Tactics for Leading Change

Evaluating What DevOps Patterns and Practices Would Work Best for Your Enterprise

DevOps Enterprise Forum 2016

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Tactics for Leading Change: Evaluating What DevOps Patterns and Practices Would Work Best for Your Enterprise

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PREFACE

In May of this year, IT Revolution once again had the pleasure to host 50 technology leaders and thinkers from across the DevOps Enterprise community at the DevOps Enterprise Forum in Portland, Oregon. The Forum's ongoing goal is to create written guidance, gathered from the best experts in these respective areas, for overcoming the top obstacles in the DevOps Enterprise community.

Gathering feedback and information from the 2015 DevOps Enterprise Summit, we narrowed down the four key areas identified by the community to tackle in this this years Forum papers:

- **Leading Change:** What are effective strategies and methods for lead-ing change in large organizations?

- **Organization Design:** What do the organization charts look like for organizations successfully adopting DevOps? What are the respective roles and responsibilities, and how has it changed from more traditional IT organizations?

- **Modern Technology Practices:** What are modern architectural and technical practices that every technology leader needs to know about?

- **Compliance and Security:** What are concrete ways for DevOps to bridge the information security and compliance gap, to show au-ditors and regulators that effective controls exist to prevent, detect and correct problems?

For three days, we broke into groups based on each of the key areas and set

to work, choosing teams, sometimes switching between teams, collaborating, sharing, arguing…and writing. After the Forum concluded, the groups spent the next six months working together to complete and refine the work they started together.

The end result can be found on the Forum page at IT Revolution web site (http://itrevolution.com/devops_enterprise_forum_guidance) and all the forum papers, from both this year and last year, are free to the community.

IT Revolution is proud to share the outcomes of the hard work, dedication, and collaboration of the amazing group of people from the 2016 DevOps Enterprise Forum, our hope is that you will gain valuable insight into DevOps as a practice.

Gene Kim
November 2016
Portland, Oregon

INTRODUCTION

Many organizations are adopting DevOps patterns and practices, and are enjoying the benefits that come from that adoption: More speed. More stability. More employee engagement. More value. However, these organizations often run up against barriers to adoption because the mindset of people within the organization doesn't align with these new ways of working.

The case for adopting DevOps has never been stronger. In addition to all the benefits that come from a DevOps transformation, the risks associated with not changing are increasing. New technology has enabled customers to access information and services on demand. These changes in consumption patterns have disrupted decades-old businesses and business models, and created new opportunities for innovation. And the pace of change is accelerating. If an organization doesn't adapt to new expectations, new opportunities, and the new reality, it's at risk of losing ground and losing out in the market to someone who has.

If you are leading a DevOps transformation, a large part of your success will come from your ability to lead change at different levels in the organization. You'll need to account for different perspectives and use a variety of tactics to achieve the mindset changes required and influence behavior and actions. Achieving these changes will be hard, time-consuming, and require persistence. These changes will also be worth it when your organization begins reaping the benefits from the transformation.

Purpose, Audience, and Structure

This paper addresses how to lead change in your organization to support the adoption of DevOps patterns and practices.

Our intended audience is anyone who wants their organization to adopt DevOps patterns and practices, but who is running into internal roadblocks, such as:

- Lack of awareness or understanding of DevOps patterns and practices;
- Opposition from thinking rooted in "the old way" of working; and
- Inability to relate to the perspectives of individuals in different roles and at different levels within the organization.

If you are a change agent within your organization, then this paper is intended to help you influence others as you lead change. A change agent can be in any role at any level anywhere within the organization. Be on the lookout for other like-minded individuals within the organization to build a coalition. There's strength in numbers.

This paper describes two perspectives you might encounter within the organization as you lead change: the executive and the middle manager. For each perspective, we identify what these individuals care about and what problems they typically encounter. This paper also covers the target mindset we want to create within the organization—a target mindset aligned with DevOps patterns and practices. Individuals in different roles will interpret and apply this mindset differently, so we also identify the different mindset shifts we want to affect. Finally, we identify tactics to use that could be effective at changing current mindset to the target mindset.

By creating this paper, we hope more people will make the leap to lead change within their organization, will be more successful in their efforts to lead change, and, ultimately, enjoy more benefits associated with those changes. Our goal is to cover the basics you'll need to lead change, and to help you engage those around you in doing so. However, this paper does not cover every tactic, tool, or technique you will likely need. Nor does

this paper prescribe any specific "right way" to lead change. We intend this paper as a starting point and expect that you will tailor the approach for your particular organization.

LEADING CHANGE AT DIFFERENT LEVELS IN THE ORGANIZATION

When leading a DevOps transformation, change can happen at multiple levels within an organization—from the top executive to the individual contributor. Change can also start at the bottom, middle, and at every level of the organization at the same time. Engaging people with perspectives at different levels is important, valuable, and necessary to sustain change and maximize the benefits from it.

We need to understand the different perspectives of the people we're engaging if we want to be effective in our efforts to shift mindsets. We cover two perspectives in this paper: the executive and the middle manager.

This section describes each perspective: what someone at that level cares about, and what problems they are probably encountering. Later in the paper, we'll describe the mindset shift we want to happen and tactics you can use to affect the mindset shift. In all cases, make sure you connect the change to the individual's personal priorities—address the "WIIFM" (What's in it for me?).

A meaningful DevOps transformation will take time. While you might see quick progress in some areas, big changes won't happen overnight—they might even take years. You should also realize a DevOps transformation is never done—you're always on the journey toward "better." You will meet resistance along the way. Some tactics you try will work. Some won't. Experimentation will lead you to which tactics work best. If the long journey to change feels daunting, remember the "unicorn" companies (e.g., Google, Amazon, Netflix, and Etsy) weren't always unicorns—it took them

many years to become the companies we admire today. So strap in; show persistence and perseverance. The change is worth it.

Measuring Progress

You'll want to measure the progress you're making in your DevOps transformation to determine whether your efforts are making a positive impact and to show others the improvements that are happening.

So what should you measure?

Measure what is most important and has the most benefit to your organization. If you are in the early stages of your DevOps transformation, focus on metrics related to adoption. Once you have progress on those, start tracking metrics related to value and impact. Start small with your measurement efforts and make sure you can act on the data you're collecting—remember the lean concepts of small batches and fast feedback. Finally, don't be too prescriptive about measuring progress—do what makes sense for you and your organization.

