

Creating Greater Agility with



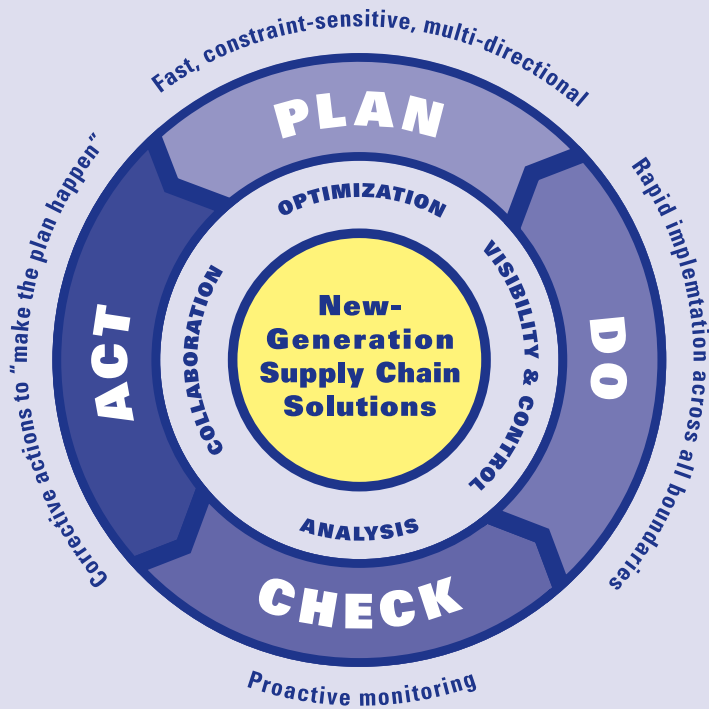
Plan Do Check Act

by Adeel Najmi and Sanjiv Sidhu

In today's markets, fickle consumers want more choice and instant gratification. Global competition has driven rapid commoditization, shorter product life cycles and faster price erosion. As supply networks have become increasingly complex and dynamic, companies are struggling with cross-silo coordination and have realized that they must quickly transform to be more agile. The Spring 2006 issue of this magazine discussed the "7 Principles of Supply Chain Agility": agile organization, closed-loop plan management, demand management, supply management, fulfillment management, rapid business reconfiguration and agile IT systems. A common theme across these principles is closed-loop management with speed. We call this Agile Plan-Do-Check-Act (Agile PDCA). Here, we discuss how you can use Agile PDCA as a discipline to begin a journey toward overall supply chain agility at your company.

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Agility is all about managing in the face of variability, and Agile PDCA is built upon a two-step foundation. First, you identify sources of variability and their relative negative impacts. Second, you eliminate or reduce variability wherever possible by changing supply chain design, policies and business rules. Of course, you will never be able to eliminate variability altogether. But, once you are armed with an understanding of what risks might crop up in your supply chain, you can develop optimized plans that use contingencies to guard against these risks. Inevitably variability causes execution to deviate from “plan” (P) during the “do” (D) step of the PDCA management cycle. This is where the “check” (C) step closes the loop to compare plans with actual execution and trigger corrective actions (the “act,” or A step) to make the plan happen. By focusing on understanding, anticipating and responding to variability, Agile PDCA allows companies to minimize the inefficiencies caused by variability.



By speeding up business cycles, Agile PDCA not only accelerates learning but drives flexibility and increased responsiveness to changes along multiple variables in sales and operations management.

As you plan your journey toward agility, it is helpful to understand four maturity levels along the path to Agile PDCA:

1. Functional Optimization
2. Cross-Functional Plan Optimization
3. Closed-Loop Performance to Plan
4. Real-Time Sales and Operations Management

Lower levels of process maturity

At the lowest maturity level of functional optimization, each business function strives independently to meet its own goals, without formal synchronization with the company’s overarching goals. Plans across finance, sales, inventory, manufacturing and supply are largely disconnected and operating in silos. Also, at this lowest maturity level, planning and execution are disconnected, and post-mortems only happen anecdotally when things go wrong. Finally, plans do not formally account for variability and risks or provide contingencies among functions.

Fortunately, most companies’ business processes and systems enable them to operate beyond the level of functional optimization. They make a conscious decision to make planning a fundamental business process to manage in the face of uncertainty. Companies operating at a level of process maturity that we call “cross-functional plan optimization” have clearly defined and stabilized global objectives and metrics. Plans across Finance, Sales, Manufacturing and Supply are constraint-optimized and periodically synchronized. Conditions change, though, and these plans become invalid very rapidly when variances occur. For example: Sales and Manufacturing may have agreed to a plan, but, because of a supply shortage, Manufacturing might fall so far behind that recovery is impossible. Now, the sales plan becomes unrealistic because the inventory is low.

