

# Manage For Lean Success: The Scorecard Is Not Enough!

**Kirk D. Zylstra**  
**Consulting Partner**  
**Deloitte & Touche**  
**Seattle, WA, USA**

## **Abstract**

Gaining support for Lean cuts across the entire hierarchy of HOW we manage. We need to enable new management processes and capabilities. The common perception is 'what gets measured get done' will enable new ways to manage. However, we are banking a lot on individual managers KNOWING how to change behaviors on the sole fact that a performance measure has changed. Experience tells us that it is not so simple to dramatically change behaviors, because people may not believe the importance of new measures, executives may not reinforce the new measures and different managers may respond differently to the same new measures.

All the while, the realities of the business may encroach on the changing scorecard. For example, we must still be able to answer the CFO's inevitable question about absorption or the CEO's concern with 'making the quarter'. This presentation provides ideas for changing the WAY we manage to enable cross-functional measures that support a transformation to the improved production flow that Lean promotes.

## **1. Introduction**

Let's face it: once we are into the middle of Lean Manufacturing we all agree that performance measures challenge the transformation. However, measures are frequently seen only as score cards that need to change. As Lean improves flow and streamlines, we hit obstacles in the form of cost and efficiency performance measures and then say they need to be changed. At that point, we often say, 'what gets measured gets done', so just change the measures.

Section 2, The Performance Measure Obstacle, addresses why we need to throw out the efficiency and production output measures. A novel idea, but tough to get past middle and senior levels, because management does not know WHAT to do differently. After managing in a certain way for 10 to 30 years, managers may struggle with throughput based measures, when they know how much costs have ultimately been the driving force in the business.

Management processes are the missing element in the performance measurement transformation, which are introduced in Section 3, The Lean Manager. A manager used to tracking inventory to avoid surprises, will need to focus on cycle time. Others focusing on efficiency must transition to supporting continuous improvement and quality. This is a tough transition away from proven actions and results.

The conclusion addresses concerns that financial forecasts are not related to Lean metrics. Lean provides more predictable operating results, but not necessarily from a 'traditional' financial viewpoint. Lean measures must bridge the gap to financial results which cannot be corrupted by accounting methods and traditional forecasting.

This presentation tackles the PROCESSES in managing the business. As managers move away from traditional metrics, we must give them new ways to manage and understand how actions drive expected results.

## **2. The Performance Measure Obstacle**

At what point do you encounter the performance measure issue? In many cases, we jump right into changing the shop floor to reduce waste and improve flow and at some point experience push back due to labor efficiency, unit cost, or absorption measures. How do we see these conflicts? Take the example of Lean improvement in Figure 1.

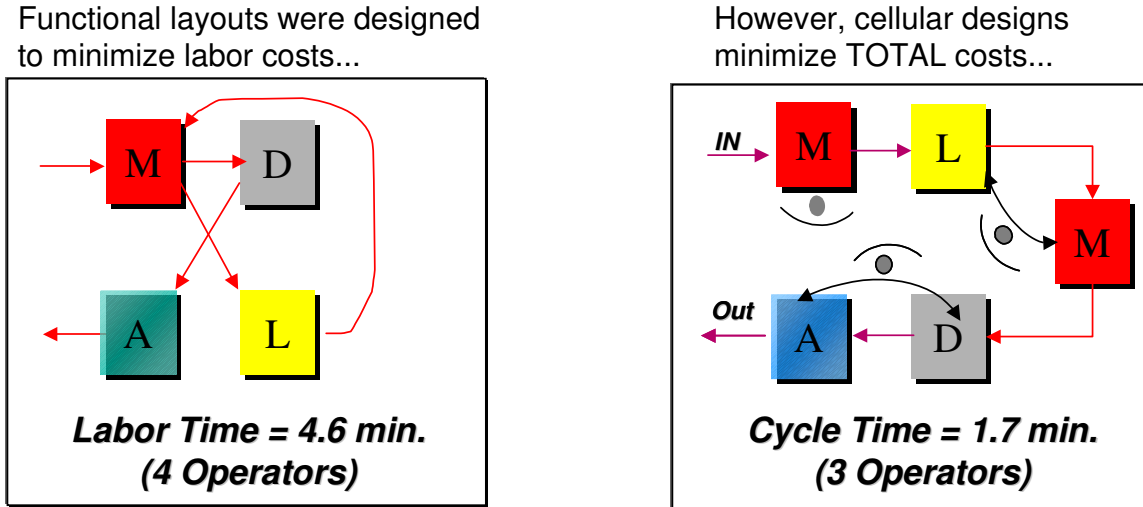


Figure 1. Cells Versus Functional Flow

Is the cell design a better deal for the company? Let's compare the 2 results. Figure 2 provides some summary measures across the before and after designs from Figure 1.

