



# DEVOPS BRINGS AGILE AND LEAN METHODOLOGIES TO I.T. OPERATIONS

By Chris Little, Lead Solution Marketing Manager, BMC Software

Attempts at maximizing customer value while holding down costs can be like the folktale about blind men and an elephant. A group of blind men examine an elephant to try to identify what it is. Each man, in isolation, examines a different area of the elephant — the leg, the tusk, the tail, and so on. When they compare observations, they discover that their conclusions are completely different. Only when they collaborate and bring their ideas together do they begin to understand the full picture.

Similarly, workers who function in silos may have an excellent understanding of their area of the business and can successfully improve processes within that area. But only when the process flow is understood as a whole — across silos — can the goal of maximum customer value be realized.

That's where *Lean methodology* comes in. Lean methodology is based on a manufacturing method designed to minimize the consumption of resources that add no customer value to products. Lean methodology is by no means limited to manufacturing. Lean is about process improvement. Lean principles have been applied to disciplines across many industries, and IT is no exception.

IT now powers most businesses. The central role that IT plays translates into huge demands on the IT staff to develop and deploy new applications and services at an accelerated pace. To meet this demand, many software development organizations are applying Lean principles through such approaches as *Agile software development*. Influenced

heavily by Lean methodology, Agile methodology is based on frequent, customer-focused releases and strives to eliminate all steps that don't add value for the customer. Using Agile methodology, development teams are able to shrink development cycles dramatically and increase application quality.

Unfortunately, the increasing number of software releases, growing complexity, shrinking deployment time frames, and limited budgets are presenting the operations staff with unprecedented challenges. Operations can begin to address these challenges by learning from software developers and adopting Lean methodology. That requires re-evaluating current processes, ferreting out sources of waste, and automating wherever possible.

## A Lean overview

According to the Lean Enterprise Institute, "The core idea [of Lean] is to maximize customer value while minimizing waste. Simply, Lean means creating more value for customers with fewer resources."<sup>1</sup>

This involves a five-step process for guiding the implementation of Lean techniques:

1. Specify value from the standpoint of the end customer.
2. Identify all the steps in the value stream, eliminating whenever possible those steps that do not create value.
3. Make the value-creating steps occur in tight sequence so the product will flow smoothly toward the customer.
4. As flow is introduced, let customer demand determine the time to market.
5. As value is specified, value streams are identified, wasted steps are removed, and customer-demand-centric flow is established, begin the process again and continue it until a state of perfection is reached in which perfect value is created with no waste.

Clearly, Lean is not a one-shot proposition. It's a reiterative process of continuous improvement.

development team is incentivized to move applications from concept to marketing as quickly as possible.

The culture of operations is typically cautious and deliberate. They are incentivized to maintain stability and business continuity. They are well aware of the consequences and high visibility of problems, such as performance slowdowns and outages, which are caused by improperly handled releases.

As a result, there is a natural clash between the business-driven need for speed on the development side and the conservative inertia on the operations side. Each group has different processes and ways of looking at things. The result is often called the **DevOps** gap. The DevOps movement has arisen out of the need to address this disconnect. DevOps is an approach that looks to bring the benefits of Agile and Lean methodologies into operations, reducing the barriers to delivering more value for the customer and aligning with the business. It stresses the importance of communication, collaboration, and integration between the two groups, and even combining responsibilities.

Today, operations teams find themselves at a critical decision point. They can adopt the spirit of DevOps and strive to close the gap. That requires working more closely with development. It means getting involved earlier in the development cycle instead of waiting for new applications and services to "come over the fence." And conversely, developers will need to be more involved in application support. The best way to facilitate this change is by following the development team's lead in adopting Lean methodology by reducing waste and focusing on customer value.

On the other hand, not closing the gap can have serious repercussions for operations. In frustration, developers may bypass operations entirely and go right to the cloud. This is already occurring in some companies.



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### Bridge the DevOps gap

There are obstacles to bringing Lean methodology to operations. One of the primary ones is the cultural difference between development and operations. Developers are usually driven to embrace the latest technologies and methodologies. Agile principles mean that they are aligning more closely with business requirements, and the business has an imperative to move quickly to stay competitive. Consequently, the

### Look at the big picture

Another challenge that operations teams face is in how to take the new intellectual property that the development organizations have built for the business and get it out to customers as quickly as possible, with the least number of errors and at the lowest cost. That requires creating a release process that is fast, efficient, and

repeatable. That's where Lean methodology provides the most value.

The focus of Lean is on delivering value to the customer and doing so as quickly and efficiently as possible. It is flow oriented rather than batch oriented. Its purpose is to smooth the flow of the value stream and make it customer centric.

