Book Review:
Build Lean: Transforming construction using Lean Thinking by Adrian Terry & Stuart Smith

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Presented as a narrative like Goldratt's *The Goal*, *Build Lean: Transforming Construction Using Lean Thinking*[2] traces the lean journey of one company led by Steve, a senior officer. It begins when he is confronted by some dismal results on one project and a significant success, attributed to Lean, on another. Three sections –

- Lean in a Construction Context
- Implementing Lean in a Construction Organization
- Using Lean to Maintain an Edge

frame the story and speak to issues important to every organization adopting Lean Construction.

This is not a book about adopting Lean Construction or applying it on a project. By "Lean" here I mean the principles and practices drawn from Toyota and popularized by Womack & Jones (2003) — Value, Value Stream, Flow, Pull, Perfection. Lean Construction[3] is defined by fundamental concepts, basic practices and a common vocabulary. Together these create a new paradigm for managing work in projects from concept to completion.

While the book may be useful to some, I found it disappointing for a variety of reasons. Even so, I recommend it for designers and contractors trying to establish a lean initiative and to their clients hiring organizations implementing lean principles and practices. More on that along the way.

The path described in *Build Lean* does not match my experience

Taking a construction company lean involves at least two significant shifts. A short story helps explain this. One successful and powerful construction contractor was contemplating going lean. Senior executives explained their success, "We hire the best people and subcontractors we can find, and then we have the systems in place to control them." After some thought, I said that Lean Construction focused

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on improving systems instead of on individual (and specialty contractor) motivation and training, and on learning (improving) rather than control (keeping things the same).
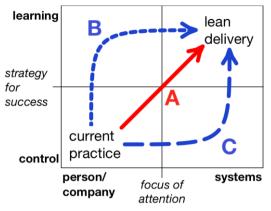

Figure 1: Paths to implementation

Successful transformations in my experience begin with action and study. A pilot project is established to test concepts and practices in action, and a study group, usually made up of a diagonal slice of company leadership including participants from the pilot, learn more about lean and how it has transformed other organizations. Figure 1 illustrates this two-path approach. Efforts to improve systems (C in Figure 1) begin with the implementation of the Last Planner® System (LPS). Pilot projects reveal opportunities hidden in current practice and bring sufficient stability to make visible the deeper issues that must be faced in any larger initiative. Study (B) combined with simultaneous engagement with the real world (C) opens new possibilities. Strategy and new capability develop together. Attempts to follow path (A) from current practice" to "lean delivery" fail as they neither reveal the opportunities for improving system performance nor develop the perspective and capability to take advantage of those opportunities.

As *Build Lean* says, senior management must be engaged and willing to invest their time, money and courage. Successful initiatives require less top-down than suggested in *Build Lean* as the opportunities revealed in early initiatives become the driving force.

So why do I recommend the book? It opens alternate possibilities. The book describes a consistent approach for moving forward (path A in figure 1) even if the path described in the book has never worked in my experience.

Failure to challenge traditional project management

Build Lean does not challenge the current paradigm of project management. Steve's company, a general contractor, manages projects by making and enforcing contracts. Their focus is on controlling people and specialty contractors. Using Lean to improve company administration and traditional project management functions is useful and it misses the big opportunity created by improving the predictability of workflow.

The graphic "Possible progression of improvement efforts" clearly establishes the first improvement priority is "stabilize basic management systems, structure

and organization"[4]. Only then can an organization follow the sequence of improvement described in the illustration. In projects, planning is the first system to bring under control. Lean Construction developed in part because traditional practice does not and indeed, cannot produce predictable workflow. Efforts to reduce waste and increase value are limited and local when workflow predictability is low. Too often, these local improvements degrade project performance because local productivity improvement efforts further degrade the predictability of workflow. The tools necessary to stabilize planning are described in an oblique way in Appendix A3.3 devoted to creating pull in construction. The use of PPC (Percent Plan Complete *or* Percent Promises Complete) is mentioned but the system that gives rise to it is not named. That system[5] reveals all sorts of opportunities for improvement and frees capacity for further improvement by reducing the effort spent coping with the unpredictable.

The lack of punch in the *Build Lean* approach can found in the way Steve describes Lean in a PowerPoint® presentation for the initial meeting called to build support and plan implementation[6]. The first slide "Lean construction is…" applies equally to Lean and current practice, and how people in traditional practice think about improvement. Replacing "Lean construction is" with "Project Management makes this apparent.

Lean construction is…

- **a way of thinking and delivering value, innovation and growth by:**

  - doing more with less –Less human effort, less equipment, less materials, less time and less space

  - aligning effort closer to meet customer value expectations

- **at the heart of lean are flexible, motivated team members continuously solving problems.**

slide 1

Figure 2: Slide 1 (Build Lean p.47)

This describes lean in terms that sound like an advertisement for traditional practice. These sorts of presentations or arguments are never compelling. They don't begin to change what people see in the world. This sort of presentation would only make sense or be compelling to a person with practical experience of working with Lean. I don't particularly disagree with what he says, rather that the case isn't made in the book. My favorite definition of Lean Construction is "A new way to see, understand and act in the world".

People firmly embedded in current practice will claim that Steve's characterization of Lean in the 4th slide, aligns with their current job description.

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[4] *Build Lean,* pp 60 & 94
[5] The Last Planner® System
[6] *Build Lean*, p 47.