Measure	Functional Layout	Lean Cell Design
Labor cost	4.6 minutes per part	1.7 * 3 = 5.1 minutes per part
Cycle time	Weeks	Minutes
WIP Inventory	High	Near zero
Standard cost	Low	Medium

Figure 2. Cost Comparison

Some questions naturally arising for this comparison are the surprising increase in standard cost and labor. This does not happen in all cases, but this example stresses the point: in the short term (less than a full accounting year) traditional cost and efficiency measures 'ignore' administrative, floor space and inventory considerations thereby stressing 'problems' with labor and efficiency despite TOTAL cost being reduced. With Lean, we strive to reduce the major sources of waste, which typically are inventory, movement, space and quality that can greatly outweigh minor increases in direct labor. Figure 3 has example Lean results, which highlights that labor was not even an area of focus for this client. In fact, direct labor is frequently a small portion of cost, yet it can be a big focus for management's attention. Management's focus on labor may be attributed to the view that labor is a VARIABLE cost. This is a view we should return to as the topic of resistance is discussed.

Measure	March	May	% Reduction
● WIP Inventory (pieces)	9,000	1,000	88%
● Throughput Time (hours)	73	0.5	99.7%
● Floorspace (square feet)	2,600	1,800	31%
● Distance Traveled (feet)	243	106	56%
● Changeover Time (minutes)	150	16	89%
● First-Run Quality Failures (%)	10.1	2.9	71%

Figure 3. Actual Lean Manufacturing Results

So, the easy answer is just eliminate the labor and cost associated measures, right? Well, sounds easy, until you start asking who uses the information and for what purpose, like financial reporting. Now, you start suggesting to exclude it from operations performance reporting and use it just for financial reporting. Where is the rub now? Clearly it has created a situation where management has one set of data used for monthly/quarterly financial reporting and separate data to manage the day-to-day business: only problem is they don't relate! How can management use new measures to monitor performance that does not help 'predict' and understand financial results? You know executives will be grilled for any poor financials and the CFO put under pressure to explain and develop corrective action plans. This creates a rather unstable situation, but not the only concern over measures.

Reality strikes when you really ask whether these are the only measures creating conflict across the organization. In most cases, each function is working to their own objectives and goals, which conflict with other functional goals. The usual approach to these conflicts is compromise. A good example can be the cost of freight for a distribution operation versus their responsibility to ship orders. If an order was produced late, should they send it express delivery even though it is bad for their measure? We view these 'conflicts' as healthy, but the reality is dilution of the measure and efforts to cover our 6 O'clock when the natural questions come up about why our costs are high!

It is not a question of whether we are performing to our best, we need to KNOW that comprise is holding us back. An example is the supply chain conflicting performance measures as show in Figure 4. We have known about these conflicting measures for years, but always strived to strike the right 'balance' or compromise. Well, enough! We know our people work to 'do the right thing' for customer service in spite of cost measures, so WHY do we continue to force well intentioned managers to choose and possibly suffer on THEIR key measures? Or said another way, why do we focus on cost measures (efficiency) the first part of the month/quarter and then throughput (sales/shipments) the last few days or weeks?

ORGANIZATION	OBJECTIVES	CUSTOMER SERVICE	INVENTORY INVESTMENT	MANUFACTURING COSTS	DISTRIBUTION COSTS
Sales/Marketing	<ul style="list-style-type: none"> <li>■ Small Quantities</li> <li>■ Short Lead Times</li> <li>■ Variety/Flexibility</li> </ul>	↑	↑	↑	↑
Manufacturing	<ul style="list-style-type: none"> <li>■ Long Runs</li> <li>■ Long Lead Times</li> <li>■ Stable Schedule</li> </ul>	↓	↑	↓	↑
Distribution	<ul style="list-style-type: none"> <li>■ Full Truck Loads</li> <li>■ Large Orders</li> <li>■ Rigid Schedules</li> </ul>	↓	↑	↑	↓
Finance	<ul style="list-style-type: none"> <li>■ Low Inventory</li> <li>■ Low Capital Investment</li> </ul>	↓	↓	↑	↑
Finance	<ul style="list-style-type: none"> <li>■ Low Operating Costs</li> </ul>	↓	↑	↓	↓
<b>DESIRED RESULTS</b>		↑	↓	↓	↓

