing. A formal quality system offers the necessary means to address ongoing problems and to create a structure that provides for preventive actions.

> Many construction companies that have not formally implemented a quality management system don't realize they already have some type of structure in place.

Since establishing and maintaining a QMS costs money, how it is accomplished is all-important. In order to implement and maintain a quality system, significant investment in terms of money and staff time is needed, especially for document preparation and staff training. While some perceive these costs as overhead, the potential cost savings from future reductions in rework should be considered. Ultimately, a company's QMS represents the most effective and efficient way of conducting business by consistently satisfying customers and at the same time achieving set business objectives. It should not be viewed as an "add-on" to other business systems, but rather as the management system of the business.

The companies that gain the most from quality assurance are those that do it for the purpose of improving their own effectiveness. These companies can expect better communication within the organization and with clients, fewer work disruptions, decreased or eliminated rework, and fewer callbacks. These improvements lead to higher productivity, increased customer satisfaction, better relations with the other trades in the field, and increased profits.

Any quality management system needs to be accepted by staff at every level within the organization. Senior-level management is responsible for identifying and establishing measurable quality objectives and using them as a way of leading the organization towards improved performance and effectiveness. It is meaningless to identify quality objectives if they are not communicated and embraced throughout the company.

ISO 9000

When services or products are of poor quality, people are quick to notice, and even quicker to expect higher standards. Since quality means different things to different people, having an established set of standards is one way to ensure consistency in expectations across the organization. The International Organization for Standardization (ISO) is the world's leading developer of standards. ISO is a network of the national standards institutes of 156 countries, and is a non-governmental organization. ISO standards are voluntary, and the organization has no legal authority to enforce them. ISO 9000 and its revisions are a set of standards for quality management systems that are recognized worldwide, and are applied uniformly to organizations of any size or description. If an organization registers a product or service to the appropriate ISO 9000 standard for quality management, then the consumer is assured consistent quality. Companies that register to and comply with ISO 9001 often enjoy increased market opportunities, as their customers can be assured that they have sound quality management systems in place.

ISO principles serve as a framework to guide an organization toward improved performance. However, keep in mind that ISO certification just means the documented processes are being maintained. If quality criteria are not built into the processes, with continuous quality improvement as a part of those criteria, then the value of the ISO becomes diminished.

> A good QMS has continuous improvement built in. It is not a tool or technique, but more a way of life or a company culture.

CONTINUOUS IMPROVEMENT

A good QMS has continuous improvement built in. It is not a tool or technique, but more a way of life or a company culture. Continuous means ongoing. The process never stops, and sustained success is more likely in organizations regularly reviewing their business methods and processes in the drive for improvement. Continuous improvement of a company's overall performance should be a permanent objective of the organization. The longer the quality system remains in operation, the fewer quality defects that will arise.

In today's highly competitive market, successful businesses are open to change if they want to maintain their business advantage. Being forward-looking and receptive to new ideas are essential elements of continuous improvement.

INTERVIEW WITH JIM NELSON

President, Nooter Construction Company

FMI Quarterly recently spoke with Jim Nelson, NCC president since 2004. Nelson was graduated from Murray State University with a degree in engineering and business. From 1980 to 1990, he was employed by Nooter Construction in various field positions. From 1990 to 1997, he served as construction manager in the Philadelphia regional office. He then served as vice president of construction in the St. Louis office from 1998 until 2004, when he became president of the company.

> **Nooter Construction Company** (NCC) was founded more than a century ago as a metal fabricator. Over the years NCC has diversified into a family of companies serving a variety of markets. Today it has three major offices serving customers nationwide. An employee-owned business, NCC stock is not traded on the open market, and only NCC employees own stock in the company. Nooter Construction was ranked among the top 400 contractors by *Engineering News-Record* in 2003 and has won numerous safety awards.

FMI Quarterly: How do you incorporate quality into your processes at Nooter?

Nelson: First, we seek to understand the requirements of the project through our customers' specifications or from interpreting the codes we work by, as well as from our own internal expectations. Next, we educate our staff and our workforce around the project expectations and required quality outcomes.

FMI Quarterly: How do you go about achieving that?

Nelson: Some of it is through our planning processes. When we are creating our project plan, we include steps that are hold-points for doing an inspection, and you can't proceed until that function is complete. Another part is through the training of our onsite staff. An engineer or a full-time QA/QC person will have inspection points that they communicate to the supervision, who will facilitate a quality check before moving forward. With some of our more complex jobs we'll spend even more time with the individual welders or mechanics, laying out the expectations for the quality processes.

FMI Quarterly: How do you educate your staff?

Nelson: Training takes place through formal project presentations about expectations, but not all of it is in a meeting environment. We also explain to the employees the standards and quality expectations for the job. An audit is executed while they're performing the work to ensure that they're meeting the expectations. We often go out and spot check the projects to make sure our personnel are following the quality program. If it's a highly controlled job, we have forms that have to be filled out for the specific procedures, documenting each step prior to moving on to the next step.

FMI Quarterly: Can you expand on that as it relates to becoming certified and maintaining that certification?