> A mindset with a basic belief that value and waste is everywhere and the customer's best interest is served by eliminating waste and focusing on value–continually and forever.
>
> Part of slide 4

Figure 3: extract from Slide 4 (Build Lean p. 47)

To be fair, slides 7 and 8 do identify some basic production management practices and say that smoother workflow will lead to system-wide optimization. And it becomes clear as the book progresses that the focus of lean is on internal processes and applying value stream mapping in a variety of settings.

So why do I recommend this book? Starting a lean initiative as problem solving could work if the leadership kept its focus on optimizing those systems that connect the organizations working on the project. Perhaps it would be a good approach if the workforce and company management are mostly resigned to the idea that 'no change is possible'. Starting small and building credibility could work if the initiative doesn't become "just" another programmatic patch.

Transforming the organization

The path to transformation described in *Build Lean* rests on the development of a strategy, success factors and alignment and dissemination through policy deployment. This is apparent early in the book when Steve is establishing the initial meeting with a cross-section of company leadership. The aims of the meeting are:[7]

"1. "What are the success factors if we move towards Lean thinking? How will we know when we get there?"

"2. How will we manage the transformation? And more importantly within that, how will we align the effort."

The authors rely on many well-known organizational and leadership authors as they lay out a step-by-step approach for the company. This may work, but I have yet to see it in companies adopting Lean Construction. The characters in the book bring forth these ideas in a series of breathless conversations reminding me of a long-ago movie. I can't remember it exactly but a group of teenagers are trying to raise some money and decide to hold a play. They discover an unoccupied and unused barn and decide to renovate it for the play. "Gee kids, we can make this old barn into a swell theater."

Tone aside, I was surprised by the focus in the first question, "How will we know when we get there?" The question presupposes a *there* to be gotten to. If everything can be improved there never will be a there – though there may be identifiable points along the road – *target conditions* in Rother's vocabulary (2010).

I was surprised at the extent to which the book advocates success factors and Key Performance Indicators (KPI). The book frequently quotes John Seddon, the author of one my favorite articles, "Watch out for the toolheads" (2007) and a firm opponent of KPI *results* measures. Advocates of Lean Construction manage by

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[7] *Build Lean*, p 53.

process not outcomes. Again, I am unaware of any company using KPI's to drive their implementation.

The approach described in the last half of the book does not align with what I have seen happen when companies adopt Lean Construction. I certainly agree with the authors that senior management must be active, involved leaders with a long-term perspective. By involved, I mean elbow deep in various initiatives instead of *managing by walking around*. And I agree that a significant effort is required to build expertise at all levels able to maintain continuous focus on learning. All in, the approach to transformation described in the book is much more a top-down organizational development approach than I expected or would support. I would reconsider if a detailed case study were available.

> *So why do I recommend this book.* The refrain "You can't improve what you can't measure"[8] opened a long slow argument I've been having with myself. Recalling that Deming said "the most important figures that one needs for management are unknown or unknowable …, but successful management must nevertheless take account of them" (1985,121) I have reconsidered KPIs. Perhaps they could be understood as a series of requests from the organization rather than performance metrics. It would be interesting to try and figure out who was making these requests and who should take action. I suppose KPIs can create discussion and concentrate the mind but I get lost when they say fuzzy things like "There is a formal commitment to…." or "The role of the Lean Champion is fully understood…"

> Having said that, none of the successful transformations queried for this review used KPI, rather they all used direct process measures of system performance most frequently beginning with the Percent Plan Complete (PPC) performance of the planning system.

Other issues

Steve takes notes at each juncture to summarize his understanding and the action required. This is very helpful and keeps primary issues in focus. Unfortunately, the notes are difficult to read because they are set in a quad ruled grey frame.

I was pleased at first to see that the text is supported by extensive footnotes. Unfortunately, the footnotes only identify the source but not the page. Lacking guidance, the reader is unlikely to find the footnotes much immediate use. The numbering in chapter 5 is a mess. A careful check should be done before next printing. One chapter has two sources numbered 8. While many of the references point to sources in the Lean Construction Community, the book itself never explains or applies the principles and practices developed over the last 19 years.

> *So why do I recommend the book?* The footnotes and references are rich sources of ideas for managing a transformation. Stepping back, this is a serious book written by serious and experienced people. It presents an internally consistent approach to taking a company Lean. The title rightly suggests that Lean will transform the industry. The book makes

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8   W Edwards Deming described this belief as a deadly disease of management.   He maintained that many important factors are "unknown and unknowable". (Deming 1985, 121)

plain that taking a company lean is a significant endeavour and it raises important issues to consider. While I have deep reservations about the approach described, it may be effective. I suggest you read the book and then search out another company further down the path, visit them and listen to their leaders.

References

Goldratt, Eliyahu M. & Jeff Cox (1993) *The Goal: A Process of Ongoing Improvement* 2nd Edn Gower

Deming, W Edwards (1985) *Out of the Crisis* MIT Press

Rother, Mike (2010) *Toyota Kata: Managing People for Improvement, Adaptiveness and Superior Results* McGraw Hill

Seddon, John (2007) *Watch out for the toolheads* download for free from http://www.systemsthinking.co.uk/6-23.asp

Womack, Jim and Dan Jones (2003) *Lean Thinking: Banish Waste and Create Wealth in Your Corporation* (2 edn) Free Press