

## **Leadership Required to Change the Culture of Construction**

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### **Abstract**

Determining how to increase the performance in the construction industry has been a daunting task. Concepts such as lean, continuous improvement, just-in-time, quality control, and supply chain management have been transferred and implemented from the manufacturing sector. New delivery systems have been introduced such as design-build, construction management at risk, indefinite delivery, indefinite quantity, cost plus fixed fee, design-build-operate-maintain, and privately financed and maintained. The profession of construction management has also been introduced. However, there is no documented evidence that performance has increased. The International Council for Research and Innovation in Building and Construction's (CIB) latest effort is to now revalue construction, in attempt to identify the value of construction. The authors propose to utilize concepts from a value added transformation in the manufacturing sector, the transition of General Electric under Jack Welch's leadership, to propose changes which can add value to the construction industry. The authors hypothesize that the construction industry requires the implementation of leadership and performance information concepts in the industry structure.

### **Key Words:**

Leadership, Management, Performance, Value

### **1. Introduction**

The construction industry has had performance issues in the last twenty years (Butler, 2002; CIB, 2003; Egan, 1998; Herbsman et al., 1992). The sources of the problems have included bonding/surety businesses

not functioning as regulators of performance (ENR, 2004), professions of designers and engineers being commoditized (Garrison, 2003), using minimum standards and low price to award projects, low contractor profit margins (Tulacz, 2003), a high contractor turnover rate, the inability to attract quality personnel to the industry (US Department of Labor, 2003), and abundant litigation (Illia, 2003).

The most dominant environment of construction delivery has been price based (Mahtesian, 1994). The price based environment has the following characteristics:

1. Client's representatives minimize risk through management and inspection (US Department of Labor 2003).
2. Awards are made based on low price, motivating contractors to not use their expertise and risk minimization skills (ENR 2004).
3. Contractors are forced to be volume based with lower quality and higher risk.
4. Clients manage and inspect the designer and contractors' work, transferring the risk and liability back to the client (Murray, 2000). With the client inspecting the work, the contractor is being motivated by volume. The quality of work will gravitate to the lowest common denominator.

The overall financial model of construction industry is a volume based model. Construction companies are created by investment funding. The contractors bid projects ten times the size of their assets. The surety companies then insure the contractor's work through a performance bond to the client or owner. When the contractor makes a 1% profit, the investors are actually making a 10% increase of their investment. Therefore, the investors do not mind if the contractor makes a 1% profit of the project bid. However, if a contractor is making only a 1% profit, the contractor's personnel are put under extreme stress to ensure that the profit is maintained. At a 1% profit, any mistakes in scheduling, bidding, unforeseen events, poor coordination, or construction errors can easily erase the profit. To maintain the profit margin, the contractor will attempt to increase its volume and pass the risk to all other parties. The high turnover rate of contractors, the poor performance record, and inability to increase the quality of work validates the concept that although investors are satisfied with a low profit margin, the low profit margin places the contractor personnel and performance (on time, on budget, and meeting expectations of quality) at extreme risk.

Other characteristics of the price/volume based construction industry are:

1. Management and control instead of quality control.
2. No performance information (on time, change order rates, customer satisfaction).
3. A lack of accountability.
4. A lack of efficiency.
5. Potential for collusion, relationships, shared liability, and undeserved trust.

The authors propose that this is an inefficient environment. Even if a participant wanted to improve their performance, it would be difficult due to the industry's complex structure, the sharing of liability, and the structure of no accountability that rewards the lowest priced bidders.

## **1.1 Hypothesis**

The authors hypothesize that if the concepts from value and efficiency transforming cases from the manufacturing sector are analyzed, the same concepts may work in transforming the construction industry into a high performance industry. The transformation of General Electric (GE) by Jack Welch will be used as a case study. The concepts used by GE will be analyzed for compatibility and use in the construction industry.

## **2. Transformation of GE by Jack Welch**

When Welch took control of GE in 1981, the company earned \$1.5 billion from \$25 billion in sales (6% profit), employed 404,000, with products that permeated nearly every part of the economy. GE was the tenth largest and ninth most profitable company in the Fortune 500. From the 2000 annual report, GE earned \$12.7 billion from \$129.9 in sales (9.8% profit, an increase in 3.8% or an increase of over 50%. For shareholders, returns were 34% over 5 years, 29% over 10 years, and 23% over 20 years. Ongoing operating margin, a ratio used to identify business performance was 19%. Historically, GE struggled to reach 10%. Fortune magazine named GE for the fourth straight year the “Most Admired Company in America.” For the 3<sup>rd</sup> time Financial Times listed GE as the “World’s Most Respected Company (Slater, 2000).”