The State of DevOps Reports are great resources for understanding the connection between various activities (e.g., configuration management, monitoring) and the business outcomes we all want (e.g., lower change fail rates, higher organizational performance). You can also review the DevOps Enterprise Forum "Measure Efficiency, Effectiveness, and Culture to Optimize DevOps Transformation: Metrics for DevOps Initiatives" whitepaper for more ideas and guidance. Another good resource is Lean Analytics by Alistair Croll and Benjamin Yoskovitz. For more "hands-on" support with measurement, check out what the folks at DORA are doing.

Keep in mind, the ultimate measure of the progress you've made and the impact your DevOps transformation is having is whether you are "winning" more—whatever "winning" means to you and your organization.

Leading Change with the Executive

An executive is someone who leads or manages others and has an impact on a large part of the organization through their decisions. The executive usually has significant strategy, staff, and budget control. We usually think of someone as an executive when we hear titles like CXO, VP, Chairman, or President, although the specific title is not as important as the person's position (and control and influence) within the organization.

If you can help the executive shift his or her mindset, the executive is more likely to support, sponsor, champion, and enable the changes you're trying to make. To help shift that mindset, you must understand what the executive cares about, understand the executive's priorities, and understand what issues the executive likely encounters. Once you understand the executive's perspective and employ some empathy, you can determine the right tactics to start shifting the executive's mindset.

WHAT THE EXECUTIVE CARES ABOUT

Executives have a variety of priorities that sometimes come into conflict with one another. The table below identifies some of these priorities and provides a description for each.

PRIORITY	DESCRIPTION
Accomplishing business goals or meeting the organizational mission.	• Insuring financial success for the organization. This will include many contributing factors, such as revenue growth, cost control, and ensuring appropriate profit margins. • Growing the market share for the organization through growing the market segment or through competitive replacements. • Developing happy, loyal customers through positive interactions and quality solutions. • For organizations where profit and market share are not key to the mission, accomplishing the primary goals of the organization in a measurable way is the priority.
Demonstrable or quantitative results that are measured.	• Generating and capturing metrics as part of the daily work to demonstrate results from process improvements. • Showing measurable improvement in the business goals or mission. • Providing metrics that demonstrate the return on investment of changes. • Capturing metrics as part of standard tasks to show the ROI without increased overhead.
Developing a healthy, happy organization.	• Maintaining a healthy organization to drive greater innovation and customer loyalty. • Ensuring that the organization is successfully hiring and keeping talented people within the organization. • Focusing on the right technical, architectural, and cultural practices to help drive employee engagement.
Avoiding risk, including, as appropriate, security and compliance factors.	• Managing risk through appropriate levels of traceability and transparency for the organization. • Including security concerns throughout the entire process; using automated processes and audit controls for compliance. • Providing logging for all interactions with automated log monitoring for anomalies in the system. Note: Refer to the DevOps Enterprise Forum An Unlikely Union: DevOps and Audit whitepaper for more on the topic of security and compliance.

WHAT ISSUES THE EXECUTIVE ENCOUNTERS

Executives encounter issues in their pursuit of what they care about and their goals. The table below identifies some of the most prevalent issues and provides a description of each.

ISSUE	DESCRIPTION
Work takes too long and costs too much to complete.	• Changes to legacy systems are time-consuming and costly because the systems are complicated, have many interdependencies, and have associated technical debt. • Changes pass through multiple groups to accomplish the work needed (e.g., analysis, development, testing, operations) or for review and approval (e.g., security, compliance, "the business"). Groups sometimes identify problems with the changes, requiring changes to be sent back upstream for rework. • The process used has many steps, some of which cause long waits or don't add value. • Preserving stability is a goal, usually accomplished by limiting changes (e.g., change control boards, release windows) and ensuring whatever changes do occur are verified not to disrupt operations (e.g., manual regression testing). • The attempt to preserve stability through signoffs, change freeze windows, and human-based controls often results in "risk management theater" and produces even worse outcomes.
Balance competing priorities.	• Ensuring customers are successful is a top goal—but not the only one. • The organization needs to secure information, infrastructure, and intellectual property, and also comply with laws, regulations, and policies. • There is more work to do than there is funding available. The organization often needs to compromise what they want to do (or feel they need to do) in favor of what funding will allow. • Group incentives and priorities sometimes run counter to the organizational strategy and what is in the organization's best interests. • Different types of expenses (e.g., capital, operational) have different impacts on the financial health of the organization.

ISSUE	DESCRIPTION
The pace of change is too fast.	• In order to keep pace with competitors, the organizations needs to make changes. • The organization needs to adopt new tools, technologies, and techniques—and, at the same time, minimize the disruption to the organization from their adoption. Since the organization can't adopt all of them (nor would they want to), they also need to identify which will actually have the most positive impact on the organization. • The organization makes decisions with imperfect, incomplete, and insufficient information. The organization wants to perform more analysis and research to inform decisions, but don't feel like they can afford the time. • The organization and industry evolve too fast to establish a clear road map for the future.
Attract and retain the skills and experience needed in the workforce.	• Competition for talent is increasing, making good people harder to find and harder to keep. • Attrition in the workforce reduces how much work can be done and increases the time it takes to do it. • Changes to our organization and industry require training to keep the skills of our workforce current and relevant. • Skill and experience gaps in the organization's workforce create risk for the organization.

Leading Change with the Middle Manager

The middle manager has a unique perspective and is a crucial translator between executives and individual contributors. Middle managers are in tune with the incentives the organization has in place to reward top performance. From the perspective of a middle manager, a successful organization needs to make a mindset shift, and the organization needs to incentivize a different set of values. This is the shift from an organization valuing efficiency to an organization valuing effectiveness.

WHAT THE MIDDLE MANAGER CARES ABOUT

Middle managers have several interests. They advocate for their teams, they are partners in building a strong business, and they are technology leaders capable of executing as part of a larger team. The table below outlines these interests.

PRIORITY	DESCRIPTION
Introducing new capabilities through technology.	• Technology is always changing,offering teams improved capabilities. • Managers need to take the lead in establishing an evidence-based approach to evaluating and selecting new technologies. • Technology evaluations need to progress into durable decisions and lasting selections that support the business.
Attracting and building top talent.	• To build effective teams, managers need to make sure team members have the right skills, solid judgment, and strong communication. Managers may hire for these attributes; however, good managers often coach and mentor their teams to grow and evolve to meet changing needs. • Managers often have to focus their energy on high potential individuals in order to retain and grow future leaders.
Doing new, high-value work while simultaneously reducing technical debt.	• Managers help their teams navigate the difficult path of supporting existing products and services, while finding time to address new, high-value work. There is often not enough time to do both. Therefore, managers are always looking to free up capacity by increasing the productivity of their teams. • At the same time, managers must be able to work across the organization to see gaps and direct their teams toward addressing those opportunities.