The first step for operations in adopting Lean methodology is to understand the big picture. That means not only developing an understanding of the end-to-end release process but also understanding the release process within the overall context of the DevOps plan, build, and run cycle. In this cycle, development plans a new application based on the requirements of the business, builds the application, and then releases it to operations. Operations then assumes responsibility for running the application.

In examining processes, therefore, operations should not only look at the release process itself but also at the process *before* the release to determine where opportunities lie for closer cooperation between the two groups. For example, operations may see a way for development to improve the staging process for operational production of an application.

Release process management (RPM) solutions are available that enable IT to map out and document the entire application lifecycle process, end to end, from planning through release to retirement. These solutions provide a collaboration platform that can bring operations and development closer together and provide that "big picture" visibility so vital to Lean. They also enable operations to consolidate release processes that are fragmented across spreadsheets, hand-written notes, and various other places.

In examining the release process itself, operations should look for areas to tighten the flow and eliminate unnecessary tasks. The operations group in one company, for example, examined the release process and found that it was re-provisioning the same servers three times when it was only necessary to do so once. Anything that doesn't directly contribute to customer value (like unnecessary meetings, approvals, and communication) should be considered for elimination.

## Automate for consistency and speed

Manual procedures are major contributors to waste. For example, an existing release process may call for a database administrator (DBA) to update a particular database manually. This manual effort is inefficient and susceptible to errors. It's also unlikely to be done in a consistent fashion: If there are several DBAs, each one may build a database differently.

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Automation eliminates waste as well as a major source of errors. Automation ensures that processes are repeatable and consistently applied, while also ensuring frictionless compliance with corporate policies and external regulations.

Deployment automation and configuration management tools can help by automating a wide variety of processes based on best practices. For Lean methodology to really work, processes must be predictable and consistent. That means that simple automation is not enough. The delivery of the entire software stack should be automated. This means that all environment-builds — whether in pre- or post-production — should be completely automated. Also, the **software deployment** process must be completely automated, including code, content, configurations, and whatever else is required. By automating the whole software stack, it becomes much easier to ensure compliance with operations and security. This can save vast amounts of time usually wasted waiting on security approval for new application deployments.

It is preferable to automate the time-consuming operational policies like initiating the required change request approvals, configuring performance monitoring, and so on. The mundane manual tasks, like these policies, create the most waste.

Before diving into automation, however, it's essential for operations to map out and fully understand the end-to-end release process. When you use a **release process management (RPM)** platform to drive the end-to-end process, the team can review the process holistically to uncover sources of waste and determine where to apply automation tools to best streamline the process, eliminate waste, and accelerate delivery.

## Measure success and continually improve

Lean is an iterative approach to continuous improvement, and iteration necessitates feedback. Consequently, operations must establish a means of tracking the impact of adopting Lean methodology. In establishing the feedback metrics, keep in mind that the primary purpose of Lean methodology is not just to smooth and accelerate the release cycle; it's also to create more value for customers and do it with fewer resources.

Consequently, operations should measure not only the increase in speed of releases but also the impact of the releases on cost and on customer value. For example, did the release result in a spike in the number of service desk incidents? This would not only increase support costs but also would degrade the customer experience. Or did the lack of capacity planning result in over-taxed infrastructure and degrade end-user performance? Here, it's important to monitor application performance and availability from the customer's perspective. Customers are not interested in the performance metrics of the individual IT infrastructure components that support a service. They care about the overall user experience. In particular, how quickly did they complete their transactions end to end?

**Application Performance Management (APM)** solutions can track and report on a wide variety of metrics, including customer experience. These metrics provide valuable feedback to both the operations and development teams in measuring the impact of Lean implementation and identifying areas that require further attention. With these solutions in place, operations can operate in a mode of continuous improvement.

## Keep up with the future

By adopting Lean methodology, operations teams can catch up with and even get ahead of the large and rapidly increasing amount of new and updated services flowing from Agile-accelerated development teams. And they can do so without increasing costs or jeopardizing stability and business continuity.

In so doing, operations can help increase customer value, which has a direct effect on revenue, competitiveness, and the brand. Moreover, the operations team will have the metrics to demonstrate its contribution to the business. That enables the team to transform its image in the organization from software-release speed barrier to high-velocity enabler.

For more information, visit [www.bmc.com/products/offering/application-and-middleware-automation-devops.html](http://www.bmc.com/products/offering/application-and-middleware-automation-devops.html).

### END NOTES

1 Lean Enterprise Institute, [www.lean.org/whatslean](http://www.lean.org/whatslean).

### ABOUT THE AUTHOR

Christopher Little is lead solutions marketing manager for DevOps at BMC Software, where he focuses on go-to-market activities for DevOps. The original writer of the Wikipedia entry for DevOps, he was responsible for marketing at the DevOps start-up StreamStep for several years before it was acquired by BMC in 2011.



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