

A New Approach to Sustainable Supply Chain Excellence

By Allen Zaklad, Ph.D., Richard McKnight, Ph.D., Alan Kosansky, Ph.D. and Jim Piermarini

Abstract

Achieving sustainable supply chain improvement is of the highest urgency in today's highly competitive world, and will probably be even more so in the future. Despite the urgency, the majority of supply chain initiatives have failed to deliver expected results. This paper argues that these failures arise from two flaws:

1. The improvement initiatives have been piecemeal instead of whole-system
2. The initiatives have attended to the technology and business processes, but have ignored the human side of organizations.

This paper offers an innovative approach to supply chain improvement that remedies both flaws via integration of business process, technology, and social system change.

This paper presents a way to create sustainable supply chain excellence. The essential principle underlying it is both simple and profound: sustainable supply chain excellence requires getting three things right: the right business processes, the right human system, and integrating the two with the right enabling technology.

Why should anyone care about creating sustainable excellence? For one thing, because many supply chain improvement projects do not live up to their promise or produce only short term results. For example, a recent survey of manufacturing companies found that less than 15% of Supply chain software applications were successfully implemented.ⁱ

For over twenty years, we have been supporting supply chain executives as they have attempted to improve the performance of their operations. Repeatedly, we have seen them fall prey to two fatally flawed approaches to performance improvement. One approach has to do with the tendency to address systemic problems in a piecemeal fashion. The most common manifestation of this tendency is to treat every operational problem as if it is a technology problem. The second faulty procedure is to ignore or overlook the human factor – what we call the *social system*.

To create and sustain supply chain excellence, we urge our clients to:

1. Deal with *all* the drivers of performance: business process, social system, and enabling technology.
2. Think and act *strategically*, not tactically; treat the supply chain as one integrated system.

This paper states our approach to doing this.

The Typical Approach to supply chain performance improvement and its pitfalls

From our extensive experience and our review of supply chain literature, we have seen a common approach to supply chain improvement, which we call *identify and fix*. Using internal resources or an expert consulting firm, a group sets out to diagnose broken processes and then makes recommendations for fixing these processes. Then, by a process that is often heavily politically influenced, the team “cherry picks,” i.e., finds the improvement projects that are easiest to implement and that are seen to have the fastest payoff. This is the proverbial “low hanging fruit.” Also typical is that the improvement team operates in relative isolation from those closest to the problems as they review documents, map existing processes, and collect performance data. Team members often interview key people, but commonly make decisions without cycling back to check conclusions or to get buy-in. Then the team presents its findings to executives, who say “go” or “no go.” (In today’s world of tight budgets, the latter response is becoming more common.) “Solutions” are then implemented in a top-down, heavy-handed way that further alienates key production people who were not members of the team but who are expected to implement the decisions.

Far too many supply chain improvement projects have not lived up to their promise or to the expectations of the companies that have gone this typical route. Even improvements that have been accomplished have been short-lived. There are few stories of *sustained* improvement in supply chain performance.

We believe there are two underlying reasons for the lack of success of the identify and fix approach:

1. Fixing all the parts does not fix the whole.
2. Sweeping the needed social system development under the rug does not provide the needed people capabilities.

In the next sections, each of these issues is discussed.



The whole is not just the sum of its parts

There is a consensus among systems theory thinkers that when a whole system (e.g., a total supply chain) is operating most efficiently, its component subsystems will *not* be individually most efficient. This is a compelling argument for starting with the whole system and only then picking specific improvement projects based on the effect they have on the whole system. Tactical improvement projects can only be successful if they align with a strategic imperative.

Some specific examples:

1. Analog Devices improved their manufacturing process but, due to interactions among that process and their product development and financial processes, almost failed as a company².
2. Peters and Waterman³ and others began advocating strategic planning at the organizational mission level in part as a reaction against the limitations of narrow approaches to MBO (Management by Objectives). They observed many organizations where every unit was "achieving its objectives," but the company was failing. Achieving unit objectives did not constitute organizational success in some simple additive way. Indeed, unit objectives often conflicted or competed with each other.
3. In the push to get the most widgets for the least cost, we may fail to get the right widgets, to the right customers, at the right time, at the right cost. By increasing operational efficiency, we may create a situation that leads to inappropriate allocation of resources elsewhere⁴.

