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RISE OF THE MACHINES

Considering the role of
technology in lean.

Organisations and interviews featured
in this edition include:

Hewlett-Packard, Poppendieck, Edinburgh Napier
University, Lean IT Strategies, Infor, Mark Graban,
Bill Bellows, Jelena Pantic.

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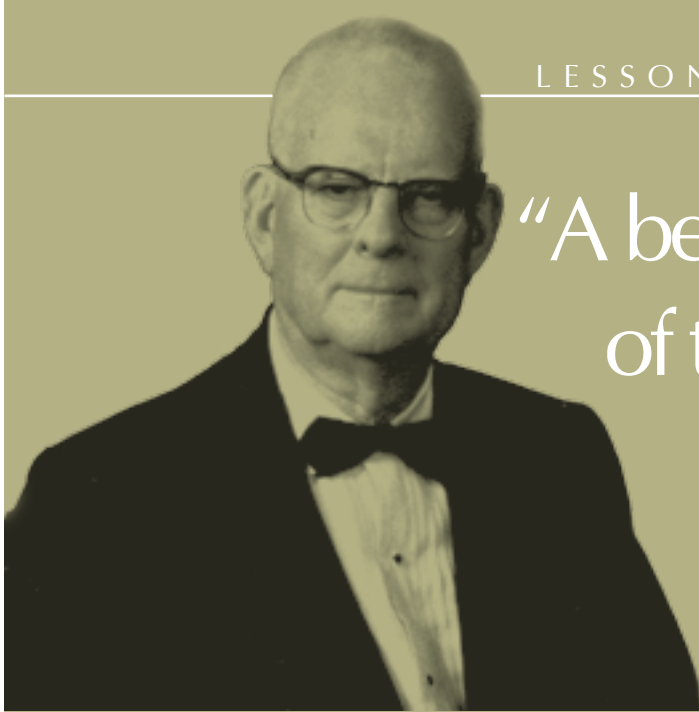
Can we transform IT through lean management?
Christian Verstraete, chief technologist for Hewlett-
Packard, explores how the amalgamation of varying
technology is changing business interactions and how
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The scaling dilemma: Writer, lecturer and
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Poppendieck,
examines ways of
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High tech-lean tech: Edinburgh
Napier University's Steve Yorkstone analyses the appeal
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“A better description
of the world is the
Taguchi loss
function”

W. EDWARDS DEMING,
OUT OF THE CRISIS (1986)

On Baseball, Bowling Balls, and Teamwork

READ ABOUT:

- The contrast between employees who minimally meet requirements and those who focus on target values
- The value of focusing on target values
- The strength in actively managing team interdependencies for profit



Back by popular demand is another instalment of LMJ's Lessons from Deming. This month *Bill Bellows* examines teamwork in a lean system.

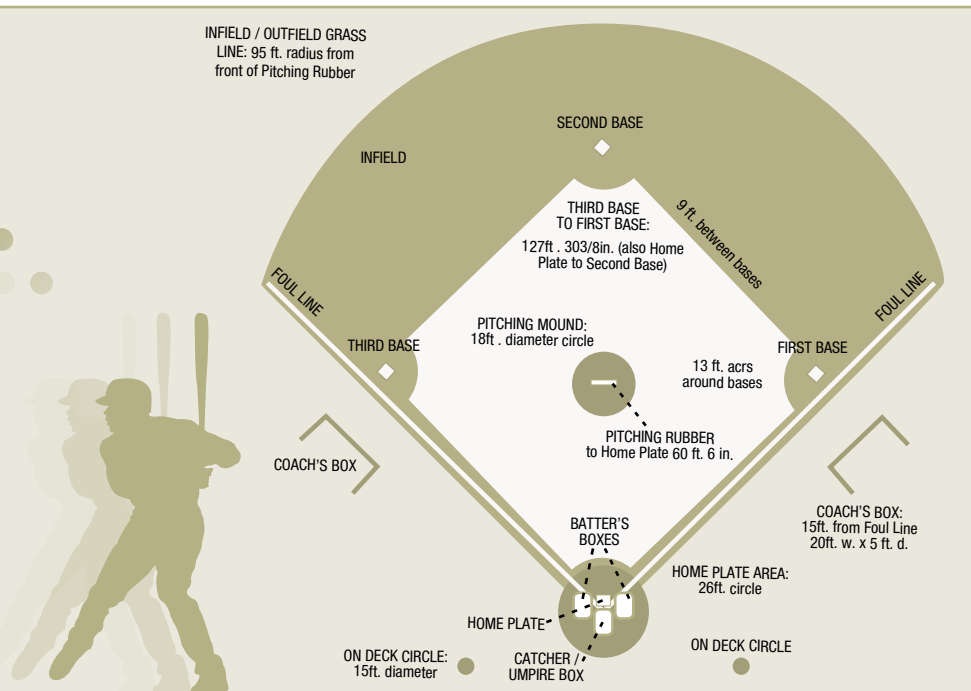
As with many success stories, the American pastime of baseball has rich parentage, with a legacy that extends well beyond the original thirteen colonies to Britain. Often called a “game of inches”, baseball is a team sport, but lacking the constant motion of players in a football match (soccer in the U.S.).

Consider the design of the playing field, with foul lines emanating from the home plate, to the left, past third base, all the way to the outfield fence and to the right, past first base, to the right field fence. In the foreground lie the four 90-degree corners of a diamond, from home plate to first base to second base, on to third base, and back to home plate.

Nine defensive players are distributed around the diamond and across the outfield. None of their jobs are defined

by outlines that restrict their roles in the way that a goalkeeper in football can use his or her hands only within the confines of the penalty area. As a result, the defensive players in baseball are highly interdependent in their field positioning, much the same as players on both teams in a football match.