Nelson: We'll start with the code itself. Every three years, we go through an audit performed by the National Board of Boiler and Pressure Vessel Inspectors to

demonstrate our capabilities in that work. We actually do a mock-up of a repair job, including all of the paperwork and other steps we are required to do. Once the National Board inspectors are satisfied with our work, then our code stamps are updated, which enables us to go out and perform the work. On any given project, at the beginning of the job we'll contact the respective code agency, notify them that we are at their locality, and tell them what our defined work scope entails. They will give us hold-points where they will want to come out to inspect the job. They also want to see the final testing procedure as it is actually being executed. Each time they visit the job, it is logged in a code logbook and includes what equipment and/or systems they inspected, the steps they witnessed, and the outcome of their audit. All of this is documented in a log book that the inspector signs off on while he is present. Once the project is complete and the repairs have been done, everything is summarized on a final repair form, which is signed by the certifying code inspector. This document is sent to the National Board where it is filed stating that our company actually worked on that piece of registered equipment.

> On any given project, at the beginning of the job we'll contact the respective code agency, notify them that we are at their locality, and tell them what our defined work scope entails.

FMI Quarterly: So all of the documentation associated with this actually becomes a part of the audit?

Nelson: Yes. Another step that we have recently taken is to establish what we call the Nooter Management System (NMS). Basically, it meets the criteria of ISO 9001 for quality, the 14001 for environmental, and OHSA 18001 for safety. Our system is designed around these requirements and consists of documentation of all Nooter's processes that we use to go about our day-to-day business. It covers the whole gamut, including our safety, quality, and staffing, transporting equipment to the job, customer and subcontractor interactions, soliciting bids, and project execution. There is an audit function to ensure that we are indeed practicing what we said we were going to do. There's a mechanism for documenting corrective actions and preventive actions within the system, as well as a method for people to offer their suggested improvements to the system as we move forward. We hope, over time, our NMS is going to give us a good, ongoing quality process to follow within our organization. It allows us to share processes from office to office with continuity, and quite frankly it's streamlined some of our procedures and allowed us to use best practices.

FMI Quarterly: Can you tell us more about your documentation and archiving procedures?

Nelson: As part of our onsite planning, auditing, and documenting, we create job files that become part of our permanent office files. We do post-job reviews for lessons learned, which become part of the job's history. We have weekly meetings and document any issues and share lessons learned between the managers and internal staff across each of the projects. As these individuals move into the next project, it gives them points to think about, such as past problems or successes. We also have joint monthly meetings that are video-conferenced between the three offices where we share lessons learned.

FMI Quarterly: Who has access to your electronic files?

Nelson: Everyone has read-only access to these files. For a very large project, we set up a wireless network so everyone can communicate with each other and log in to the system and access the documents they need. We try not to store specific forms on individual computers or save paper copies, but instead encourage people who need a form to go into the system and retrieve it as needed. We do this so that everyone is always using the current form and not an outdated version. That was one of the reasons for developing this process — now we have one up-to-date form, in one place, for everyone to use. We consider this central, accessible location to be a best practice as it has really streamlined our processes.

When it comes to editing files, we do have restrictions on who has rights to change the forms. There is a process to go through for suggested improvements. They get reviewed by a committee and depending on what kind of change is required, the committee can make the change or seek out the appropriate level of management to give authorization.

FMI Quarterly: Would you say that having quality processes in place is a necessary burden to stay in business, or that it gives you a competitive edge?

Nelson: It has given us a competitive edge because, as I alluded to earlier, it's allowing us to streamline some of our processes and to share them across different locations. The expectations are now the same from location to location. One of the things we encountered, for example, was that in our safety department we were using some 60 forms. We have pared that down to about 30 forms. So now we are using the exact same forms in our Philadelphia office that we use in our Toledo and St. Louis offices.

Safety is our first concern. When you pay attention to safety and the logistics and you communicate the expectations for quality, then you are more likely to have a good quality outcome. They go hand in hand.

FMI Quarterly: Can you tell us more about your transient workforce and the challenges it poses in terms of quality and safety?

Nelson: We have anywhere from 500 to 2000 employees on any given day on the payroll. One of the advantages that we have is that we are a union contractor. For example, when we go into Los Angeles to work on a large project, we can call the local union hall and ask for 500 to 1000 union craftsmen. We will have some expectation of their skill levels since they have been through a training program, and they are active members of the union. One of the first things we do is to give these craftsmen an orientation around expectations of the project, and quite frankly we spend a lot of time talking about safety expectations for the job. We have daily meetings reinforcing these expectations. As I mentioned earlier, we have detailed planning steps about the work expectations. Within those planning steps, we build quality into the job before we ever actually start working, and we audit for compliance to ensure quality is maintained.

FMI Quarterly: So planning the work is an integral part of the quality process?

Nelson: It is. When we're doing major piping projects each system will have a checklist that will get walked down by the foreman for inspection. Once he signs off, it gets reviewed again by a quality inspector. Then we perform our tests of the system. After that there's a post walk down of the work that is documented. Once we're satisfied, we turn it over to the customer, and they in turn do a walk down and an inspection prior to acceptance.

FMI Quarterly: Essentially, these processes are in place to eliminate or significantly reduce rework. In terms of quality, what are the most important things you pay attention to?

Nelson: Safety is our first concern. When you pay attention to safety and the logistics and you communicate the expectations for quality, then you are more likely to have a good quality outcome. They go hand in hand. If you let any of these things slip and get

sloppy with your safety, communications, or expectations for the job, then you're not going to have a quality job.

