



## Does Your Firm Have a Lessons Learned Process?

How Your Firm Can Learn from Its Mistakes as Well as Its Successes

By Bruce Burt, P.E., SECB

Despite advances in artificial intelligence and the increased sophistication of modeling software, at least for the time being, the decision-making process at engineering firms remains the domain of people. To err is human, as they say, and the consequences of a mistake can be painful to an engineering firm. How should a firm deal with this inevitability? The first line of defense is effective quality control that involves a robust checking and review process. Avoiding the costly, reputation-damaging, and perhaps even deadly consequences of an error should be the top priority of every engineering firm.

Most firms have a quality control system in place to identify and correct major errors. Still, mistakes of a lesser magnitude happen frequently. Give a recent engineering graduate even a little responsibility and “teachable moments” will result. If your firm is small, it is easy enough to ensure the right folks learn from these teachable moments. However, what if your firm is not small? Even a firm of twenty-five engineers has several projects, and the staff probably are not in tune with the day-to-day activities of their colleagues. Moreover, as firm size increases, institutional knowledge becomes more and more difficult to transmit throughout an organization.

One method for sharing firm knowledge is the adoption of a “lessons-learned” process. *The process need not, and should not, be restricted to identifying and limiting mistakes.* It can be adapted to identifying best practices, sharing “tips and tricks,” capturing new processes or propagating other learning opportunities.

There are several keys to an effective lessons-learned process.

- A firm’s culture must allow for admissions of error in a non-judgmental way. Mistakes happen, and it is in a firm’s best interest to learn from them. Mistake-prone employees will be identified, regardless of a lessons-learned process. However, good employees make mistakes too, and the very best employees will have the self-confidence to promote a culture that allows for self-admission and permits their firm to learn and grow. Some firms might consider an anonymous submission process, but in small and medium-sized firms that may prove



difficult. A firm can present lessons learned sensitively and responsibly, maximizing the benefit of the knowledge gained while minimizing its costs, both monetarily and in employee self-esteem.

- The process must be well known and understood throughout the organization. Firm leaders must strongly advocate its use.
  - It must be simple to initiate. Many lessons learned are lost because there is not a good way to capture them in the moment, with deadlines and other project demands constantly looming. Ideally, initiation of the process should be sticky-note simple. Encapsulating the lessons learned may be involved but creating the “sticky note” in the moment is important for ensuring follow through.
  - It must have lasting benefit. NASA implemented its acclaimed Lessons Learned Information System in 1994. However, in a review performed in 2012, the Office of Inspector General found that over the prior several years very little data was being inputted to the system and virtually no one was still using the database (*Office of Inspector General Report No. IG-12-012, March 6, 2012*).
  - The lessons-learned process should be used for more than just error mitigation. A lessons-learned program can be a vital data entry point into a firm’s knowledge base.
- What comprises an effective lessons-learned process? Here are four essential components:
- 1) **Identify.** The learning opportunity should be recorded on a lessons-learned worksheet (the sticky-note was just an analogy!) as soon as possible after its identification.
  - 2) **Resolve.** Resolution of the issue should be documented. If an error, how was the error resolved, including time and cost involved and any repercussions? If the issue was another form of learning opportunity, perhaps the methodology along

with the time and cost of its development could be outlined.

- 3) **Learn.** The issue should be analyzed to extract the learning opportunity. Learning opportunities can take many forms: a process change, the adoption of a Best Practice, or a firm-wide teachable moment are examples.
- 4) **Disseminate.** Probably the least effective means of dissemination is email, given the massive volume of messages that flash onto our computer screens every day. Taking some time at the beginning of a company meeting might be a good way of introducing the teachable moment and any new resources associated with it.

Finally, the data must be retrievable. The most significant risk in expending the time and energy to develop a lessons-learned process is that the lesson is lost with the passage of time. This is a dilemma all technical firms face regarding knowledge management. Experienced workers move on or retire, new analytical methods emerge within a small subset of a firm, sophisticated software is used in new and creative ways, and new time-saving procedures are tried out on a project to great success or perhaps failure. For the firm to maximize its learning opportunities, it must not only have an effective lessons-learned process but an effective means of dispersing that information throughout the organization.

A lessons-learned process can be a critical piece of a firm’s knowledge management strategy. Executed effectively, it can capture and accelerate knowledge transfer within an organization, a vital capability in today’s rapidly evolving technical environment. ■

Bruce Burt is Vice President of Engineering with Ruby+Associates, Inc., a constructability-focused structural engineering firm located in Bingham Farms, Michigan. He is a member of the CASE Contracts Committee. Bruce can be reached at [bburt@rubyandassociates.com](mailto:bburt@rubyandassociates.com).