PRIORITY	DESCRIPTION
Building partnership to bring peers along and build the business.	• It takes several teams working together to execute on large projects. In the end, the work from each team must integrate together seamlessly to yield the best possible outcome. • This level of integration and teamwork is built on the foundation of trusted relationships. • Managers often spend time building these relationships to create a more effective and exciting working environment.

WHAT ISSUES THE MIDDLE MANAGER ENCOUNTERS

Middle managers encounter issues and obstacles on their path to supporting their teams and the business, while working alongside their peers. Despite differences in every organization, we feel middle managers face some common challenges. The table below describes the top issues middle managers may face.

ISSUE	DESCRIPTION
Budget is cut, and the team is asked to do more with less.	• Businesses are under pressure as new digitally-native competitors disrupt industries. • Shrinking profits and margins force operating cuts without cutting the workload or expected deliverables.
Reduce dependency on consultants and build an in-house employee team.	• Managers are asked to build in-house technical expertise and reduce vendor spending. • Finding, hiring, and training engineers requires a substantial time investment and takes time away from other focus areas.

ISSUE	DESCRIPTION
Team not empowered to move to new enabling technologies, such as cloud, NoSQL storage solutions, or open source tools.	• Organizations may not have the processes to make wide-ranging decisions. • For example, it may be challenging to get legal approval to use an open source, free-to-use NoSQL datastore. • Another example, moving to the cloud may be blocked by finance teams who do not want to shift money from capital expenditures (capex) to operational expenditures (opex).
Too many implicit requirements, including security, privacy, and compliance.	• Managers are often expected to know what to test for and how to assure quality. These quality standards often rely on unstated requirements. Managers need to make these implicit requirements explicit. • In addition, they need to set expectations with executives for additional work required to be compliant. Sometimes it can seem like a constant struggle to educate executive management on the time and effort needed to build top quality products.

TARGET MINDSET

DevOps has an associated growth mindset, as much as it has a set of associated patterns and practices. In fact, you'll have limited success in changing patterns and practices unless you adopt a growth mindset, and align the values and beliefs of the organization with the changes you're leading. We want to enable change agents trying to shift the mindset of the organization to a target mindset more aligned with DevOps patterns and practices.

DevOps is a new way of working, which requires a new way of thinking. The conventional wisdom doesn't always hold. The change agent shouldn't imply someone is wrong, dumb, or has bad intent just because they think differently. To make the most progress and get the best results, have an open mind, collaborate, and demonstrate empathy.

The table below lists the mindset attributes we're trying to change and a description of each. This is not a comprehensive list. We're focusing on the few mindset attributes for which people will say they aren't "there" yet and that are most important for a successful DevOps transformation. For example, most organizations will say they are customer orientated and have an appreciation for the concept of business value. Not as many will say they believe in empowering teams, value-orientation, or embracing change.

In addition to what people *say*, also pay attention to what they *do*. Actions and behavior often provide even better insights into the values and beliefs of the organization and its employees than what people are saying.

ATTRIBUTE	DESCRIPTION

Empowering teams.	• Empowered teams have the right skills, right visibility, and right authority, all in support of making the best decision for their specific circumstances:
	  • Right skills include expertise or timely access to expertise in all aspects of the environment.
	  • Right visibility means that information from the entire environment is available to the entire team (e.g., operational monitors can be viewed by developer centric team members, CI build results can be viewed by operations and support).
	  • Right authority includes permissions to modify the environment;however, it comes with accountability. Having context is important to ensure teams and individuals understand the implications of decisions and modifications to the environment.
	• Empowered teams thrive in learning organizations where they have permission to fail—blameless retrospectives are excellent examples of leveraging failure (and success) to get better.

Focusing on value orientation.	• Cross-functional teams work together on a real-time basis day to day with the common objective of business value delivery. • Real-time interactions enable teams to effectively handle high priority work and emergencies, thereby delivering enhanced business value. • Delivery value streams are used to identify the process flows across functions and waste points requiring attention—applying Lean manufacturing principles to the software domain. • Value streams also help identify silos and where there are opportunities to break down barriers between them. • Transparency becomes a critical enabler to developing true collaboration and trust among groups that traditionally have considered themselves to possess different agendas and/or objectives.

ATTRIBUTE	DESCRIPTION
Embracing change.	• Continuous improvement is a cultural foundation for DevOps organizations. Always looking for ways to work more efficiently, less manually, more collaboratively—this is a never-ending process. Organizations are never "done" with this activity. • The objective is managing risk to the right level for the given situation, instead of attempting to eliminate risk altogether. • DevOps organizations do not view tradeoffs between speed, quality, stability, and security as absolutes. True win/win situations are common by leveraging cross-functional insights, automation capabilities, and willingness to try new approaches.

You're trying to create the following mindset shifts:

- From *controlling change* to *embracing change*
- From *command and control* to *empowerment*
- From *functional silos* to *value streams and systems thinking*
- From *low-cost provider* to *enabling business value*
- From *hoarding resources* to *sharing and experimenting*

Each of these shifts is described below, along with some tactics you can use to create that shift.

FROM *CONTROLLING CHANGE* TO *EMBRACING CHANGE*	
FROM *CONTROLLING CHANGE*	TO *EMBRACING CHANGE*
Plans should be correct before starting work, and then teams should stick to the plan.	Work should be completed in small iterations with frequent opportunities for feedback, so teams can change course along the way.
Managers should review and approve work to enforce standards and compliance requirements before work moves to the next step in the process.	Automation and tools should be used to enforce standards and compliance requirements as work moves through the process, producing audit evidence along the way and moving to a system of exception management.
Variances from the expected way of working should be minimized.	Teams should experiment to discover new, better ways of working.
When something unexpected happens, the team should control it.	When something unexpected happens, the team should explore it.
Failure means something went wrong; the team should avoid it and hide it when it happens.	Failure is an opportunity to improve the system so teams can learn from it.