You might say that at the second level the focus is on the “plan” processes in the PDCA cycle. But, while plans across processes are synchronized at the beginning of the cycle, they do not stay synchronized during execution. The “check” and “act” processes are weak or occur after the fact, at the end of the cycle. Therefore, post-mortems are of limited benefit because too many conditions have changed.

Since plans do not stay synchronized, trust erodes as business departments start second-guessing each other. The result is there is not a single version of the truth and this gap gives rise to gaming: Sales may overstate demand because it doesn’t have confidence that Manufacturing will deliver all of what Sales requests. On the other hand, Manufacturing may start judging sales forecasts downward, since it expects that requests for orders will be padded or biased. Thus, while companies at Level 2 of process maturity have constraint-optimized plans across functions, their tools and processes have limited capability to make these plans happen. There might be a global planning process, but there is limited or ad-hoc monitoring of whether the plan is being met.

Companies at the level of process maturity that we call “closed-loop performance to plan” strive to make the plan happen within each function. If Sales is committed to selling 300 units a month, team members can monitor performance against goal by checking sales on a daily basis

and taking corrective actions mid-cycle if plan achievement is at risk. Sales embeds early-warning sensors in its execution processes to detect events and trends that are likely to threaten achievement of the plan. In addition, Sales might have put processes and systems in place that enable fast escalation of alerts to the decision-makers with the authority and accountability to take action within each function.

While companies at the third level excel at detecting when plan achievement is at risk and at taking corrective actions, those actions remain at the functional level. This poses a problem. Let's say Sales detects that it is not selling 10 units a day (to achieve the expected monthly sales of 300). Its main tools to increase sales involve pricing and promotions, but these levers will not work if the real reason for poor sales is a supply problem. The solution will clearly require cross-functional synchronization. But, typically, companies at this level of maturity lack strong communication mechanisms among functions and, as noted earlier, mid-cycle process synchronization across functions is ad hoc and inconsistent. Clearly this isn't enough.

In sum, you might say that while companies at the second level are concerned with "What happened?" during their post-mortem analysis of performance against plans, companies at the third level are concerned with "When did you first learn of the problem and that corrective actions might be necessary?" They have moved beyond concern with root causes to concern with early warning and fast re-planning. By the time a company achieves the third-level capabilities, it must break away from a sequential waterfall-oriented process paradigm to a more concurrent, event-based, sense-and-respond paradigm.

The fourth level: real-time sales and operations management

When a company develops the capability to move beyond taking corrective actions at the local, functional level to synchronize across functional boundaries, we call that capability "real-time sales and operations management"—our fourth level of maturity. To understand what this means, let's return to our example of Sales having committed to selling 300 units per month. It is monitoring sales on a daily basis to ascertain performance to plan. If it appears that actual sales are not performing to plan, it searches for root causes of the variance. Maybe the company is selling beyond plan in one region and unable to keep shelves stocked there. And maybe it has excess inventory in other regions, where sales have been below plan. To make its plan happen, Sales will have to alert Operations to an updated demand prediction mid-cycle, thus enabling Operations to redirect supply to where it is needed.

To put this in the context of Agile PDCA, the emphasis

at these companies shifts to continuous, cross-functional synchronization and persistent learning across each process in the plan-do-check-act loop. That's why we call this level of maturity sales and operations *management* (S&OM) rather than sales and operations *planning* (S&OP). The fourth level of maturity involves all of the processes in the management cycle across a global supply chain.

Agility is all about managing in the face of variability.

What capabilities must companies hoping to operate at this level acquire? They must have a governance model with explicit roles, policies and strategies to achieve cross-functional synchronization. The real challenge, of course, is to synchronize across multiple decision-makers. Having a governance model in place facilitates fast synchronization among multiple stakeholders.

In addition, companies at this level actively update and share process playbooks and implement systems that can capture the voice of the customer. Using our example, when one region is outperforming the plan, a playbook of predetermined scenarios enables managers to pull the appropriate response from a menu of options based on prior experience. The playbook might trigger an analysis of recent buying behavior by Product Marketing, for instance. That group may isolate the demographic segment that is at the root of the surge in demand. At this point, Sales might suggest that there is an opportunity to sell 500 units instead of the 300 planned. They might decide to develop a special promotional offer for this market segment.

But is this the right path to profitability? To expedite manufacturing and delivery of product to this market may be too much of an offsetting expense. Process playbooks help here as well by spelling out decision criteria (such as hurdle rate on the return on investment) and a checklist of likely options the company can use to decide if and how it can profitably capitalize on this opportunity. With fourth-level capabilities, the company is able to rapidly evaluate multiple scenarios of plans across all functions to make a profitable decision.