### **2.1 Change Agent, Vision into the Future**

Welch was a change agent. He identified that change was needed in order to be a performing company. “General Electric was already a company with an enviable balance sheet and world wide recognition. Many asked, ‘why change?’ Change because Jack Welch saw GE as a more dynamic company rather than one saddled with 25,000 managers and layers of bureaucracy (management). He saw the benefits of the more agile GE plastics division that he ran in the 1970’s. Welch saw entrepreneurs and thinkers rather than impartial managers and employees (Slater, 2000).” Welch was worried about the decisions made based on relationships and subjectivity instead of what was best for the company. Lesson learned: Relationships and subjectivity are not a part of a performing company.

Jack Welch based his vision for GE on his keen sense of how he saw business changing. In early 1981 “Welch pointed to two dominant trends affecting the business environment: the excessive inflation of the late 1970s, and the new Asian competitive threat (Slater, 2000).” While inflation subsided after the Carter administration’s term, the ascent of foreign competition proved more persistent. Lesson learned: Today’s structure must be based on tomorrow’s environment. Competition was inevitable. There is a need for efficiency.

A Culture change was an offshoot of Welch’s vision, something that he did not purposely intend to change. While certainly not easy to change in a smaller organization, Welch embarked in transforming the mindset and behavior of each employee in a bureaucratic giant, including senior management. Risks are involved in deciding to change the culture to both the organization and for the individuals pressing the issue. The strength and depth of existing culture establishes a resistance to the uncertainties resulting from change. For such a profitable company, skeptics questioned the steps Welch took to change GE. While changes are routinely introduced in all types of organizations, as we shall see, Welch used his relentless and forceful belief in GE’s future to cement changes that he envisioned. The introduction of change that started when he became CEO in 1981 continued to evolve throughout his tenure and become part of a new culture at GE. Welch paid a public relations price, with the “Neutron Jack” label associated with the steps he took. But that was a price he accepted as General Electric transformed itself into one of the most profitable and admired companies. The lesson learned is that a very visionary and strong willed person or group with authority and decision making impact must spearhead the effort. Change will bring resistance. The party who brings change must be able to override resistance to the change through either authority or a process which forces change along with education and learning. In construction, the party that brings change is the progressive client.

Welch also saw a relationship between learning and productivity. Learning will change the way business is completed once new options become available. New ideas should not only come from and be shared within every part of GE, but also from outside GE. The advantage of having strong companies within GE is that successful companies breed good ideas. Sharing those ideas from and to every corner of GE will

increase productivity and profits. The best ideas should be used regardless of where they come from (Slater, 2000). Lessons learned: Use performing concepts from other industries and force continuous improvement.

## **2.2 Minimized Management, Decision Making, Relationships/Subjectivity**

Jack Welch transformed GE from a bureaucratic to a sleeker, more fluid company, which was able to respond and reposition itself quickly within the global economy. Welch presented a clear corporate vision at his first Wall Street analyst presentation. “GE would search out and participate in the real growth industries and insist upon being number one or number two in every business they are in – the number one or number two leanest, lowest-cost, world wide producers of quality goods and services (Welch & Byrne, 2001).” This corporate vision, simplistic in nature, continuously repeated, reached, and changed every GE employee. Welch assumed a relationship between efficiency, performance, and being number one or two. Welch is not leaving the companies up to the subjective decision making of his managers. He minimized decision making. His direction: Measure. If you are not first or second, close down, sell, or become first or second. He put his people at risk. Either they close up and lose their jobs, or become high performing and take the risk of continually performing. Lessons learned: Minimize decision making, measure, and if a contractor or key participant is not the best in performance or efficiency, do not work with them.

### **2.2.1 Accountability**

Minimized management increases worker accountability. Welch’s philosophy is that business is simple and if everyone receives the same information we all generally reach the same conclusions. Good managers push decision making and accountability down. Good managers do less monitoring and supervising but instead establish a clear vision for their departments, give subordinates decision-making authority, and encourage them to take risks. This participatory process taps employee knowledge while improving customer service and company performance (Welch, 2001). Managers should have confidence in their employees. This falls in line with Welch’s view of a sleeker more flexible company by letting employees become involved in decisions. Lessons learned: Minimize management decision making results in accountability and efficiency.