Figure 4. Traditional Performance Measures Across The Supply Chain

Performance measures on the shop floor must be aligned with a Lean initiative, but you cannot stop there. Most organizations have these conflicting measures that basically assume shipping customer orders are the main measure and everything else is secondary. This rationale ends up with the same obstacles to improving flow: costs as measures in an individual department are paramount unless a clear customer service issue is at stake.

### 3. The Lean Manager

In our Lean world, we work hard to reduce all waste and obstacles to flow. Since this is our objective, we must have performance measures and managerial processes focused on waste. But why don't the current measures that seem so cost oriented accomplish this? In our gut we know this, but struggle with specific solutions. The management processes necessary to resolve these conflicts and instill new measures is exactly what we need. But, let's first retrace the 5 steps of a manager attempting these changes to live through HOW a manager should cause change (a key managerial process).

### 3.1 Why Change?

For any given year, we start with our fixed costs, allocations, costs per unit and unit volumes to develop departmental budgets. Departmental inputs to these calculations are few: expected efficiency, scrap/yield rates and discretionary spending. This budget process may start as early as August or September for the following calendar year (for those companies on a calendar year rather than a fiscal year reporting basis). Each department must rely upon the production forecasts and product mix forecasts to determine the single largest input to the cost per unit (standard cost) equation: the denominator (production volume). Additionally, the departments are now planning production for the ENTIRE YEAR based on these forecasts to determine the optimal production sequences to maximize setup and yields rates which helps to determine planned efficiencies. This budgeting process can be time consuming and leads to many assumptions for each part of the resulting plans: "my plan was based on" ... (insert your particular production level, product mix, etc. assumptions).

This may appear obvious, but we probably do not really know what our customers and competitors will do next year. So we developed plans that we know MUST change. So, each month we receive reports telling us how we performed against various FIXED metrics such as labor efficiency, overhead absorption and production. The position this put our typical production manager in can be summed up in Figure 5.

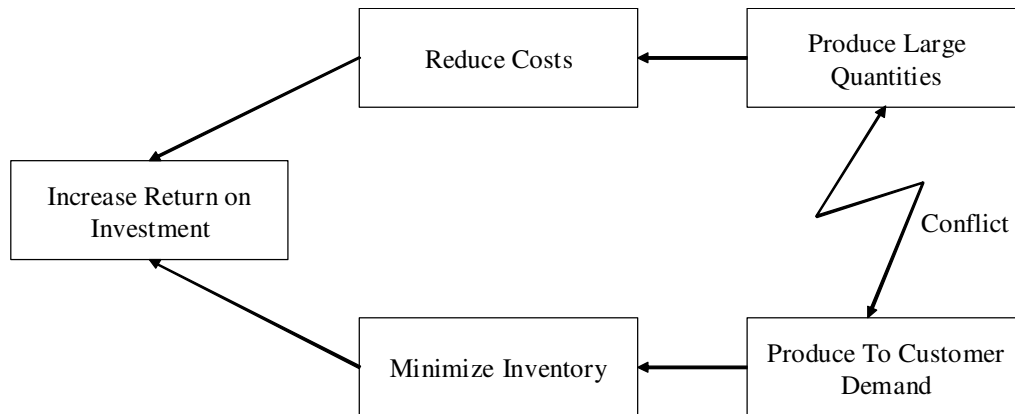


Figure 5. Costs versus Customers Conflict

The purpose of showing this as a conflict is to highlight that our managers have different directives focused on the same objectives: to manage well. Since our budgets remain fixed and measured ALL year, current market realities seem to be amplified as the year progresses. The unfortunate thing is that inventory costs are not explicitly in the typical cost per unit equation except as a part of overall overhead or the reason particular gross margin levels are required to achieve profit targets.