Applicable Tactics

TACTIC 1: Identify peers who have already shifted their mindset.
TACTIC 2: Hold DevOps information sessions.
TACTIC 3: Perform value stream mapping.
TACTIC 4: Propose experiments to address persistent issues.
TACTIC 5: Conduct blameless retrospectives.
TACTIC 6: Provide a playbook.
TACTIC 7: Practice the improvement kata

FROM *COMMAND AND CONTROL* TO *EMPOWERMENT*	
FROM *COMMAND & CONTROL*	TO *EMPOWERMENT*
Teams operate as **command and control** when information is used as a tool to manage and direct teams. Teams are only told what they need to know and often asked to execute without context.	Teams **empower and coach** when they are asked to self-align to the core mission of the larger organization. They are allowed to iterate and experiment to reach the desired outcomes.
Anticipate every bad outcome and protect the organization with strictly enforced centrally-defined processes.	Every scenario cannot be anticipated. Prepare teams with the right skills and knowledge to make the best decisions when needed—and the ability to recover quickly when failure happens.
Assign tasks and monitor closely.	Share objectives, provide guidance, and remove roadblocks.
Shoot the messenger.	Accept bad news as an opportunity to learn and improve.
Information is power—restrict to need-to-know.	Collaboration is power—information is open by default (with consideration for privacy and security).
My team works for me.	I work to enable my team.
Find the person to blame and make an example to prevent future mistakes.	Find the breakdown in the system that drove the wrong behavior and correct it to prevent future errors.

Applicable Tactics

TACTIC 5: Conduct blameless retrospectives.

TACTIC 8: Connect strategy, tactics, and operations through alignment and feedback.

TACTIC 9: Go on gemba walks.

TACTIC 10: Use evidence to drive decisions.

TACTIC 11: Make work visible.

TACTIC 19: Do FlashBuilds.

TACTIC 21: Use social collaboration tooling.

TACTIC 23: Measure Employee Promoter Score.

FROM *FUNCTIONAL SILOS* TO *VALUE STREAMS AND SYSTEMS THINKING*

FROM *FUNCTIONAL SILOS*	TO *VALUE STREAMS AND SYSTEM THINKING*
Teams are organized by skill sets and functions.	Teams are organized based on the products or services they deliver and support.
Planning and accounting are based on projects and activities performed by the organization. Variance is evaluated against the plan and budget for the projects and activities.	Planning and accounting are based on products and services provided by the organization. Variance is evaluated against the expected outcomes.
Task-focused teams work on the assignments they are given.	Outcome-focused teams ask if there is a better way to achieve the desired objectives while meeting the needs of the business.
Work is completed as it is handed off from function to function and across teams.	Work stays within the team from start to finish.
Optimizations are made locally to a function.	Optimizations are made globally to the value stream.
Customer orientation is primarily internally-focused (i.e., customers are other parts of the organization).	Customer orientation is primarily externally-focused (i.e., customers of the organization's products and services).

Applicable Tactics

TACTIC 3: Perform value stream mapping.

TACTIC 9: Go on gemba walks.

TACTIC 11: Make work visible.

TACTIC 12: Create a common backlog.

TACTIC 13: Set WIP limits.

TACTIC 20: Do FlashBuilds.

TACTIC 22: Set burnup growth goals.

FROM *LOW-COST PROVIDER* TO *ENABLING BUSINESS VALUE*

FROM *LOW-COST PROVIDER*	TO *ENABLING BUSINESS VALUE*
Teams are expected to deliver their product at or below a specified cost in dollars. **Cost management** is a top metric tracked across all projects.	As **service providers**, teams are evaluated against overall organization performance, and the team's responsiveness to competitive initiatives. As a result, the team will leverage data and expertise from across the organization through a successive wave of releases.
Teams are expected to regularly benchmark their services against competing providers, thereby showing they are a low-cost provider.	Teams are expected to regularly evaluate their contribution to business value. The team is free to suggest alternative approaches that better align to the organization's strategy and, therefore, unlock new value.
Teams utilize financial engineering when they shift work and responsibilities outside their group without moving resources. As a result, the team may appear to improve their key metrics when in fact they are less productive and less effective.	Teams utilize innovation when they increase their productivity through eliminating workarounds and focusing on automation. They then reinvest extra time and energy into improving their products.

Applicable Tactics

TACTIC 3: Perform value stream mapping.

TACTIC 14: Make a compelling case for change.

TACTIC 15: Demonstrate success while limiting the blast radius.

TACTIC 17: Highlight the successful changes of others.

TACTIC 18: Engage coaches.

FROM *HOARDING RESOURCES* TO *SHARING AND EXPERIMENTING*

FROM *HOARDING RESOURCES*	TO *SHARING AND EXPERIMENTING*
Teams are incented to **hoard resources** because there are negative repercussions for failing to deliver and no costs for holding onto resources.	Teams are incented to **share resources** to beat the competition and meet business needs. Teams understand value is unlocked by working together and supporting one another.
Teams focus on **eliminating risk** by investing in a few, heavy processes and technologies intended to comprehensively understand requirements but extend time to value.	Teams utilize an **experimental approach** to produce smaller, rapid prototypes that better enable decisions for future releases or lead to quick abandonment. This approach not only brings value to market quickly, it provides the agility and speed needed to compete in a dynamic business environment.

Applicable Tactics

TACTIC 8: Connect strategy, tactics, and operations through alignment and feedback.

TACTIC 19: Do FlashBuilds.

TACTIC 20: Provide innovation time.

TACTIC 21: Use social collaboration tooling.

TACTIC DETAILS

As you can see, your strategy for leading change can include a variety of tactics. The tactics that will work best for you depend on your particular circumstances and context. Again, there is no "one size fits all" approach to this kind of change—what works great in one setting may be completely ineffective in another. As the change agent for your organization, you (and other supporters) should assemble these tactics and others into a plan that works for you and your organization.

The full list of tactics is:

TACTIC 1: Identify peers who have already shifted their mindset.
TACTIC 2: Hold DevOps information sessions.
TACTIC 3: Perform value stream mapping.
TACTIC 4: Propose experiments to address persistent issues.
TACTIC 5: Conduct blameless retrospectives.
TACTIC 6: Provide a playbook.
TACTIC 7: Practice the improvement kata.
TACTIC 8: Connect strategy, tactics, and operations through alignment and feedback.
TACTIC 9: Go on gemba walks.
TACTIC 10: Use evidence to drive decisions.
TACTIC 11: Make work visible.
TACTIC 12: Create a common backlog.
TACTIC 13: Set WIP limits.
TACTIC 14: Make a compelling case for change.
TACTIC 15: Demonstrate success while limiting the blast radius.
TACTIC 16: Promote collaboration and sharing.
TACTIC 17: Highlight the successful changes of others.
TACTIC 18: Engage coaches.

TACTIC 19: Do FlashBuilds.
TACTIC 20: Provide innovation time.
TACTIC 21: Use social collaboration tooling.
TACTIC 22: Set burnup growth goals.
TACTIC 23: Measure Employee Promoter Score.