There are many gradations of sophistication possible at fourth-level process and system maturity. These gradations allow companies to aggressively leverage their customer intimacy, deep knowledge of variability and cross-functional agility for competitive advantage—forcing competitors into defensive actions. Only a handful of companies, such as Dell, Google, Wal-Mart and Zara, have achieved this level in some of their business practices.

What are the other characteristics of these leading

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companies? For one, they decentralize decision-making through formal governance models that create empowerment at all levels of the organization—an empowerment in line with meeting a globally synchronized plan. They ensure that plan assumptions and cross-functional dependencies are clearly understood. They have moved from a periodic sales and operations planning paradigm to a “living dashboard” paradigm. This means that these companies are synchronizing across functions continuously: sales and operations planning, and continuous closed-loop performance review, have become real-time activities. At this level, companies have the opportunity not just to meet the plan, but to supersede it for greater profitability and market share.

It’s important to remember that the fourth level is itself a continuous improvement journey and not a destination point. There’s a commitment inside each function to make its part of the plan happen, with an understanding that the company will live or die by the success of the plan. Therefore, there is a strong focus throughout the company on performance to plan, with attendant policies and incentives.

These four maturity levels provide the basis for a company’s vision of the road ahead. The next steps they take will chart the course to get there. We recommend a three-step process for getting started.

Step 1: Diagnostic

The table below lists selected metrics along key supply chain management processes.

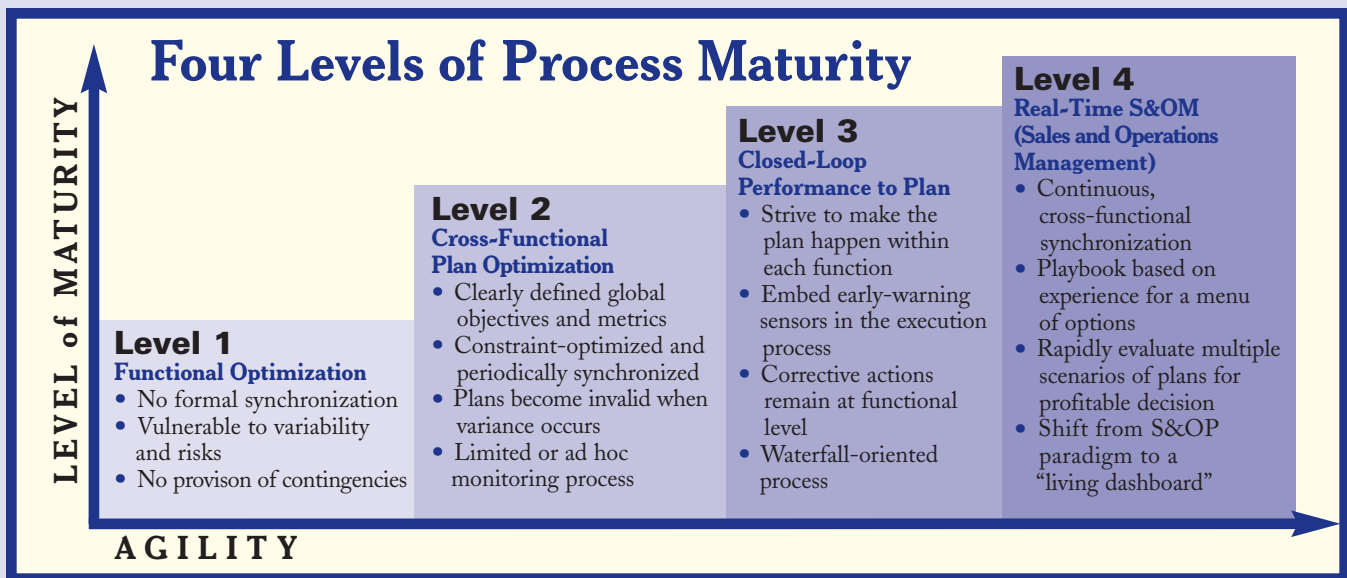
Mapping your company’s position—and that of your top competitors—along these processes will help you prioritize where to invest resources for your agility initiatives. Next, you must assess your company’s readiness to move forward by eliminating or mitigating the four most common obstacles that inhibit Agile PDCA.

The first obstacle is poor leadership. A successful program requires strong leadership that can drive clarity and stability of purpose. The second obstacle is the existence of organizational silos. The leader must pull together a cross-functional team of individuals that command respect in each of their organizations. This team should be empowered to review metrics and roles across organizations to drive alignment and eliminate gaming. The third obstacle is information latency. Agile PDCA is not possible without systems that enable fast sharing of information, fast planning and timely visibility into performance metrics. Your company’s climb up the maturity levels may require incremental or significant transformation of your supply chain management systems.