FMI Quarterly: How has Nooter benefited from having quality elements in place?

Nelson: You have to put our working environment into perspective. I'm talking about a petro-chemical plant, refinery, powerhouse, metal trades, boilermakers, and pipefitters — a heavily industrialized work environment. We can't have any incidents, any major leaks, or any major failures, and we have been successful to date. That speaks volumes to our reputation, and that's what gets us a good quality job and repeat work. Over time people have the confidence that we are going to do a quality job and not cut corners. Customers benefit as they get better value. Our employees benefit since they understand the requirements and expectations we have communicated. Our employees want to do quality work; they just need the expectations and criteria upfront.

FMI Quarterly: Jim, thanks for your insights. ■

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[1] PMI's PMBOK® Guide serves as the official basis for the PMP® Certification Exam and provides a basic reference for anyone interested in the profession of project management. The PMBOK Guide identifies and describes that subset of the project management body of knowledge, which is generally accepted.

[2] A Guide to the Project Management Body of Knowledge (2004), 3rd ed. Newton Square, PA: Project Management Institute, p. 180.

[3] A Guide to the Project Management Body of Knowledge (2004), 3rd ed. Newton Square, PA: Project Management Institute, p. 187.

[4] A Guide to the Project Management Body of Knowledge (2004), 3rd ed. Newton Square, PA: Project Management Institute, p. 190.

[5] A Guide to the Project Management Body of Knowledge (2004), 3rd ed. Newton Square, PA: Project Management Institute, p. 372.

Bridge-Building Builds Talent

FMI Quarterly interviews Wade Watson of Tidewater Skanska about his recently completed project, the Cooper River Bridge project in Charleston, S.C.

By Bruce Wilkinson

FMI's Bruce Wilkinson spoke with Wade Watson, a project manager with more than 27 years of experience with Tidewater Skanska Inc. Tidewater Skanska is based in Virginia Beach, Va., and is a subsidiary of Skanska USA Civil, one of the largest construction firms in the United States.

Tidewater Skanska focuses its work on heavy civil, marine, transportation infrastructure, reclaimation and remediation, and industrial construction as well as manufacturing a wide variety of pre-cast, pre-stressed structural materials. As part of this work, Watson and his team recently completed the Cooper River Bridge Project in Charleston, S.C. In this project profile, FMI's Bruce Wilkinson talks to Watson about his experience on the project and the use of the project in building talent.

FMI Quarterly: Wade, you just completed a major project. Tell our readers a little bit about the project and your role in it.

Watson: We recently completed the Cooper River Bridge project in Charleston, S.C. It was a joint venture, design/build contract with the South Carolina Department of Transportation. My role was project manager for the entire project. I was on-site daily and ran the entire joint-venture organization. It was a fully integrated joint venture. We didn't separate work by company. We did have people from both partners there as well as other people we hired locally and from around the country, but we integrated everybody as one unified team.

FMI Quarterly: How long had you been with Tidewater Skanska before leading that team? What type of projects have you built at Skanska?

Watson: I've been with Tidewater almost 27 years now, and the project was a four-year project so I went into it with about 23 years of experience. Tidewater Skanska does mostly heavy civil marine. We have an extensive marine background. We are well known for doing a lot of water structures and tunnels and bridges over water. I've done a lot of heavy civil structure projects, but most of them have been over water or water-related.

FMI Quarterly: Looking back, what was the most rewarding aspect of the Cooper River Bridge project?

Watson: It was quite challenging, and there are several things that were rewarding about it. The one that stands out is the sheer magnitude of the project given that it was design/build and fast-tracked. It is a monumental feat given the design criteria. The structure we built is huge and should stand up for hundreds of years. I think the other challenge and subsequent reward was just managing such a project — bringing everybody together and putting the resources in place so the job can go forward and be successful.

FMI Quarterly: Can you quantify some of the big numbers associated with the project?

Watson: The Cooper River bridge is the longest cable stayed bridge in North and South America. It is 1,560 feet from center of tower to center of tower, which is the main span distance. It is a cable stay, which is a modern-day suspension bridge. It is eight-lanes wide for vehicular traffic, and there is a ninth lane for pedestrians. So it is also one of the widest cable stayed bridges in the world. The total project is more than just the bridge. There are interchanges on each end of the bridge, in Mt. Pleasant and Charleston, and there are long, high-level approaches up to the main span from each interchange, making up about three and a half miles in the entire project.

FMI Quarterly: I read somewhere that at the peak of the project, 80% of the team was employed directly by the joint venture team. Is that right?

Watson: We had about 600 employees at the peak of the project. We self-performed about 80 percent of all the construction work. I think that's perhaps what you are referencing. We are not construction managers; we are self-performers. About 20% was subcontracted out on some specialty items, electrical and that sort of thing.

Wade Watson

FMI Quarterly: Did Skanska consider the project a success when it was all over?

Watson: We did. It was a fast-paced job, but it was a successful job. We have a quality record, a

Sunrise on construction

happy owner, a happy community, and a good safety record. We made a reasonable profit on the job and finished on schedule.

FMI Quarterly: Any other outfalls of success? Has the publicity that the bridge has garnered produced any other positive results for the company?