TACTIC 1: IDENTIFY PEERS WHO HAVE ALREADY SHIFTED THEIR MINDSET.

The purpose of identifying peers is to connect similar, credible individuals with the person whose mindset you want to shift, with the intent that this peer will be able to influence the individual to change. The hope is that these peers will influence the individual to change through inspiration, shared knowledge and experience based on credibility and relatability.

Some things to keep in mind for this tactic:

- Peers could be inside or outside the organization. Both types are valuable for different reasons.
  - Peers inside the organization are valuable because they understand the organization, its culture, and its goals.
  - Peers outside the organization are valuable because they have a different perspective and potentially more objectivity.
- Peers should be individuals the person respects and to whom you have access, so you can make effective introductions.
- Get permission from both the individual and the peer to make the introduction.

TACTIC 2: HOLD DEVOPS INFORMATION SESSIONS.

The purpose of information sessions is to create a shared vision and increase the awareness of DevOps concepts within the organization.

Some things to keep in mind for this tactic:

- Information sessions should be focused on high-level concepts related to the mindset shifts, using the language and context of the attendees.
- Information sessions should provide opportunities for attendees to ask questions and engage in discussions.
- Information sessions should be tailored to organizational realities—structure, goals, processes, technologies, etc.
- The scheduling and location should make it easy for people to attend.
- Gather feedback at the end of information sessions, especially questions or concerns attendees have.
- Consider doing a "pilot" session with a small number of attendees to get feedback on the format and content of the information session before announcing it to a broader audience.
- Consider the intended audience and be intentional about whom you invite. Do you want executives? Middle managers? Individual contributors? Dev? Ops? A mix? Anyone?
- Pick a credible facilitator. Someone who can connect in a meaningful way with the audience and provide appropriate structure, context, and insights.

TACTIC 3: PERFORM VALUE STREAM MAPPING.

Value stream mapping provides an overview of the entire system and helps drive targeted actions. Value stream mapping creates a shared context and more awareness of opportunities to improve flow. Value stream mapping is a process that models the end-to-end flow of idea into production and support for an organization using a visual modeling language. Once modeled, you can separate practices that add value from practices that lead to waste. Waste is often described in "The Seven Deadly Wastes of Software Development" by Mary and Tom Poppendieck The organization uses the model over time to identify and find forms of waste, implement countermeasures to reduce waste, and optimize the end-to-end flow.

Some things to keep in mind for this tactic:

- Focus on visualizing the actual work of the organization. It is not a model of how the process is documented or should occur; instead, it should capture what actually occurs.
- All the individuals and organizations involved in delivering value should participate in creating the model. This helps all the "actors" involved in delivering value see their role in delivering value (or their role in creating waste) to the larger process.
- The value stream mapping effort and resulting model encourage teamwork and create clarity and specificity in discussions. People can reference a single diagram and show cause-and-effect relationships throughout the value stream, helping to bring teams together around a problem statement.
- The organization must have an understanding of what value means for delivery. Typically, value means features for a product or a business service being provided.
- The visualization should be large, visible, and referenced often by the organization.

- The teams involved in the value stream should feel ownership in improving their value stream—not as an exercise by management to do process improvement to them.
- Use TACTIC 7: IMPROVEMENT KATA, in conjunction with value stream mapping to create an improvement program.

TACTIC 4: PROPOSE EXPERIMENTS TO ADDRESS PERSISTENT ISSUES.

Proposing experiments to address persistent issues helps an organization be more explicit in their intention to try new approaches. Sometimes organizations get stuck in the same way of doing things and have difficulty making a change. Experiments provide a way to try new approaches with low risk and at low cost.

Some things to keep in mind for this tactic:

- A persistent issue provides a justifiable target for experimentation since it is recurring (i.e., it is likely to happen in the future) and it has a known cost since it has already happened.
- Limiting the scope and timeframe of the experiment will manage risk, reduce needed resources, and shorten the "time to payoff."

Good experiments have the following qualities:

- They are specific, with an explicit understanding of what is being tried differently.
- They are evidence-based with a measurement of value compared between control and the variant.
- The are easy to try with a minimum amount of setup time and with minimal cost.

TACTIC 5: CONDUCT BLAMELESS RETROSPECTIVES.

The purpose of a blameless retrospective (or blameless postmortem) is to find causes, fix issues, and improve the organization. Retrospectives enable teams to learn from events and decide what changes to make in order to improve outcomes in the future.

Some things to keep in mind for this tactic:

- Retrospectives demonstrate a commitment to building a learning organization.
- Consider holding blameless retrospectives for events that went well in addition to events that didn't go as planned.
- Consider holding blameless retrospectives as a normal course of operations (e.g., periodically, after every project's conclusion) to avoid surprises and set the expectation that a blameless retrospective isn't to be feared.
- Consider using a moderator or facilitator who doesn't have a vested interest in the outcome and wasn't involved in the events covered by the retrospective. Use of a moderator or facilitator is especially important for teams new to blameless retrospectives and new teams where trust hasn't had time to develop.
- The effectiveness of blameless retrospectives depends significantly on the culture of the organization conducting them—the higher the trust within the organization, the more effective the retrospective.
- Do your best to create an environment where teams feel safe to participate and make problems visible.
- Consider including a play in the playbook (Tactic 6) for participation in a blameless retrospective.
- In most incidents, there are multiple contributing factors rather than a single root cause. Be prepared for that and encourage the discussion to move away from identifying a single root cause.

- Transition from the use of "why" to "how" as a way to surface the contributing factors.
- The use of human error as a root cause happens in many organizations. Human error is not a root cause. Keep the focus on the system and encourage the dialogue to be about how the system could be improved.

TACTIC 6: PROVIDE A PLAYBOOK.

The purpose of providing a playbook is to give individuals specific guidance for how to act in situations that may be unfamiliar to them. By contributing explicit guidance to the playbook, teams have a way of sharing real-world knowledge and experience.

Some things to keep in mind for this tactic:

- Create different playbooks for specific roles or individuals—it's not a "one size fits all" approach.
- A play might have different roles or individuals associated with it (e.g., a blameless retrospective with multiple executives, middle managers, and individual contributors).
- Start small with a few of the most common "plays" for one person or group and build on it over time.
- A playbook could serve as training material for individuals new to the role or the organization.
- Consider using a format you can easily update as circumstances change and you want to add new plays or change how plays are handled.
- Consider how open and available you want the playbook content to be, especially in early stages of use.
- Gather feedback regularly to evaluate how well the playbook is working for its intended audiences.
- Changing someone's behavior may lead to a change in that person's mindset—that person will be *acting* themselves into a new way of *thinking* (as opposed to *thinking* themselves into new way of *acting*).