### 3.2 What To Change?

As management strives to maximize production levels to both reduce costs and achieve target output levels there come times to 'decide' what to make in anticipation of customer demand. We know that the counter balancing measure of inventory levels from Figure 5 constraints the total output from becoming too high. Even with great sensitivity to inventory, the tendency is to increase 'orders' to fill production to 100% capacity. Figure 6 displays a typical profile of

firm customer orders over the few periods, which do not fill the expected production output levels from the annual budget.

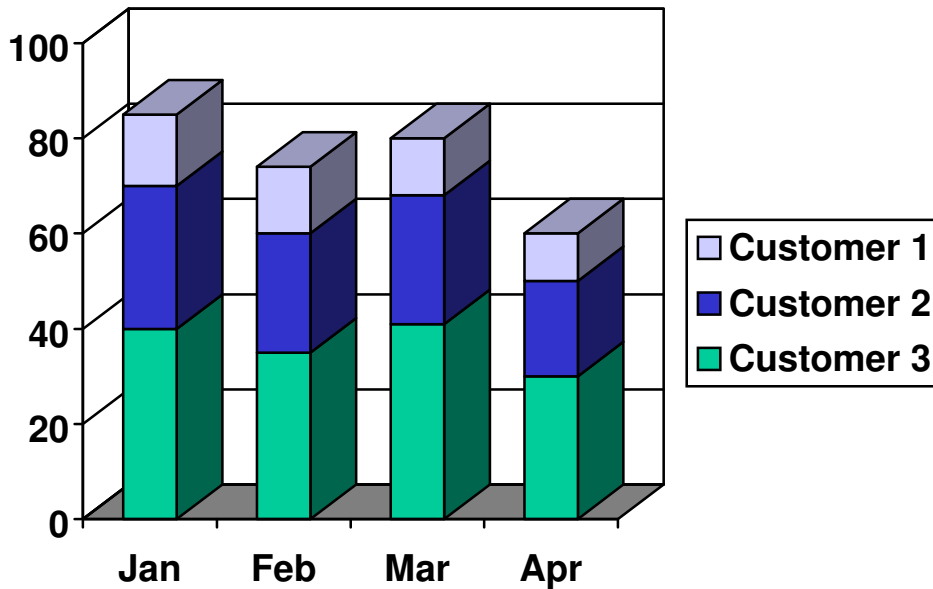


Figure 6. Customer Orders As A Percent Of Budgeted Output

There are many ways to fill the capacity shortfall, depending upon production environment, product types and competitive landscape. Examples of capacity filling approaches may include:

- Increasing production runs required for customer orders (make more than the customer ordered)
- Create internal orders for 'like' products to save setups (especially when campaigning production)
- Pull ahead future customer orders
- Make product for stock or distribution
- Seek early release of designs (engineer or make to order products)

In most cases, we justify these actions as saving money (reducing costs). Even with the full consent and buy in of Sales, these methods are counter to Lean Manufacturing thinking; however, in most companies inventories are viewed as a lesser evil than cost metrics. Unfortunately, many companies eventually find that we have put Sales in the tough position of selling inventory that the market does not need! Figure 7 is an example of such a case where inventory investments to gain efficiencies did not compare well with products' profitability!

	Sales	Inventory	Weeks	Margin
Product 1	9.0	2.0	10.7	\$0.16
Product 2	1.6	0.32	9.2	\$1.66
Product 3	6.0	1.5	11.3	\$0.53
Product 4	5.4	1.39	12.5	(\$0.89)
Product 5	3.2	0.65	9.7	\$1.28
Product 6	10.4	3.4	37.0	(\$0.11)
Product 7	9.2	2.8	17.0	\$0.07
Product 8	5.6	1.4	7.3	\$0.02

Figure 7. Inventories And Margin

Now the debate begins: was margin squeezed due to large inventories that were disposed at fire sale prices or are we making inventories of unprofitable products? This may be a difficult question to answer and may in fact be the wrong question to address.

### 3.3 What To Change To?

How do we address the root problem? As we saw in the inventory situation, compromises between producing to inventory to save costs may come back to haunt us in other areas, such as Sales. So if we change metrics to reinforce the importance of inventory over costs, how do we keep the cost aspects of profitability in check? We must first agree on the underlying problems and then decide the appropriate measures to change to.