Watson: Well, most of our work is bid work so you don't get a lot of credit for notoriety and those kinds of things. It is usually lump-sum bid; this was a lump-sum bid, and so the low bid gets the contract. However, there is a lot of notoriety in this project. It has gotten world-wide recognition. There have been people from all over the country and world looking at the project, looking at how design/build is done, talking to the bridge owner, and considering doing those same kinds of projects. This has been a model job. It is getting a lot of attention from around the world and rightly so.

FMI Quarterly: To what do you attribute the success of the job?

Watson: A great team. This job is more than one person can do. All I can do is put people and resources in place and try to steer the ship in the right direction. But it takes the hard labor and efforts of thousands of people. Not only people on the project but people off the project — designers and fabricators and technicians and testing people. People from all over the world were involved in the project. I think it is a testament to the good team that we had. I think it also takes good communication. We had a good owner. We communicated well, and resolved problems quickly.

FMI Quarterly: Tell us a little more about the world-wide support on this project.

Watson: Well, this job was so large that it required a lot of resources from around the world. Our designer was Parsons-Brinkerhoff out of New York, and they use a lot of sub-consultants. Danish Hydraulic Institute and Copenhagen Denmark were used for hydraulics, hydrology study, and ship-impact modeling for the rock islands. There was testing done in France, Switzerland, Vancouver, and British Columbia — a lot of testing around the world.

We also called in resources from Skanska to help out on-site. We had some

> People from all over the world were involved in the project. I think it is a testament to the good team that we had.

Skanska people who had been involved in cable-stayed bridges similar to this one come over to help us with the tower erection, superstructure erection, hanging the stay cables, and some of those technical activities. Their experience and assistance was a big plus for the project.

FMI Quarterly: Is Skanska able to leverage these world-wide resources fairly easily? Is that a common practice within the organization?

Watson: Yes and no. Obviously being international and having lots of companies, marketplaces, cultures, and languages spoken, there are certainly some barriers, both culturally and language in particular. But Skanska is making the effort, and I'm actually on a committee within Skanska now to improve that scenario. We are putting a group together where we can identify talent around the world and roadmap how to get to that talent and expertise and use it internally between companies. Yes, I think we are drawing upon the resources we have, and we are going to continue to draw upon them in the future.

FMI Quarterly: When you were developing the initial plans for the bridge, was there conversation with the folks in Europe who had previously built similarly designed bridges?

Watson: Yes, there was. Skanska has done two cable-stay bridges in recent years, Uddevalla and Oresund both in Sweden. One of the two, Uddevalla, was very similar to ours. It was smaller, but it had diamond-shaped towers and similar design and construction techniques. There are some differences between European and American construction obviously, but it gave us good input on design and means and methods.

FMI Quarterly: Changing gears a bit, can you discuss the importance of strong, quality leadership on a project like this?

Watson: Leadership is a must, and you learn a little later in life perhaps that leadership is not being a manager. Certainly, there are tasks that need managing. For example, leveling resources around daily activities are things we manage. But leadership is more than that. It is actually growing the people under you. It is helping people get the resources they need to be able to perform their work and not dictate to those people. We need to steer those people along the way and give them the resources to make good decisions. So it is more about growing people than it is about managing resources.

Exhibit 1
Peak Leaders

FMI Quarterly: On that theme, one of the characteristics of FMI's peak-leader model is Develop Talent. In other words, peak leaders make a very intentional

Cable being fed from spools

point to develop others. Could you relate an incident where individuals were intentionally developed and you really saw some growth?

Watson: I could certainly see growth and change in myself. Perhaps going into this job I was more of a manager. With jobs of a certain size, you can manage those jobs. You can get your arms around them, and you can control most of the activities with some help. But when you get a job of this magnitude, you can't. You need to depend on other people to do their jobs and build well. You can certainly look some things over on the project, but you can't be hands-on in every single issue on the project. It is just too large. You have to learn to trust people below you, give them enough rope to be able to perform their duties, and help them over the hard spots. At times, it is perhaps easier to make a decision for the short-run, but you really shouldn't do that. You really need to grow those people and let them come to their own decisions and the right action. Perhaps that takes a little encouraging or heading in the right direction for them to see that, but in the end it is a short-term investment for a long-term gain. There are a lot of those stories here. I think there were a lot of people in positions here that did very well. We gave them an opportunity to stretch, and they rose to the occasion.

FMI Quarterly: What about you and your development? When you look back at the individuals that invested in you, who comes to mind?

Watson: I think it is just the culmination of everything. I met a lot of people over the years, and I have learned a lot of things coming up. Some of them are by making errors and some of them are from being taught. I don't know that I've been strongly influenced by one single person, but just the actions of many and the experiences are the best thing for changing skills.

FMI Quarterly: We hear a lot in the construction industry that project teams are just that. They are teams that are assembled for a project, and in a lot of places and in a lot of situations you don't always get this 10 years of mentorship with the same

> **You have to learn to trust people below you, give them enough rope to be able to perform their duties, and help them over the hard spots.**

person. This temporary assignment means that some folks say they don't invest time in developing people because they are not actually going to get the return on that investment. You are investing in a younger project manager who could be a star one day, but he might not be a star for you and so why would you put that time into him? What would you say to somebody who says that?