Cherry picking will not work *exactly* because it is arbitrarily choosing particular subsystems to optimize (or to improve), *without* a whole-system point of view. In other words, cherry picking only looks at potential projects individually, and disregards the interdependencies among these individual projects in terms of how they affect the whole system.

A final example illustrates the major impact of interdependencies among the subsystem improvement efforts. We were hired to help a large midwestern pharmaceutical manufacturer fix its quality problems, which had led to several FDA Warning Letters. During the assessment process, we uncovered an underlying dynamic: there was a strong and historical adversarial relationship between the Quality and Operations functions. Quality people felt that Operations did not appreciate the importance of FDA Compliance, while Operations people felt that Quality did not understand the business. When we communicated this dynamic and its impact to the leadership, the Operations



leaders were not receptive and continued to blame Quality for the problems. We could not look at the Quality-Operations relationship, and the problems remained unsolved.

This example, as it highlights relationships among people, is a segue to the next section, which deals directly with the supply chain's social system.

The Social System — the Hidden Side of Supply Chains

Recently, we were talking with a client – a chemical company veteran manager – about the drivers of his company's supply chain performance. It was noteworthy that someone responsible for day-to-day success held a holistic and accurate perspective: people are *at least 50%* of the drivers for performance, followed in importance by business processes and enabling technology. He drew this diagram (Figure 1) to illustrate the point:

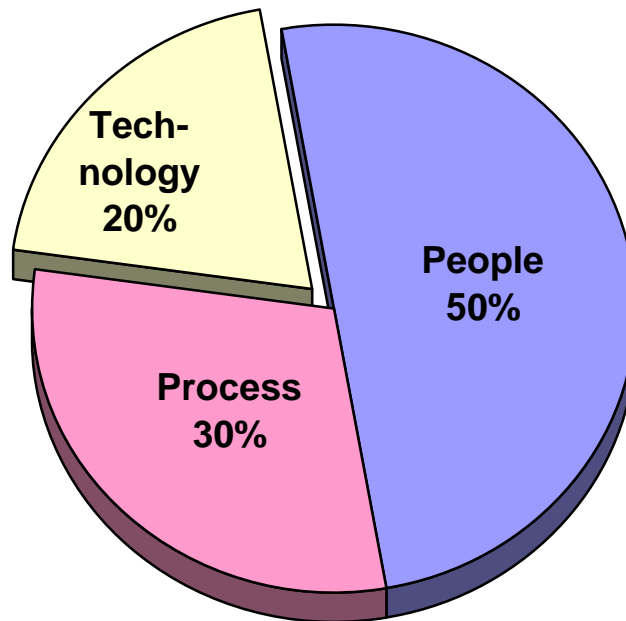


Figure 1 Drivers of Supply Chain Performance

This pleased us and made us confident that we could help this client. We expected that our client, a technical/engineering type, would not be so people-oriented. We were maneuvering to make the case for including the people side of the supply chain in the improvement effort, but our client was already there.

Sustainable Supply Chain Excellence

Why, we wondered, if the social system (including the people and the culture) is so powerful, is so little written about the social system in the supply chain improvement literature? Again our client took the words out of our mouths: “Most people are uncomfortable dealing with softer people issues because they lack the skills and don’t know where to get the help they need”. *Since managers are often uncomfortable or feel ill equipped to deal with the people issues, they too often get ignored, putting critical supply chain projects at unnecessary risk of failure.*

There is almost no *explicit* mention of the people side in all the varied supply chain change methodologies we have seen. Supply chain experts talk about the need for “changing their practices”⁵. ERP gurus talk about the need for “change management”⁶. But no one talks about *how* the work force must grow, change, and learn in order for practices to be changed, or for change to be managed. This omission has been referred to as “the magic bullet theory of IT-driven change” – IT is so powerful that it will magically manage the change all by itself.⁷