TACTIC 7: PRACTICE THE IMPROVEMENT KATA.

The purpose of the improvement kata is to provide a framework and pattern to establish continuous improvement practices and culture within a team or organization. It is based on learnings from the Toyota Production System. As with any kata, the focus of a beginner is to build mastery and "muscle memory" in the mindset and techniques through extensive practice and repetition.

Some things to keep in mind for this tactic:

- The improvement kata can be applied in many situations. For the purpose of this paper, focus on using it to improve how you deliver and manage technology products or services.
- The improvement kata is applied in four steps (we explain these steps using a hypothetical example):
  1. **Understand the challenge or direction.** What is the problem you are trying to solve?
     - Example: It takes you three months to deliver new features to your website, while your competitors can do it in a week. You can't be as responsive to customer needs as they are.
  2. **Grasp the current condition**. Define the current operating state of your process, identifying bottlenecks impacting performance.
     - Example: After completing your first value stream analysis, you learn there are significant delays with handoffs between infrastructure teams due to tightly-coupled integrations with back end systems.
  3. **Establish the next target condition**. Set a new condition, describing how the process should operate.
     - Example: Reduce cycle time to deliver new features to the website to one month.
  4. **Iterate toward the next condition**. Make improvements iteratively, then measure the impact. Repeat iterations until target conditions are met.

- Example: In each sprint, identify a bottleneck or process improvement item to focus on. During retrospectives, measure the impact of these changes on your cycle time.

You are not done after completing these four steps. Since you now have a continuous improvement mindset, start the cycle over again and establish a new target condition.

Consider leveraging trained coaches or reading more material on the improvement kata and the coaching kata to better understand the techniques and approach.

Value stream mapping (TACTIC 3) is a powerful tool to describe the current condition and visualize improvements toward the target condition.

The improvement kata approach is explained in depth in the Toyota Kata by Mike Rother.

TACTIC 8: CONNECT STRATEGY, TACTICS, AND OPERATIONS THROUGH ALIGNMENT AND FEEDBACK.

The purpose of this tactic is to clearly articulate the objectives and cascade them throughout the organization. This includes validating through feedback loops that the work being assigned to the teams will actually achieve the intended objective(s).

Some things to keep in mind for this tactic:

- Consider leveraging Hoshin Kanri.
- Strategy A-3 templates can be leveraged to start practicing this.
- It's important to create the structure to validate. Start small with one objective, cascade that to the team(s), and have them cascade back the results.
- Executives need to align on what the common objectives for the organization will be.
- Consider aligning incentives associated with the strategy, tactics, and operations. These incentives should reinforce the goals of the organization and the team, rather than the goals of individuals or silos.

TACTIC 9: GO ON GEMBA WALKS.

Gemba is a Japanese word meaning "the real place." The purpose of a gemba walk is to bring the manager directly to the team area to view the real-time team artifacts—not just status reports. Managers should help their teams achieve more by providing the perspective and courage that inspires teams to improve their work environment. Managers need to be visible in the places where work happens to understand the conditions of work, to be accessible to their teams, and to discover new opportunities and possible risks. A simple, effective approach to accomplish this is to visit the team rooms, locations with value stream maps (TACTIC 3), stand-ups, demos, and hackathons.

Some things to keep in mind for this tactic:

- Gemba may be a concept that is not well understood in most organizations.
- Establish these walks as leader standard work. Pick consistent days and times. Let your teams know when you will be visiting and why. Be clear that this is a way for you to understand the work and help to remove roadblocks. It's also an opportunity for you to learn, coach, and teach through actions.
- This will be uncomfortable when you start practicing. Tell your teams that and be vulnerable. This is your opportunity to show that you are evolving as a leader.
- Consider leveraging the coaching kata questions as you start. Over time, you will find what works best for you and your organization. The key is to demonstrate that you value the work the team is doing and that you are there to help.
- If the leader agrees to address issues after a gemba walk, they must be followed through. Otherwise, it violates trust between leader and team. It is better to be honest and acknowledge that a certain problem cannot be immediately fixed than to agree to fix something and not follow through.

TACTIC 10: USE EVIDENCE TO DRIVE DECISIONS.

Organizations often don't take advantage of the available data, analysis, and benchmarking to support their decision-making, relying instead on emotion or intuition. The importance of making informed, evidence-based decisions increases along with the pace of change.

Some things to keep in mind for this tactic:

- It's challenging to identify what evidence you need and when you need it. Start small and take time to understand what leading or lagging indicators you need.
- Think about the evidence you will need to inform future decisions and create a capability to easily flex if you discover you need more, less, or different data.
- Frequently inspect what evidence is being tracked and have tough conversations about what it's being used for. If it's not driving an action, determine whether you should continue tracking it.

TACTIC 11: MAKE WORK VISIBLE.

The purpose of making work visible is to promote a culture of openness and transparency. Making work visible also provides clarity on what work is actually happening versus what people hear about anecdotally. This visibility helps highlight opportunities for prioritization, alignment, and elimination of wasteful activities. Visible work becomes transparent work.

Some things to keep in mind for this tactic:

- Kanban is a powerful approach to visualizing work. You can be flexible in how you structure Kanban boards, but the simplest form to get started is to organize work based on "Backlog/To Do," "Work in Progress (WIP)," and "Done."
- Consider visualizing your work in open spaces where all stakeholders can come and see. For example, place your value stream or Kanban boards on a wall in your work area.
- Encourage people to *pull* the information they want, by going to see the work instead of waiting for status reports to be *pushed* to them.
- Getting leaders to visualize their work (e.g., strategy planning) can go a long way in modeling this behavior for others and encouraging teams to do the same.
- See (TACTIC 3) for another way to visualize the work, post current value stream maps on the wall or in a public area.

TACTIC 12: CREATE A COMMON BACKLOG.

The purpose of creating a common backlog is to provide a structure for prioritization. The "shotgun approach" of taking on many projects and work priorities at once is discouraged. Instead, a team focuses on aligning its work to a common backlog where work is prioritized together. The team is then able to throttle how much work is taken on at any given time.