Cable termination housing

Watson: Well, I don't think that's a very good attitude because growing people is important and people have to learn and progress in their career. Yeah, people are transitional and you may see different people in different jobs, but if they stay with the company, we all need to work on furthering those people along. You may not have them on the next project, but perhaps the one after that I'll get some of them back, and I need to do my part to help them along as much as anybody. And it is not just about the project, it is about our company. We need a company full of good, talented people that rise to the occasion and rise to the challenge, and we need a company of good leaders that act correctly and responsibly and carry the goals and morals of the company. How else can you do that other than train them? You might not see those people on the very next job, but perhaps two or three jobs later they will be there. You can't decide not to train people because you say you may not see them after that job. That's certainly not healthy for our company.

FMI Quarterly: You read a lot today about the fact that there is a shortage of people who are going to be able to lead the next generation. You know our 30- to 40-year-olds are declining in numbers. Do you see that? Do you see a shortage of folks that causes you to make sure you take care of the ones you have?

Watson: Absolutely. I think everybody recognizes the problem that there is a shortage of talented people. People who have the right attitude and the right drive can rise to the challenge. Those people are there, but perhaps you have to make them or you have to find them. You also have to retain those people and that's difficult to do in a market like the U.S. today. People change jobs frequently and always look for a place where the grass is a little bit greener. I think that is just a part of the culture today. Perhaps, it is different from the culture when I grew up. But yes, I think that is something you have to do. Those people are there. We just have to find those people, coax out the best in them, and retain them.

FMI Quarterly: When you think about the importance of strong, quality leadership on a project the size of the Cooper River Bridge Project (a $500 million, four-year project), are there underlying leadership principles that translate to projects of any size?

Watson: The characteristics are the same whether the job is small, medium, or large. You can either be a manager or you can be a leader, but for people to be able to stretch themselves and their imaginations, they have to be put in a position with the right culture to develop. I look at managing as just purely managing resources. It is directing people what to do and when, and there's no growth for those people. They are just carrying out an order. People need to be able to think on their own. I think when you don't have that opportunity to think you've turned off their brain to some degree and discouraged innovation and personal thinking. People need to continue to grow and learn to reach their best.

FMI Quarterly: What does a project leader do to make that happen?

Watson: Rather than just dictating problems, solutions, and answers and managing resources, you need to inspire people. Project personnel who are looking at problems or planning on the job need to put their effort into it. Then, if there are some flaws in their results, you, as the leader, don't necessarily want to just give them the right answers. You want to suggest that there might be flaws and then talk with them about those flaws. Often in the heat of battle when time is short, I have to bite my tongue and ask the right questions instead of just dictating the answer. It may take a few extra minutes, but you can be a better leader by helping the other person to arrive at the answer.

FMI Quarterly: What do you tell your young project engineers about the keys to successful project leadership? How do you help them to establish working relationships with the typically older, more experienced superintendents?

Watson: It really comes down to working with and understanding people and communication. People aren't robots, and often engineers think you can run a construction job and people as if they were equipment and materials. It doesn't work that way. You don't just tell people to go do something and it magically happens. People have problems, issues, and concerns. Sometimes there is miscommunication, and you have to understand that. People have to take into account who they are working with. I call it being a good judge of horse flesh. You have to be able to sum up people a little bit and understand what drives them and what needs they have. People are different. You need to lead some people a little bit differently than other people. Some people you need to spend more time with; they want that. Other people don't want to be stifled. They want to be given a task and be left alone so they can do it. Then, you go over it with them. But everybody is a little different, and I think a

> People aren't robots, and often engineers think you can run a construction job and people as if they were equipment and materials. It doesn't work that way.

successful project manager can naturally sense that in people. I think I've done that over the years before I knew why I did it. It is just something I've done, and I've been successful over the years. It is a matter of reading people and judging people and paying attention to them. Sometimes, it is not what they say, it is what they don't say or it is the look in their eyes. Everybody is a bit different.

FMI Quarterly: This project was built in an old, historical city as well as a vibrant, growing community. Two communities, Mount Pleasant and Charleston, were on each side of the project. In addition, the project replaced two bridges that for years had been major symbols of the city. How did you deal with the public relations challenge presented by these issues?

Watson: Public relations was a big issue on this project. We partnered with the South Carolina Department of Transportation, and jointly, we had a good publicity campaign as well as a good media and community relations program. We both worked very hard on that. Part of our success was in being approachable and accessible. The DOT had an office right in the community on the Charleston side and so did we. People were invited to come in and talk to us and tell us their problems. We asked the DOT to provide a community liaison to go out into the community and talk to people, store owners, and home owners, and attend social events and church meetings to hear the voice of the community. If there were concerns, these were brought back to the construction group. We would try and do everything we could to alter our work, our schedule, and our means and methods to meet the needs of the community. We tried to be a good neighbor. We were in the community doing work and in people's backyards and in the streets and possibly affecting access to their homes and businesses. You have to remember that. People live in that community, and we are there four years building a project, but they've got to be able to survive in those four years without a huge amount of impact from us. So a lot of things that we planned, we planned around the community. We put in drill shafts because they produce less noise, vibration, and pile driving. We staggered work hours to meet the needs of the community. We worked at night or in the daytime depending on what the community wanted us to do. I think a lot of it is just being there for the community. The community is most appreciative that you take the time to talk to them and hear their needs even if you can't solve all of their problems, at least we tried. I think that is very positive.