The hottest term in supply chain literature is *collaboration*. At a recent Council of Logistic Management conference, sessions on this topic were the most well-attended. And those of us who care about supply chain efficiency are right to think this inherently human system factor is important. Supply chain theorists and practitioners such as our colleague Kevin McCormack⁸ and The Performance Measurement Group⁹ have developed powerful models of supply chain “maturity” based primarily on the systematic collaboration and integration of previously separated parts (aka silos). *These sophisticated models identify the people issues and appreciate their importance, but offer no methodology to enhance the functioning of the social system in order to raise the level of maturity.*

Breaking down the silos and building collaboration is a *major* social system task, and involves identifying and dealing with resistance, building teams, creating alignment, changing the way work is done, and changing major functional policies like reward systems. It is also clear that the supply chain innovations that increase connectivity and visibility at the same time *force* people into sharing (information, tasks, rewards, etc.) with neither their consent nor their input.

Many supply chain improvement projects are currently focused around the implementation of enabling technology. SAP software is one of the more popular choices. In a 1998 report⁶, The Conference Board found that “given a second chance, more than 91% of companies would introduce change management initiatives right at the start of the SAP installation effort”. Notwithstanding this striking finding, the irony is that though these company’s executives want more change management, it’s clear that they don’t have a clear sense of what change management is, much less how to carry it out effectively.



A new book by Gabel and Pilnick¹⁰ reiterates both points – that culture (i.e., the social system) is a powerful driver of supply chain performance, and how to “work the culture” is a mystery.

A social system model of supply chain development

Sustainable supply chain performance enhancement requires a whole system view. This view must:

1. Integrate the technical, business, and social systems.
2. Provide a whole system context for design and implementation of process improvement projects.
3. Build the human capabilities needed to sustain an innovative, nimble, collaborative, and integrated supply chain.

Peter Drucker, the preeminent management guru, emphasizes the crucial importance of worker productivity, and focus on people management¹¹. The model we present below does just that – focuses on building knowledge and commitment among workers at all levels, from the senior team to the line. This model is based on Richard McKnight’s findings that successful strategy implementation has six components.¹² Accordingly, the following tasks are crucial to developing the social system of a supply chain.

1. Align the senior team

There must be a clear and meaningful vision of the supply chain strategy going forward. Such a vision should include a picture of both how the supply chain should be structured and how it should perform, and also a high-level road map of how to get there. The senior executive team must share this vision; they must all be champions of this common vision.

2. Make sure all employees understand the strategy

Managers and executives need to make sure that every employee who has to carry out the supply chain strategy understands this strategy – at least as well as an very well-informed stockholder, and probably more so. Employees need to understand not only the strategic direction, but also the key elements of the strategy and the rationale behind the strategy. In short, employees should be able to think like business people.

3. Enable employees to commit to the strategy

Employees have to feel motivated by the supply chain strategy. In other words, they have to feel impelled to go the extra mile to fulfill it, to turn it into reality.



profitpoint™

6

www.profitpt.com
(866) 347-1130

And given that most strategies mean some dislocations, employees have to believe that, overall, the net result, despite the pain, will have been worth the effort and sacrifice they will have to make.

4. Effect alignment at the local level

Leaders must help local work units to reprioritize their efforts with the new strategy. It is not quite time for high-five's when the entire employee population understands the strategy and feels good about it, although this is an essential and laudable accomplishment. The whole point of strategy is to affect a set of desirable business results, first at the work unit level. This means that at every point in the supply chain, each worker understands his specific job role and how it contributes to overall supply chain performance.

5. Create alignment at the business system level

This final step is the point at which the implementation magic really starts to happen because it brings all previous work to a head. It is also the most difficult of tasks, because it requires bringing competing organizational silos to a collaborative relationship. Often this task requires bringing functional units together to work out the system and process changes required by the new supply chain strategy. The previous tasks lay down the foundation for and make possible these critical shifts. In the previous example of Quality/Operations competition within a pharmaceutical manufacturing environment, this essential task was bypassed.