The fourth obstacle is lack of an enterprise-level SCM governance model for decision-making roles and processes. Structure is necessary to enable speed and transparency.

Agile PDCA Metrics for SCM Along Maturity Levels

Process	Metric	Level 1	Level 2	Level 3	Level 4
Demand Management	Consensus Forecast Frequency	Quarterly	Monthly	Monthly + Weekly Adjust	Weekly + Daily Adjust + On-Demand Net Change
	Forecast Attainment	Not Measured	Within 10% at BU Level and Within 100% at SKU-Location Level	Within 5% at BU Level and Within 50% at SKU-Location Level	Within 3% at BU Level and Within 25% at SKU-Location Level
Inventory Management	Compliance to Service-Level Objectives	Less than 50% of Parts	Between 50% and 80%	80% – 95%	95% or Better
	Inventory Policy Review Frequency	Ad hoc	Periodic	Ongoing	Ongoing
Supply Planning	Actual Execution Compliance to Supply Plan	Less than 80%	80% – 95% + Overrides Are Tracked	95% or Better	98% or Better
	Planning Cycle Length Relative to Planning Period	Greater than 1/2	Less than 1/3	Less than 1/3	Net Changes Computed in Minutes
	Demand-Supply Synch	Monthly	Weekly	2 – 3 Times per Week	Daily + Net Change
Order Fulfillment	Order Promise Response Time	Greater than 2 Days	24 Hours (Overnight)	4 – 6 Hours (Same day)	Real Time + Automatic Escalation to Manual Review
	On Time to Promise Date	Greater than 80%	Greater than 90%	Greater than 95%	Greater than 98%
	On Time to Request Date	Not Measured	Greater than 60%	Greater than 75%	Greater than 90%
	% of No-Touch Promises	Less than 50%	50% – 80%	80% – 90%	Greater than 90%
	Supply Chain Realignment	More than 1 Month	20 – 30 Days	1 Week	1 – 3 Days
Sales and Operations Planning	Production - Sales - Inventory - Financials Synchronization Speed	Quarterly	Monthly	Weekly	Event-Based



Also, when decisions are made on the fly with no long-term visibility or rationale, there is inconsistency; decision criteria and priorities are heavily dependent on the decision maker.

Step 2: Planning your Agile PDCA roadmap

The first element of your roadmap must be a plan for how all of the four obstacles to Agile PDCA will be eliminated. If any of these obstacles is endemic in your organization, your best approach is to secure buy-in to eliminate it first, before making significant investments in agility programs.

Next, you should look for “low-hanging fruit” to stimulate early momentum in your program. These opportunities typically correspond to high-value areas that also have the least organizational resistance. If you find that metrics for one SCM process are lagging significantly behind others in your diagnostic, that might be where you choose to begin your program. We have found that inventory or demand-related initiatives are typically good candidates for the first initiative.

One effective approach to large re-engineering initiatives is what is called a “bowling-alley” strategy. Here’s an example of how one company used it effectively. i2 worked with a large electronics company that consisted of business units composed of several divisions. The company chose two divisions from different business units to launch its first pilots. One was a commodity business, while the other was a custom business. By demonstrating successful pilots in both divisions, the company was able to explore a diverse breadth of business challenges at the same time that it stimulated excitement across all businesses in the company. Once the pilots were completed successfully, the company was able to roll out the program in waves, tackling several divisions at a time. The first wave attracted remaining divisions within the two business units that had

participated in the pilots to get on board with the broader program. The next wave brought in adjacent business units that had similar characteristics, and so on.

Another proven best practice is to overstaff the first pilots with representatives from internal consulting organizations and multiple business units. This approach was successfully used by another major electronics company i2 worked with. The electronics company secured top-notch external experts as well as internal consultants to help with the pilot project and staffed it with five times the levels actually needed. The extra resource strength was leveraged to meticulously document expert knowledge and develop training materials. The members of the initial team later fanned out to numerous business units to simultaneously lead many projects and drive rapid change.

Step 3: Execution

One of the most critical factors for success is the willingness and fortitude of management to stay the course in the face of the setbacks and obstacles that will inevitably crop up along the journey of transformational change. (See Opinion, page 16.)

Having said that, it is also important to remember the concept of PDCA itself as you move along. Roadmaps should be subject to change as you regularly review effectiveness of plan assumptions against actual results and changing business conditions. You should measure progress regularly in terms of the business metrics and value that the initiatives are expected to drive. By using the three-step process described here to launch your agility program, we believe you will start realizing tremendous competitive advantage.

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