### **2.2.2 Simplicity**

By the late 1980s, other competitors joined Japan in the global competitive circle, Europe, Taiwan, and Korea. Continuing on the path used in the eighties would not be enough to be successful. Jack Welch introduced the “S” Secrets: Speed, Simplicity, and Self-confidence. The bureaucratic organization Welch inherited was dissolving but still evident and that structure slowed decision-making. Welch believed that decisions should be made in minutes, face to face. Going through layers of approvals and reviews consumed too much time, exposed the company to competitive delays, and placed the company at a competitive disadvantage. Simplicity was encouraged in every aspect from drawing fewer moving parts in products, developing clear marketing messages to consumers and industrial customers, and designing manufacturing processes that are easy to understand and implement. The environment created allowed people to trust one another. It positioned change as an opportunity, instead of a threat. Bureaucratic structure plays to the opposite: complexity, layers of approvals, and turf battles (Welch, 2001).

### **2.2.3 Leanness**

Welch believed that smaller companies can react quicker to opportunities and other challenges. By implementing the steps discussed above, Welch felt that GE would have the feel of a smaller company. By completely removing the 2<sup>nd</sup> and 3<sup>rd</sup> layers of management and formulating the work out, employees communicated better face to face without all the memos. Without layers, the leaders in the company, at every level would stand out. Welch liked to compare GE to the corner grocery store where employees knew their customers, their likes and dislikes (Welch, 2001).

### 3. Analysis of Concepts Used by GE to Transform Into an Efficient, High Performance Entity

The Construction Industry Structure (CIS) (Figure 1) describes the construction industry in terms of competition and performance. Quadrant II, the Best Value environment (highest performance, high competition) is the environment that GE transformed into. According to the lessons learned, the construction industry would be required to do the following to make the move from the Price Based environment to the Best Value environment, which by nature is efficient and high performing:

1. Minimize the use of minimum standards, price based awards, and management and inspection of the contractor that results in the lack of accountability of construction contractors, poor performance, and the dilution and sharing of risk.
2. Identify that the clients must be the visionaries for change.
3. The clients must deliver construction by competing contractors based on performance and price.
4. The clients must transfer the risk to the contractors and only consider contractors who can minimize the risk.
5. Clients must minimize all practices which minimize competition based on subjective decision making or relationships.
6. The client must minimize the use of consultants, designers, and engineers to manage construction.
7. The client must force the use of performance information to select the contractor, and make the contractor and all critical participants accountable by forcing them to use performance information.

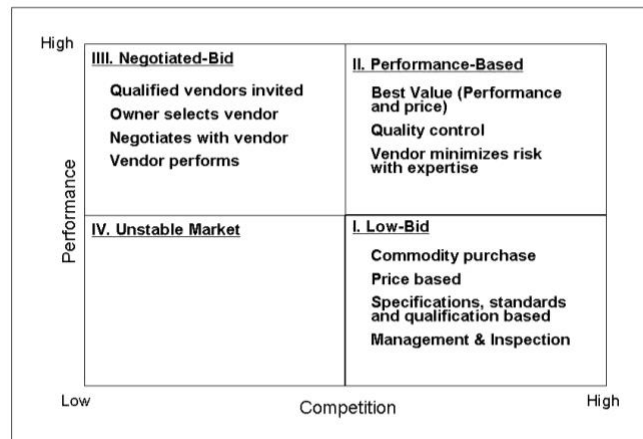


Figure 1: Construction Industry Structure (CIS) (Kashiwagi, 2004)

The Performance Based Studies Research Group (PBSRG) at Arizona State University has been testing and implementing the Performance Information Procurement System (PIPS) for the past ten years (400 tests, \$280M construction) resulting in a 98% performance (on-time, no contractor generated cost change orders, and high customer satisfaction) (Kashiwagi, 2004). The characteristics of PIPS align with all of the above lessons learned from GE and has been very successful when all the lessons learned are implemented. The authors propose that the construction performance problem is first a non-technical business issue, one of passing risk to the contractor and forcing the contractor to minimize risk through quality control.

### 4. Conclusion and Recommendations

The authors propose that the concepts used by Jack Welch to transform GE to a highly efficient and performing company can be used to increase the performance of the construction industry. The lessons learned have been applied and successfully tested 400 times in the last ten years, and the same success factors have aligned. Based on the peer review questions on over 90 refereed conference and journal papers, and resistance from construction professionals representing the clients, the concepts of GE's transformation to high efficiency and performance are not well understood by the construction community. The authors recommend that to successfully validate these concepts on a wider scale, construction researchers and teachers must first be educated. Construction clients and professionals must then be educated. The main thrust of construction researchers must move from a solution of better construction management to minimizing management, minimum standards, and creating a "win-win" environment. The authors propose that if the construction research and education community does not learn and educate clients, professionals, and contractors, construction performance cannot be significantly increased.

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