6. Measure progress continuously

All of the above tasks must be tracked and measured on a near-real-time basis. The measurement process must identify key indicators in the process, people, and technology arenas and track progress on these key indicators. This creates a *feedback loop* that continuously informs the leaders of what is working, what is not, and what must be changed.



An integrated technical and social system model of Supply chain performance improvement

The social system, as important as it is, cannot in itself drive supply chain improvement. Many of our Organization Development colleagues have learned this lesson: the people issues cannot be worked successfully in a vacuum; they must be worked in the context of the business and the technology. Accordingly, in our practice this social system model is integrated with business process and technology improvement via an overall intervention process of four stages, as illustrated in Figure 2:

1. Assessment
2. Design
3. Implement
4. Audit/Measurement

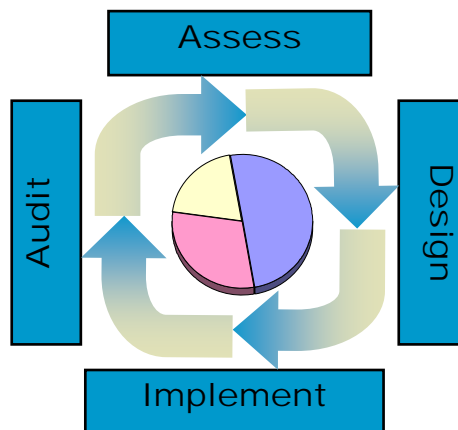


Figure 2 – Integrated Intervention Process

It is important to note two complicating characteristics of this intervention process:

- It is definitely *not* a linear process in which one step is completed before the next is begun. In fact, the intervention is iterative, with successive cycles.
- There is a feedback loop (as described above) which provides information from one cycle to the next.

Why is this model new? The McKnight social system model has been written about earlier and certainly the four-component improvement model is not greatly different from standard approaches. However, it is the *combination* of these models that is innovative. What is different is that in each of these stages,

the business processes, the enabling technologies, and the social system are explicitly addressed together.

Our social system work (aligning the top, the managers, and the whole work force with a clear vision/strategy) is important to do *before* the selection of specific improvement projects is completed because this “soft” work provides a whole-system basis for selecting and implementing any set of specific projects. To go directly to the specific improvement projects without first building such systemic social infrastructure, is to risk uselessness at best, and chaos at worst.

During the implementation, the social system is also being exercised and developed. Because of the wide participation of the workforce in designing and implementing the specific improvement projects, teamwork is

developed along with the technology/business process changes. During and following the implementation, social system progress is monitored, toward the goal of doing more of what’s working well, and changing what’s stalled.

Assessment

The Supply chain assessment phase is used to identify areas of improvement that can have the biggest impact on the effectiveness of a company’s supply chain operations. It starts with the benchmarking of supply chain processes against the best practices of other companies. This benchmarking gives a good high-level picture of where a company stands, and identifies areas for detailed discovery. Since it is usually unrealistic to perform a thorough detailed evaluation of each and every area of supply chain performance, the benchmarking results are used to identify areas of greatest opportunity, and the detailed discovery phase is then focused primarily on these areas. The concept of *supply chain maturity*⁸ is used as a framework for identifying opportunities for improvement. The assessment begins with a focus on business process issues. It then moves on to identify strengths and weaknesses of existing enabling technology. The final, and usually most important leg of the assessment addresses social system and organizational issues related to the changes needed in the organization for sustained supply chain excellence. Crucial data is obtained on the extent to which supply chain employees – at all levels – understand the “big picture”, whether they care, whether they see how their job contributes to overall supply chain performance, whether they work collaboratively with other groups, and whether their ideas and opinions are valued.

Design

The design phase maps out the to-be supply chain process, technology and social system (including clear definition of roles and responsibilities within the



organization). It focuses on the specific path which will move the company from its current situation towards its envisioned desired state. It also begins the social system development process by involving the senior team in the design of a high-level path to accomplishing the strategic vision, including a plan for communicating the strategy and establishing programs to help managers and employees understand and embrace the direction and objectives of the supply chain organization. Specific enabling technology is selected. The design phase delivers a plan to be executed to achieve the identified improvements from the Assessment phase. The audit/measurement plan is created along with the implementation design.