> We would try and do everything we could to alter our work, our schedule, and our means and methods to meet the needs of the community.

FMI Quarterly: What do you think your return on investment was for that extra effort?

Seating and sealing internal cable assemblies

Watson: It is difficult to measure, but I think there is a return on the investment because even if you are not as proactive as we were, you are going to have issues that are going to cost you time and money. The community is going to come forward. There are going to be problems, and you are going to have to deal with them. They may ask you to curtail activities. You might as well address these problems upfront. It is cheaper that way, and I think the job runs smoother with fewer problems along the way.

FMI Quarterly: Can you think of a specific example where you got ahead of what could have been a big issue?

Watson: Yeah, I think there are a lot of cases of when we did things like that. We designed our job where we would affect traffic as little as possible, but in the design of our new structure we had to cross over the two existing bridges in the middle of the river on Drum Island. That meant we had to have lane closures and completely close the two existing bridges one at a time to erect structural steel over them. As we got into the job and talked with the owner, we realized the way our schedule was, we were going to be sending steel over the two existing bridges in the summer months, which would not be desirable because of the impact on tourism. As a result, we altered our schedule. We did some form work out of sequence, and we changed the timeframe when we did the work over those structures to a non-peak time. We benefited because the lighter traffic made our job easier, and there were less problems to the public.

FMI Quarterly: Skanska Worldwide Magazine quotes Harry Holman, the mayor of Mount Pleasant, as saying: "We are just tickled pink. We couldn't be more satisfied. We talked about this bridge for 25 years, and it is being built in under four. It is unusual I think to see a job this big finished on time, but they seem to be doing it. One thing that has really impressed me is their sensitivity toward the community." What happened when the bridge opened?

Watson: There was a lot of celebration the week we opened the bridge. There were several events planned during that week, but the bridge was open for a couple of days for the public to walk across. There were a few days where the bridge was open to bicyclists since there is a pedestrian/bicycle lane on the bridge. There were a lot of events that week. There was a black-tie dinner served up on the bridge to raise money for the grand opening. There were

Placing concrete floor panels

Night paving

auctions for lunch or dinner served on the bridge. There was a huge fireworks display. Everybody was proud of the bridge. The public was proud of it, and I think the state did a very good job of planning the opening ceremonies after the fireworks event. There was a grand illumination where we turned on the lights to the bridge for the first time. Then, of course, that following Saturday was the grand opening and the ribbon cutting. All the politicians were there to dedicate the bridge. For a few days after the opening traffic was very heavy. Everybody was out riding across the bridge for the first time.

FMI Quarterly: Then, is it safe to say the city loves their new bridge?

Watson: They do. They love it. No doubt about it.

FMI Quarterly: Were there any big lessons learned from the joint venture aspect of the project?

Watson: Work with a great partner. We went into it with a good joint venture partner that we are used to working with. Flat Iron Constructors of Longmont, Colo. was our partner for the job, and we've done other joint ventures with them. We currently have another joint venture going on in Florida so we have a track record with them and work well together. They bring expertise to the table, some good people, and solid means and methods. We integrate our joint venture. We don't separate it where one company does part of the work and the other company does the other. We use a total integrated team, and I think that's the best approach where you have unified management on the job.

FMI Quarterly: From a collaborative standpoint, what were some of the big collaboration successes on the project?

Watson: I think there were several of those. There were certainly local issues with environmental agencies, permitting issues, and the owner and designer of the project. It is difficult to go into a design/build job when the owner has acquired permits, and the structure or access is not even completely designed. It was a different access so it did require permit modifications. I think the state knew it was a fast-track job, and they wanted it to go forward successfully so we partnered with the DOT and all the resource agencies to smooth those problems, and it went very well. All of the resource

Opening ceremonies

agencies gave them their best timelines and pushed issues through and made the job very successful.

Also, this job was so technically advanced and designed that there were a lot of design issues that came up such as conflicts in specs, or perhaps specs that were not even part of the contract. So it takes a close collaboration between the owner, their design consultant, and our designer, and often we flew around the country to talk to people and solve those problems. But what made it successful is that we didn't let those problems fester. If there were design-related issues, we identified them very early and put them on the table. If they couldn't be dissolved very quickly, we demanded face-to-face meetings. We got everybody from around the country in the same room quickly, and we solved the problem.

> **If there were design-related issues, we identified them very early and put them on the table. If they couldn't be dissolved very quickly, we demanded face-to-face meetings.**

FMI Quarterly: How important was it to be physically close to the DOT in terms of getting this collaboration and not allowing big issues to fester?

Watson: We were right across the street from each other. I think it was totally important because you just don't have time on a job like that to let those kinds of issues go on. There are lots of issues that have to be resolved or talked about, and we resolved those basically at our level, across the street. For very few of the issues did we have to go off the site, if any. It just really circumvents the bureaucracy with change orders or changes in the contract, those kinds of things. We could come to a quick resolution.

FMI Quarterly: How has project closeout been?

Watson: Closeout has been very easy. With every job, there are a lot of things to do at the end, but we have no issues or disputes with the owner on this job. I think that is monumental on a job of this magnitude.