Some things to keep in mind for this tactic:

- This backlog can be created at different levels. You can have one for the product, portfolio, or enterprise level, and these backlogs can feed each other.
- Ensure the team's work is truly driven off of the backlog. Ensure stakeholders are aligned and not driving work to the team following different tactics.
- The process is intended to provide more flexibility in determining what to work on as conditions change, in contrast to the more rigid planning associated with a waterfall approach.
- Groom the backlog periodically to validate the items on it are still the right ones and prioritize accordingly. If an item never moves up in priority, it should probably be removed.
- Make sure there is clear success criteria and appropriate diligence done before starting work on an item in the backlog.
- Come up with a score to assign value. Figure out what works best for your organization. The Art Of Business Value by Mark Schwartz is a great resource to use for this conversation.

TACTIC 13: SET WIP LIMITS.

"Work in Process" (WIP) limits help teams understand their capacity and can be used to identify bottlenecks in flow. Establishing WIP limits has a direct impact on stability, predictability, efficiency, and team health/morale.

Some things to keep in mind for this tactic:

- Every team is different, and establishing a WIP limit for a team will require some experimentation. Try something and be prepared to adjust.
- Setting WIP limits is directly connected to the tactic of making work visible (TACTIC 11). Without work being visible, establishing WIP limits will be extremely challenging.
- When a WIP limit is about to be exceeded, use that as an opportunity to swarm on the problem and work as a team to identify the improvement needed.

TACTIC 14: MAKE A COMPELLING CASE FOR CHANGE.

The purpose of creating a compelling case is to help people understand why it's important to change the way they operate. Help people understand the impact of not changing from a business perspective. Also share the possibilities and discuss the potential benefits of change.

Some things to keep in mind for this tactic:

- Share data-based evidence of benefits, such as the business and IT performance results in The State of DevOps Reports.
- Share case studies demonstrating benefits such as those presented at the DevOps Enterprise Summit, in The DevOps Handbook, and via DevOps podcasts.
- Describe the "burning platform" for your organization. Explain the conditions in the industry or inside the organization that make the risk of not changing outweigh the risk of changing. This gives teams the courage to try new things and encourages them to take action and drive improvements.
- Consider including qualitative justification in addition to data-based, quantitative evidence. These qualitative aspects could be stories of impact on customers, employees, partners, or the organization overall.

TACTIC 15: DEMONSTRATE SUCCESS WHILE LIMITING THE BLAST RADIUS.

Large organizations can be difficult to change all at once. Identify one team with which to apply a tactic and drive the improvement with that team instead of attempting to apply the tactic to the entire organization at the same time. By applying the tactic to just one service or product, the rest of the organization is shielded from the change until value is demonstrated. Once you have achieved success with one team, start exposing the broader organization to the changes and improvements. The purpose of this tactic is to mitigate the organizational churn and pushback that happens with any change program by building on success. The purpose is also to avoid applying tactics that may not have value to the organization.

Some things to keep in mind for this tactic:

- When focusing on one team, include the full value stream rather than just a single function if that is how the team is organized.
- There is a natural resistance to change for many organizations. Applying this tactic will help you lead change using a real, relevant internal success story to prepare you for dealing with this resistance.
- Applying a tactic to one team first provides learning opportunities for how the tactic might apply to the rest of the organization. Teams will find issues to overcome and opportunities to seize that require changes in their perspective and their behaviors. The team can then share this learning with the rest of the organization.
- Once one product or service has adopted new ways of working, consider creating a playbook (TACTIC 6) to share learning from the experience. This playbook will help other teams by offering specific "dos and don'ts."

TACTIC 16: PROMOTE COLLABORATION AND SHARING.

Collaboration and sharing are core aspects of DevOps. Look for ways to infuse different collaboration and sharing techniques into how teams work. Increasing opportunities for collaboration and sharing should start changing the culture organically at the "grassroots" level and accelerate learning across the organization.

Some things to keep in mind for this tactic:

- Use hackathons to bring people together across the organization to collaborate and innovate by working together to solve different technology problems.
- Use "game days" to bring teams together to try to break products or services in a controlled way to drive more resilient systems.
- Leverage internal conferences (e.g., DevOps Days) to have teams share with each other within your organization, allowing teams to learn from each other. These are also great events to engage outside thought leaders.
- Create forums to demo things being built within the organization. Encourage broad attendance for these live demos.
- Encourage social coding practices within the organization. For example, allow others to do pull requests against your code repositories.
- Consider installing information radiators in public areas to increase the visibility of the work being done within teams.

TACTIC 17: HIGHLIGHT THE SUCCESSFUL CHANGES OF OTHERS.

Be generous and highlight the changes teams are making to improve. Stories are powerful change tools. The organization will remember stories, and simple stories are easy to repeat and share. By highlighting good behaviors, leaders are helping the organization model success.

Keep the story simple and tell it in three parts. In the first part, explain the problem that needed to be addressed, conditions at the start, and specific measures of improvement. In the second part, explain the change that was made. In the third part, explain the change in the specific measures of improvement and what was learned.

Highlight the desired behaviors above impact. Teams that make an attempt to grow often learn through failing. Leaders who only tell stories of success are setting an expectation of perfection. Even when teams fail, leaders can highlight the intensity of the continued effort, express confidence in the direction the team is going, and highlight the improvement across the larger organization.

TACTIC 18: ENGAGE COACHES.

When going through a change in mindsets and skillsets, it can be highly effective to leverage expert coaches.

Create a dedicated space where subject matter experts can take up residence for an extended period of time. Product and service teams looking to leverage experts now have easy access within this confined and dedicated space. Product leads, lead developers, and operations team members can engage with many different types of experts in one space and take a self-directed approach to learning the skills and behaviors they need to become more effective and more efficient.

Some things to keep in mind for this tactic:

- Provide access to many different types of experts.
- Create a dedicated space for teams to engage with experts.
- Create a confined space to create more conversations between different experts and team members.
- Have teams do work alongside experts.
- Embrace diversity and provide advice that matches the needs of the team.

TACTIC 19: DO FLASHBUILDS.

Pull cross functional teams together to quickly build awesome solutions, while minimizing overall commitment. Combining aspects of flash mobs, scrums, and hackathons with the goal of delivering a product by leveraging existing automation infrastructure.

Here is an example schedule of a Target FlashBuild:

The structure for the day is somewhat typical to other 'all day sessions'

- Gather at 9:00 am for initial planning :: This is the time for product owner to establish the business problem and answer basic questions
- Planning at 9:15 am :: User stories are identified and an MVP is established
- Working session at 9:30 :: The core team breaks down the user tories and gets to #making_awesome_happen
- Stand-up at 10:30 :: Adjustments are made based on any issues or concerns identified

This is really important as there may be a couple of smaller teams within the core group working multiple fronts (think a tech trak and a process track) that have interdependencies

- Working session at 10:45
- 12:00 lunch break & close of Sprint 1
- Stand-up at 1:00 & start of new Spring :: User stories updated and planning updated
- Stand-up at 1:30 :: New spring and user story merged with backlog
- Working session at 1:45
- Stand-up at 2:50
- Working session at 3:05
- Demo at 4:00 PM
- Retro immediately following

Ahh…the demo! This is the opportunity to close loops, collaborate broadly, and get people invested irrespective of their perceived role or contribution. The demo becomes the spot where 'the rubber meets the road' as part of the FlashBuild. The demos is the *MVP* in a real, tangible form.