Implementation

The implementation is where the rubber meets the road. The social system development tasks are completed along with changes to the business processes and implementation of enabling technology projects. By creating cross-functional teams to accomplish specific improvement projects, teamwork and collaboration are developed. And by involving *all* the workforce in improvement, both understanding and commitment are enhanced. At the end of the implementation phase, an improved and more effective supply chain is operating in your company. And because the workers have helped to design and implement the improved supply chain, they have a sense of ownership that will not dissipate over time.

Audit/Measurement

The Audit phase re-assesses the improved supply chain operations to measure the progress made as a result of improvement activities. There are two components. First is ongoing measurement of crucial supply chain performance variables in all three areas: technological, business, and social systems. A supply chain measurement team, created during the design phase, will oversee the development of the appropriate measures and effective means to gather and analyze the data, and disseminate the results. We will use an approach to measuring the progress delineated by Zaklad¹³.

The second audit phase component is an overall supply chain reassessment and typically is conducted 6-18 months after implementation activities have been completed. The supply chain processes are benchmarked again and the current maturity of the organization is compared to earlier measurements. For organizations that embrace continuous improvement, the audit phase will begin the cycle again, and further improvement opportunities will be identified, designed and implemented.



Summary

Sustainable Supply chain improvement requires focus on business process improvement, enabling technology, and social system transformation. In most companies, substantial effort is focused on business process improvements and/or implementation of enabling technologies. Too often the social system changes required to achieve sustained supply chain improvements remain inadequately addressed. We have presented a model of supply chain intervention that will enable you to address the hidden side of supply chain operations in the context of business processes and technology. This social system improvement program is most effective as part of a larger improvement process that includes assessment, design, implementation and audit.

Too many supply chain initiatives have failed to meet expectations or have seen a substantial eroding of initial benefits. The next decade will be focused on sustaining supply chain improvements with increased focus on integrating social system improvement processes with well-established methods for business improvement and technology implementation.



References

1. Bermudez, J. (2002). Supply chain Management: More Than Just Technology. *Supply chain Management Review*, 3/1/2002.
2. Sterman, J., Kofman, F. and N. Repenning (1997). Unanticipated Side Effects of Successful Quality Programs: Exploring a Paradox of Organisational Improvement. *Management Science*, Vol. 43, April 1997.
3. Peters, T. and R. Waterman (1982). *In Search of Excellence*. New York: Harper & Row.
4. Winston, J. and L. Bickman (1997). Unpublished post on EVALTALK listserv.
5. Case, J. (2002). Supply chains are Tighter but There's Still Too Much Slack. *Harvard Management Update*.
6. Cooke, D. and W. Peterson (1998). SAP Implementation: Strategies and Results. *The Conference Board Research Report 1217-98-RR*.
7. Markus, M., and R. Benjamin (1997). The Magic Bullet Theory of IT-driven Transformation. *Sloan Management Review*, Vol. 38, No. 2
8. McCormack, K. & Johnson, W. (2000), *Business Process Orientation; gaining the e-business competitive advantage*, St. Lucie Press, Delray Beach, Fl.
9. Performance Management Group (2002). Measuring the Success of Collaboration Across the "Virtual" Supply chain Through Performance Measurement Systems and Benchmarking. Presentation at *Supply chain World*, April 23, 2002.
10. Gabel, J. and S. Pilnick (2002). *The Shadow Organization in Logistics: The Real World of Cultural Change and Supply chain*. Council on Logistics Management.
11. Drucker, P. (2002). They're Not Employees, They're People. *Harvard Business Review*.
12. McKnight, R. (2001). The Four Jobs of Strategy Implementation, *OD Practitioner*, Vol. 33, 1.
13. Zaklad, A. (2002). Measuring Strategy Implementation. *OD Practitioner*, Vol. 34, 2.