Let's go back to see if there are any other conflicts on the shop floor. As we work with Lean, we initiate continuous improvement programs and involve our people to bring about the changes. Lean's mantra is to have those closest to an operation work to improve it, but if improvement results in lower labor requirements (direct or indirect), then what incentive do they have to create the change? But our metrics continue to push us to minimize staffing levels as shown in Figure 8, in conflict with Lean continuous improvement.

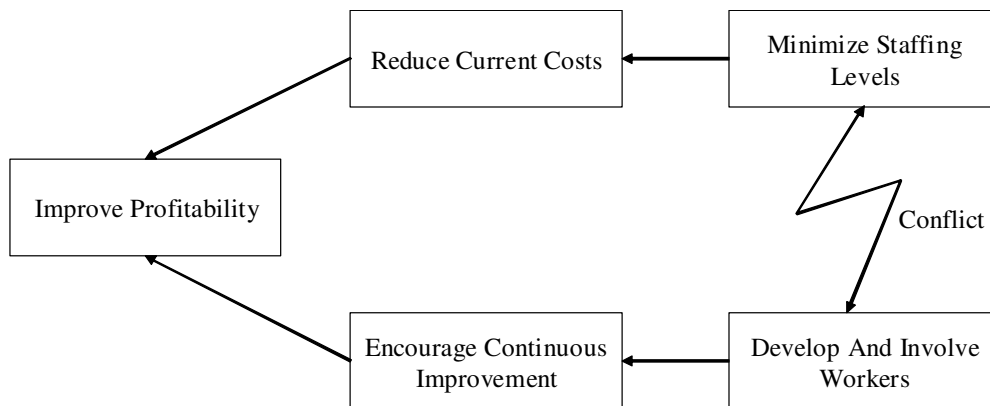


Figure 8. People And Continuous Improvement

We naturally recognized this conundrum and many companies instituted no layoffs policies in order to retain the support and enthusiasm of our people for Lean. But did we clearly identify why the conflict exists and gain acceptance of the drivers?

Maybe the issue is to identify the inherent CONFLICTS in the management processes and seek alignment of all managers on common objectives? Each time we encounter conflict, it seems to redirect the 'problem' to another area. We seek answers which maximize the entire company and align all managers to common purposes. Going back to Figure 4, the measures must align functions rather create higher walls.

### 3.4 How To Cause The Change

How do we align our managers around common metrics without conflicts? We now recognize that conflicts are counterproductive, but do not have a PROCESS to create aligned measures. We need an approach to identify and resolve conflict and to describe HOW we plan to manage differently. This is very different from the physical aspects of Lean where we process map and go observe the shop floor. Changes to metrics relate to behavioral changes of our managers. These changes require a consistent assessment of how our managers BEHAVE by taking their logic and our policies into account. Figure 8 describes, at a summary level, one such change where a client's focus on cost created the inventory issues seen in many companies.