FMI Quarterly: I agree. Do you know what your role is going to be next?

Watson: I don't actually. I am back in our home office as a project manager working on closing this project out.

FMI Quarterly: Well, I'm sure it will be great, and our readers appreciate your time. ■

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Branching Out

With the right planning, a branch office can be an excellent way to expand your operation, create a larger footprint, and become a regional player.

By Eric Sanderson

Change in the geographic marketplace is one of the key trends currently impacting the construction industry. Some areas of the country are experiencing economic expansion while others are shrinking. Both changes mean long-term impacts to your company strategy. A unique opportunity coming from the changing marketplace is the ability for companies to expand and open branch offices — in effect, taking advantage of market opportunities.

While geographic expansion can carry significant risks, careful planning and execution can help to ensure a success. This article is the second part of a series examining important considerations for geographic expansions. Part one provided guidance on the external considerations when opening a branch office. In this, part two of the article, we will examine the internal considerations necessary for successful geographic expansion.

MANAGEMENT/LEADERSHIP

The most important decision to be made after the decision to open a branch office is who will lead and manage the new office. Without quality leadership, a new

office is destined for failure. Selection of the right individuals to open and manage the new office can be a difficult process, and careful time and attention should be given to selection.

While each organization is different and the strategy behind opening a branch office can differ greatly, there are some basic characteristics necessary for all branch managers that will help ensure success. The right individual should have an entrepreneurial spirit, assertive approach to obtaining work, commitment to existing systems and processes, and the character to set an example for others to follow. Consider the selection of this person very carefully, as this person must also be willing to relocate and share the risk of the venture. He or she must be willing to be accountable for success and hold others accountable as well. It is not a good idea to assign this responsibility to an existing employee as a way to retain them, find a place for them, or give them a last chance for success. Leading a branch office can be a very motivating and rewarding experience for the right candidate. The decision should be carefully considered by all involved.

> **In the current tight labor market, some project awards are based simply on a contractor's ability to staff a project.**

STAFFING

A new branch office will require people to do the work. In the current tight labor market, some project awards are based simply on a contractor's ability to staff a project. Prior to committing to a new branch office, develop a staffing plan that includes phases to accommodate the projected growth associated with the new office. This will include incremental hiring. Also, consider where the staff will come from.

In general, there are two ways to staff a new office. Either bring staff from an existing location or plan on hiring new employees at the branch. If you intend to bring staff from an existing location, consider the costs of relocation. Hiring at the branch provides an advantage by eliminating the relocation costs, but can also provide your new branch with a more local presence and critical business contacts. Local hiring will not bring home office culture, however. Labor availability in the new market will be a critical driver in developing your staffing plan.

DRIVING ACCOUNTABILITY

Ensuring accountability for performance is a difficult function to manage. On one hand, it is critical to make sure management and labor at the branch level are following documented processes and procedures. This helps to streamline management of the branch and control results. On the other hand, it is equally important to allow enough autonomy for the branch office to operate as an individual location and accommodate the local market needs. In general, both of these needs can be met through a clear and concise performance management process. This may include

setting clear goals for gross profit, overhead, compliance with productivity drivers, and work acquisition, while at the same time allowing the branch to embrace the market and adapt to local conditions. This may also include more frequent performance reviews and regularly scheduled visits by the home office's management.

Reporting and monitoring must be conducted in a structured and logical format. Decide before the office opens when and how progress will be measured. A highly structured and well-defined process will help minimize misperceptions and communication problems. In addition, the reporting and measuring tools used should complement the existing accounting and reporting structure in the main office. The timing and format should reflect the same performance measures used in the main office.

CULTURE MANAGEMENT

Managing the culture of the branch office and maintaining the connection to the company is a critical function. A satellite office that becomes disconnected from the home office can quickly become unsuccessful and costly to maintain. In addition to losing money, a mismanaged satellite can do significant damage to your company image and reputation. A purposeful effort to keep the remote office culturally connected will significantly increase the chance for success. Addressing this may include establishing a regular visit schedule for the branch office staff and management to the home office, and purposeful inclusion in company activities, newsletters, etc. This is not an area that should be overlooked and is not one to be minimized for cost-savings reasons.

FACILITIES

The physical location and layout of your operations may be an important consideration depending on what type of work your company does. For example, if you are a negotiated contractor that offers more on the front-end of a project, you may need space to meet with clients, subs, etc. If you are a hard-bid contractor, this may not be necessary, as the coordination can take place on site. For most contractors, location is not critical. However, if you intend to establish a permanent presence in a market, it is critical that your new office reflects permanence and professionalism. While it may be a smart move to run a branch office out of a job trailer for one project, it is not when the backlog becomes diversified.

BUSINESS STRUCTURE

One of the fundamental issues that must be addressed when opening a branch office involves assessing which internal functions will be managed from the home office, or centralized, and which will be managed at the branch level, or decentralized. This assessment must be done in numerous areas of the business and should reflect an extension of the existing systems and processes. The following functions are discussed below: estimating, accounting, human resources, operations, purchasing, equipment management, marketing and business development, and information technology.

Technology and connectivity will become important questions in how to organize the branch's estimating function.