What if, in contrast, baseball players were each constrained in their field positions by solid boundaries, painted on the field? Instead of players routinely adjusting their roles and positions for the motions of their teammates, with the catcher running to assist the first baseman, each player remained in their pre-defined zones. Might this situation begin to approximate the operation of an organisation with inflexible job descriptions, wherein employees are left to believe their respective roles are independent?



Such rigidity is a classic attribute of what Dr Deming termed “the prevailing style of management”, with each co-worker seeking to conform to a pre-defined set of requirements for their role, presumably independent of the performance of others within the organisation. In the absence of interdependence, the concept of a team sport might instead be known as a group sport, with a common aim superseded by individual aims.

Upon closer examination of the interdependence of teammates, consider the role of the pitcher, who throws the three-inch diameter baseball to a revolving order of batters, each trying to hit the ball with a cylindrical wooden bat to an open position on the field. Behind the batter is a crouching teammate of the pitcher, the catcher, who uses his or her padded glove to create a well-defined target for the pitcher.

Behind the catcher is an umpire, who leans toward the catcher to judge each pitch as a ball or a strike, much as an inspector pronounces the quality of a part or task as good (strike) or bad (ball). The requirement for a strike is for the baseball to be thrown within the zone of

“Conformance to Specifications, Zero Defects, Six Sigma Quality, and other specification-based nostrums, all miss the point”

a prism, defined on the top and bottom by the pentagonal shape of the home plate, on the bottom by the height of the batter’s knee caps, and on the top by the midpoint between the batter’s shoulders and belt.

While a baseball thrown anywhere in the strike zone has the potential to be called good (a strike), the challenge to the pitcher and his or her catcher, performing interdependently, is to use the speed of the baseball, its location within the strike zone and the amount of spin of the baseball, to increase the batter’s level of difficulty in hitting the ball either past or in between the pitcher and his teammates. Both the pitcher and catcher know that meeting the requirements for a strike is not enough.

In the spirit of contextual excellence, they study each batter, learn their respective strengths and weaknesses and determine target values for speed, location and spin. Much the same can be said for a striker in a football match who must precisely position both a pass to a teammate or a shot on goal. Passing the ball to within a requirement of a one-yard radius of a teammate, without the context of the teammate’s direction on the field, or ball handling skills, is either a characteristic of the prevailing style of management or evidence of the limits of the skills of the players.

Let’s now move from baseballs to bowling balls and what happened many years ago after an evening of bowling with my wife, our then twelve year old son and his elder sister. Upon returning home and walking down the hallway, I found my wife’s bowling ball in the middle of the doorway to our master bedroom. When I asked my wife about the ball’s curious location, she directed me to our son for his explanation. Explaining the ball’s position, he replied:

“Mom said to put the ball in the bedroom.”

Surely, his job performance for this task would be recorded as good and defect-free by our household’s quality inspector, if the only focus was on meeting requirements. The same could be said for our daughter if we had asked her to be in bed between 9pm and 11pm



and she had complied with a 10:59pm performance or met her teacher's requirements of a ten to fifteen page essay with a 10-page product.

Consider as well the reluctant apology from one sibling to another "sor-ry", which ever so slightly meets requirements. Leave it to the recipient to appreciate the difference between a borderline apology and one which is heartfelt. On paper, both replies are judged to be "acceptable" if one was to focus solely on delivering to a set of requirements and ignore the downstream consequences.

One need not look far to find examples of the contrast between providers (at work, at home, or on a field of play) whose components "minimally meet requirements" and those with the practice of focusing on target values that enable a more efficient effort when their components are integrated with other components.

Replace the term component with ball, part, task, student, patient, or citizen, to realise that the implications of Dr Deming's ideas are far greater than how to improve manufacturing operations. Yet, any system that narrowly defines quality as conformance to specifications is unable to detect or discern the difference between providers who leave the bowling ball in the doorway and those who know how and when to deliver components with a focus on targeted values for physical characteristic.

In his Four-Day Seminars, Dr Deming credited Genichi Taguchi with introducing him to the value of focusing

on target values for characteristics such as those listed above, based on a novel concept of quality, which Taguchi defined as "the minimum of loss imparted to the society by a product after its shipment to a customer". Dr Taguchi was honoured in 1960 by the Japanese Union of Scientists and Engineers (JUSE) with a Deming Prize in literature for his proposal to define quality in terms of minimising economic losses elsewhere in a larger system.

So impressed was Dr Deming after learning of this expansive economic model of teamwork that he described it in his 1986 book, *Out of the Crisis*, as a better description of the world. He also recognised that when interdependencies are strong they should be managed actively for profits and victories rather than passively for losses. Awareness of the focus on loss after its shipment to a customer can provide investment opportunities for managing the interdependence between the provider and customer of each component when the benefits outweigh the efforts incurred. In situations where the benefits do not exceed the expense, the traditional quality system of conformance to specifications is well-suited to the task.

As a pointed reminder of the opportunities for engaging in teamwork, with a mindful appreciation of interdependencies, Dr Deming borrowed a quotation from Donald Wheeler to use as the closing sentence in his last book, *The New Economics* (1993):

"Conformance to Specifications, Zero Defects, Six Sigma Quality, and other specification-based nostrums, all miss the point."

Could it be panacea (nostrum) management practices have been perpetuated in a way that co-workers miss the point of teamwork and continue to perceive their tasks as independent? If so, away from baseball diamonds and football pitches, teamwork is an eight-letter word that begins with "t", with each participant doing their best to meet his or her requirements. Dr Deming used his boundless energy to open our minds to imagine a better description of the world, in which teammates and teamwork exist in all aspects of our lives.