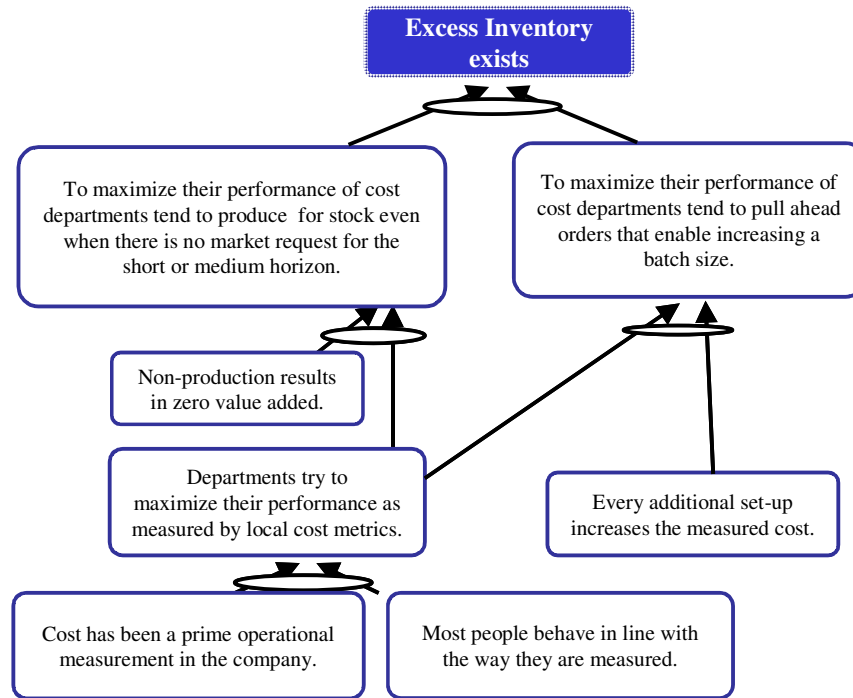


Figure 9. Logic Cause-Effect Diagram

The logic diagram dissects why managers behave. What it shows us is that executive POLICY and MEASURES are intertwined. In this case, the measures are clearly driving over production, a key issue with Lean. But what is not so easy to see is that informal management policies creating the norms by which managers behave. The company had to change both measures and the policies which caused behavior. Change to policy must precede and support metrics, not the other way around.

An example of policy is to keep people busy. In almost every company, idle people are viewed as wasting time. This informal policy causes most managers to give work such that everyone remains busy or the people to slow down to make their current workload last. The problem with this approach is that creating excess inventory can be more expensive than TOTAL labor costs in some companies! What we define as formal or informal policy can greatly contribute to HOW managers behave to achieve the metrics we define. Our second task, after defining the managerial logic, is to assess policies that guide managers' behaviors.

Team modeling games or simulators can be effective approaches to assessing operating policies. With Lean, our teams tend to focus on and have many useful tools to assess physical processes. Taking your team through a conference room game or production simulator can enable hands-on experience with management policies. The team can test different approaches to solving the performance measure conflicts and evaluate the company-wide solutions. Hands-on experience is necessary to break established measures and policies. An excellent example is the Theory Of Constraints (TOC) production simulator that leads the team through multiple iterations of policy:

1. Release work into the system to keep everyone busy
2. Schedule to maximize the constraint
3. Utilize various purchasing policies for price breaks
4. Utilize DBR to minimize dollar days of inventory

Whether you use the TOC simulator or another game, the objective is to assess policies and determine new WAYS to manage the business. Once the policies and methods are determined, then you can develop the appropriate metrics to support the desired behaviors.

### **3.5 How To Measure And Refocus**

Now that we have the managers exposed to the concepts of conflicts and bought in to change, what measures do we use? Alignment of high level measures can start with analysis of which measures cause conflicts and which have behaviors complementary to our overall objectives. Only a few conflicts have been illustrated here, so you should find many more specifics around the themes listed in Figure 4. But as with Lean, we need to prioritize efforts and focus on the critical measures and conflicts first. You could easily become lost in minutia and not see the forest for the trees. The best place to start are any issues blocking progress with the Lean efforts: usually such things as labor efficiency and absorption measures. These are particular obstacles to Lean because they drive overproduction as the approach to increasing profitability.

### **Conclusion**

Lean principles teach us to continuously improve processes. Initial analyses identify and prioritize the largest obstacles to improving flow. However, we must eventually deal with some very meaty problems. The same is true with how we manage. The performance measure obstacles are frequently similar at a very high level across various companies: cost measures that assume cost is really variable and can be controlled. What we find is that most costs are firm (not fixed in the traditional sense, but not easy to control in the near term). If most or all costs are firm in the short term, what do really mean by measures to control cost? Providing answers to this conflict results in the initial direction for change.

Once a new direction is established, the thorny work of identifying and resolving the next layer of resistance is required. Here is where managers require the PROCESS to identify and resolve conflict. The process starts with the tools used above to show conflict and logic. If managers are expected to improve their areas, they must approach managerial processes with the same vigor and thoroughness as applied on operational processes with Lean. Since management processes are highly decision making and behavioral, a typical process flow diagram will not suffice: it will only show the steps and decision points. Logic tools provide the context for why decisions are made and how to manage change.

### **Biographical Sketch**

Kirk Zylstra is a Deloitte & Touche consulting partner who leverages Lean Manufacturing and TOC practices for customer facing, supply chain business processes and manufacturing operations. Kirk's background includes over 20 years of consulting and hands-on manufacturing industry experience. Currently, Kirk's clients are implementing Lean Manufacturing and TOC concepts across their entire value chain. He works on overall manufacturing improvement design, business case development, implementation assessments and implementation support. He has a mechanical engineering degree from Purdue University and an MBA from Indiana University. He can be reached at (206) 233-7469 or via email at [KZYLSTRA@DELOITTE.COM](mailto:KZYLSTRA@DELOITTE.COM).