Estimating

The estimating function is an area where the decision to centralize vs. decentralize will be driven by several factors. The first is the type of estimating process that is being used and the ability to connect to it from remote locations. The second is how the new office will be staffed, and the third is how your current operational structure is organized. In the case of the estimating process used, a central estimating software system and unit-cost database will dictate the need for centralized estimating unless a decision is made to estimate differently from the home office. The ability to have a functional centralized estimating system will also be influenced by the level of access the branch office will have to the central system. Technology and connectivity will become important questions in how to organize the branch's estimating function. For staffing purposes, decentralized estimating will require at least one additional estimator unless, in the case of the operational structure, the roles of project manager and estimator are combined. Generally, it is better to have estimators closer to the projects or at the branch office. However, there are many examples of very successful companies with centralized estimating and decentralized operations. Exhibit 1 outlines specific estimating factors, dividing them between those ideally encouraging decentralizing and those encouraging centralizing.

Exhibit 1

Factors Supporting Estimating Location

De-centralize	Centralize
Bid Solicitation and Award	Unit Cost Database
Pricing	Historical Costs
Project Qualification	Systems Integrity and Upgrades
Quantity Take-off	Pricing Strategy

Accounting

Overall accounting functions are usually best managed as a centralized function. However, some components of accounting may be managed at the branch level,

Exhibit 2

Factors Supporting Accounting Location

De-centralize	Centralize
Cost Tracking	Accounts Payable
Production Reporting	Accounts Receivable
Invoice Coding	Managing and Processing Information
Accounts Receivables	Payroll
	Financial Reporting
	Producing Management Reports

depending on the structure of the business and the purpose of the branch office. For example, cost tracking, production reporting, invoice coding, and even some accounts receivable functions may be done at the branch level while managing information, creating performance reports, payroll, accounts payable, and overall financial reporting are most efficiently conducted in the home office (see Exhibit 2).

Human Resources

Human resources is another function that is best split with some components centralized and others decentralized. Hiring for labor and administrative staff positions should be done at the branch level; however, initial screening of potential candidates for more senior positions could be conducted more efficiently at the corporate level. Performance reviews and compensation decisions may be made at the branch level, but benefits administration should be managed at the corporate level. Some promotions should be made at the branch level with other, more senior, promotions made with strategic consideration at the corporate level. Training and development should be coordinated at the corporate level with delivery and accountability for training conducted at the branch level. (See Exhibit 3.)

Operations

Since the purpose of opening a branch office is operational expansion in the first place, the primary focus should be on the efficient execution of operations. This is generally done by replicating the operational structure of the main office. Most operations functions will be managed as a decentralized function as a matter of necessity.

Purchasing

The purchasing function depends upon the operational structure and processes. If purchasing is usually made by the estimator and the estimating system is centralized, then purchasing should also be centralized. If purchasing is usually made by the project manager, then it will be decentralized.

Equipment Management

As a rule, overall equipment management is best managed from the home office. This allows a company to take advantage of bulk buying power and

Exhibit 3

Factors Supporting Human Resources Location

De-centralize	Centralize
Hiring Labor and Administrative Staff	Screening Candidates
Performance Reviews	Payroll
Compensation Recommendations	Benefits
Labor Promotions	Management Promotions
Training Delivery	Training Coordination

negotiating strength. This also gives an equipment manager the ability to leverage the full fleet, minimize underutilized equipment, and reduce hoarding. Some maintenance can, and probably should be decentralized, as it is inefficient for a home office to manage oil changes and routine lubrication. A clear process of accountability for equipment maintenance must exist to ensure that equipment is adequately cared for.

Exhibit 4

Factors Supporting Marketing and Business Development Location

De-centralize	Centralize
Local Contact Management	Marketing Strategy
Networking	Branding
Community Involvement	Company Literature
Pipeline Management	Customer Surveys
Proposal Detail	Proposal Refinement

Marketing and Business Development

From an overall strategy and branding standpoint, marketing is best managed from the home office. There are, however, some functions that are best managed at the branch office. (See Exhibit 4.) To be successful at business development, an organization needs to have an intimate understanding of their client base, their buying practices, and be able to leverage relationships. It is not practical to do this remotely. Detail contained in proposal development can only come from the branch office. This includes understanding a potential customer's hot buttons, knowing the competitive landscape, and making the technical plan for the work. The home office can assist in refining the proposal, formatting, and ensuring the company's differentiating message is clear, but the detail originates locally.

Information Technology

Connecting a remote office to the main office can prove a daunting task. Yet, in today's climate of IT connectivity and networking, it can be achieved more effectively and with better results than ever before. How much access to your network is necessary? It may also prove useful to invest in the right hardware right away, providing a smooth transition for the new office staff. A lack of investment in this area can result in the remote office feeling just that — remote and unconnected to the main office. As a rule, it is better to maintain IT as a centralized function unless there are specific components that do not require centralization. As in equipment management, efficiencies and buying power are usually attained through centralization. These include telephone and cell phone service, IT support, web-site management, and data security.

Regardless of the reason for opening a branch office, the venture comes with considerable risk. There are many examples of failed attempts. The road to successful growth has many opportunities. However, with the right planning, awareness, and leadership, a branch office can be an excellent way of expanding your operation, creating a larger footprint, and becoming a regional player. ■

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