TACTIC 20: PROVIDE INNOVATION TIME.

Organize structured innovation time to enable change agents and create a dynamic system of discovery.

There are lots of myths about innovation time. Here are some tips to follow to make the most of any innovation time.

- Establish a dedicated space and a dedicated time for innovation. This will bring people from across the organization together and enable them to make connections in solving problems.
- Identify and focus innovation on an explicit subject area. Innovation without alignment to business need is a wasted effort.
- Share news of progress and accomplishments. Real examples connect employees and leaders to the value of innovation.
- Have a path forward to good ideas. The organization needs a plan to resource a progression from innovative design to prototype to customer refinement and through to production. Too often, innovative teams are starved for resources and attention and new products never make it to customer's hands.
- Strive for a consistent innovation process to firmly establish the definition of success for innovation time. Consistency will build confidence and get teams off of the sidelines and encourage them to contribute more.

TACTIC 21: USE SOCIAL COLLABORATION TOOLING.

Social collaboration tooling enables people to connect and collaborate virtually on a wide variety of topics and interests. Common examples inside a company include collaboration within a team or around a tool, strategy, or any other business or technology topic.

ChatOps is a specific category of collaboration tooling that is especially powerful in connecting teams focused on leveraging DevOps practices. Consider the following activities, to get the most value out of ChatOps tooling:

- While teams individually experimenting with a specific platform or service can be a good way for teams to get started, ultimately try to get the broader organization on a common platform so they can collaborate across teams.
- Persistent chat is an important feature as it enables history and context to persist, allowing people to go back or search for conversations that are relevant to them.
- Use this as the primary medium for conversations and asking questions—get out of email.
- One of the most powerful capabilities of ChatOps is that it enables the integration of common DevOps and Agile tooling. This mean tools or systems can communicate with people in chat rooms. This allows for the chat room to be the focal point for all team activities.
- Create automated tasks, typically referred to as "bots," that allow you to kick off workflows right from your chat room.
- Have fun. These tools often allow people to create their own emoticons and other fun activities that encourage teams to have fun and ultimately build community.

TACTIC 22: SET BURNUP GROWTH GOALS.

Set goals on a few measures like revenue or customer growth that impact the top line of the business and reflex growth. By focusing on the top line, teams are forced to see the larger perspective and envision the organization's strategy over a larger time span.

Some suggestions to get the most out of burnup growth goals:

- Use existing, accepted top-line measures that include everything.
- Stay away from complex measures that mute the causality between events and changes in the measure.
- When possible, create budgets for teams to help align actions to business needs.
- Focus on strategies that provide long-term growth. Stay away from short-term optimizations.
- Do not use growth goals to evaluate teams. Evaluation will cause internal competition and create bad behaviors. Instead, use growth goals to inform teams and provide transparency into the progress of the organization.

TACTIC 23: MEASURE EMPLOYEE PROMOTER SCORE.

Employee Promoter Score is a measurement of employee loyalty. Engaged and loyal employees are easier to retain. These employees are likely to stay in the organization and continue to contribute their expertise and experience. Engaged employees are more trusting of the organization and more likely to share information across the organization.

Employee Promoter Score is easily calculated using one question: *How likely is it that you would recommend your organization as a place to work to a friend or colleague?*

- Answer are scored on a 1-10 scale, with 10 as the highest score.
- The answers are broken out into three groups:
  - Promoters: employees with a score of 9 or 10
  - Passives: employees with a score of 7 or 8
  - Detractors: employees with a score of 0 to 6
- To calculate the total score, subtract the percentage of Promoters from the percentage of Detractors.

Additional questions may be asked that change the scope of the question. For example. the question may be narrowed to be team or division specific.

Resources

Books

The Phoenix Project: A Novel About IT, DevOps, and Helping Your Business Win by Gene Kim, Kevin Behr, and George Spafford, (IT Revolution Press, 2013)

Lean Enterprise: How High Performance Organizations Innovate at Scale by Jez Humble, Joanne Molesky, and Barry O'Reilly, (O'Reilly Media, 2014)

The Art Of Business Value by Mark Schwartz, (IT Revolution, 2016)

Migrating Large-Scale Services to the Cloud by Eric Passmore, (Apress, 2016)

Lean Analytics: Use Data to Build a Better Startup Faster (Lean Series) by Alistair Croll, Benjamin Yoskovitz, (O'Reilly Media, 2013)

Lean Software Development: An Agile Toolkit (Agile Software Development Series) by Mary Poppendieck and Tom Poppendieck, (Addison-Wesley Professional, 2003)

Toyota Kata: Managing People for Improvement, Adaptiveness and Superior Results by Mike Rother, (McGraw-Hill Education, 2009)

The DevOps Handbook: How to Create World-Class Agility, Reliability, and Security in Technology Organizations by Gene Kim, Patrick Debois, John Willis, and Jez Humble, (IT Revolution Press, 2016)

Online Resources

DevOps Research and Assessment LLC

Toyota Production System

What is Hoshin Kanri? (Vorne)

What is Kanban? (Leankit)

DevOps Enterprise Forum Guidance

An Unlikely Union: DevOps and Audit

Metrics for DevOps Initiatives

State of DevOps Reports

2016 State of DevOps Report

2015 State of DevOps Report

2014 State of DevOps Report

Risk Management Theatre: On Show At An Organization Near You by Jez Humble

Google's Best New Innovation: Rules Around '20% Time' by Kathy Gersch

Transforming to a Culture of Continuous Improvement by Courtney Kissler

DevOps Kaizen Practical Steps to Start & Sustain a Transformation by Damon Edwards

Staple Yourself to an Order by Benson P. Shapiro, V. Kasturi Rangan, and John Sviokla

Target FlashBuilds by Jason Walker

How ChatOps can revolutionize your business by Tomer Levy

Blameless PostMortems and a Just Culture by John Allspaw

The Field Guide to Understanding Human Error by Sidney Dekker

The Coaching Kata by Mike Rother

The Improvement Kata by Mike Rother

Events

DevOps Days

DevOps Enterprise Summit

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