

# EDITORS' NOTE

Tariq Abdelhamid and Alan Mossman

Welcome to the inaugural issue of the *Lean Construction Journal* (LCJ). This journal will continue the revolution that began in 1992 with the thoughts and writings of Lauri Koskela. This journal is not inspired by a desire to create a cultish and guru-laden society. Rather, LCJ is committed to widening the appeal, readership, understanding and implementation of Lean Construction principles and concepts by providing a venue to share results of applied and basic research.

To our first time readers, the term '*Lean Construction*' may be alien or even an oxymoron. Before defining what it means, we must begin from the common ground of historic<sup>1</sup> *Construction Management*.

As many readers know, Construction Management as a field of applied science has escaped canonical definition. One typical definition is that of Clough and Sears (1994) "*The judicious allocation of resources to complete a project at budget, on time, and at desired quality*". This captures the essence of what inspires, drives and guides both practice and research in the Construction Management field.

The product-focus of historic Construction Management has created a slavish preoccupation with optimizing the transformation phase of an activity (the phase wherein shape, function, or form is changed). At the same time it overlooks:

- critical spatial and temporal coordination with other downstream and on-going production activities
- whether the project is extending the capabilities of the owner/end user.

The failure and inability of the conceptual models of historic Construction Management to deliver on the mantra of 'on-time, at budget, and at desired quality' or Quality, Cost and Delivery (QCD) is evident to practitioners and academics alike. Empirical data and project experience indicate that construction projects are low efficiency systems beset by endemic quality problems and rising litigation (Koskela 2000). Analysis of project schedule failures also indicated that "normally only about 50% of the tasks on weekly work plans are completed by the end of the plan week" and that most of the problems were possible to mitigate by contractors through an "active management of variability, starting with the structuring of the project (temporary production system) and continuing through its operation and improvement." (Ballard and Howell 2003).

Koskela's seminal 1992 report argued that the mismatch between the paradigms advanced by historic Construction Management and observed reality underscored the lack of robustness in the existing constructs of Construction Management and signaled the need for a theory of production in construction. As a result of an outward-oriented search into the production paradigms that dominated and competed in the

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<sup>1</sup> We have deliberately chosen to use the word historic here following the usage in the Strategic Forum for Construction's Supply Chain Toolkit which you will find at <http://www.strategicforum.org.uk/>. The Maturity Assessment Grid uses historic as we intend it here. You will find a copy at [http://www.strategicforum.org.uk/sfctoolkit2/help/maturity\\_model.html](http://www.strategicforum.org.uk/sfctoolkit2/help/maturity_model.html)

manufacturing industries, namely, craft, mass and lean production paradigms, and using the ideal production system embodied in the Toyota Production System, Koskela conceived a more overarching production management paradigm for project-based production systems. Koskela presented the TFV theory of production wherein production was conceptualized in three complementary ways, namely, as a Transformation (T) of raw materials into standing structures, as a Flow (F) of the raw material and information through various production processes, and as Value generation and creation for owners through the elimination of value loss (realized outcome versus best possible) by ensuring customer needs and wants are captured and challenged.

This tripartite view of production has led to the birth of Lean Construction as a practice and discipline that subsumes the transformation-dominated historic construction management. A profound implication of the TFV concept of production is that it changes the definition of Construction Management to the *judicious allocation of resources to transform raw materials into standing structures while smoothing the flow of material and information – and maximizing value to the customer*. For example, the Last Planner System® developed by Ballard and Howell (1994), is a production planning and control system that requires all team members to collaborate actively in the process and create higher production unit performance and reliable work flow (hand-offs) between production units (see Ballard 2000 for more details).

Unlike historic product-focused Construction Management, Lean Construction considers construction as both a product and process. This dual focus means that Lean Construction is more than a production-based theory. And it is more than production and process too - it strives to concurrently improve the way we design and build structures for end-users and builders.

Koskela and Howell (2002) presented a comprehensive review of the shortcomings of existing *project management* (PM) theory - specifically as related to the planning, execution, and control paradigms in project-based production systems. They suggested that planning-as-organizing, the action/language perspective, and the scientific experimentation model were critically needed elements to make Project Management theory more robust and contemporaneous.

Bertelsen (2003a and 2003b), a seasoned construction manager with over 40 years experience, suggested that construction should be modeled using chaos and complex systems theory and that construction could and should be understood in three complimentary ways

- as a project-based production process,
- as an industry that provides autonomous agents, and
- as a social system.

All these conceptualizations, the TFV theory, the new PM theory, and the construction complexity view, provide a solid intellectual foundation for Lean Construction in both research and practice.

While Lean Construction is identical to Lean Production in spirit, it was conceived and is practiced differently. Lean Construction is more than a mere imposition of the Toyota Production System onto construction. It is more than just the *simple common sense* that some have suggested (though we are pleased to hear it so labeled); it is a

paradigm challenging the incumbent one presented by historic Construction Management.

As with most paradigms (Kuhn 1962) it is taking a while for Lean construction to replace the dominant historic paradigms in Construction Management and Project Management. In UK where central government has been actively involved for the last 10 years in trying to change the dominant paradigm recent research in the public sector shows that only around 2% of local government construction procurement is done collaboratively and without tendering.

Given the challenges facing the construction industry we can only conclude that common sense is rather uncommon. We want this Journal to become the primary forum for the discussion of uncommon sense in relation to construction management and project management.

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