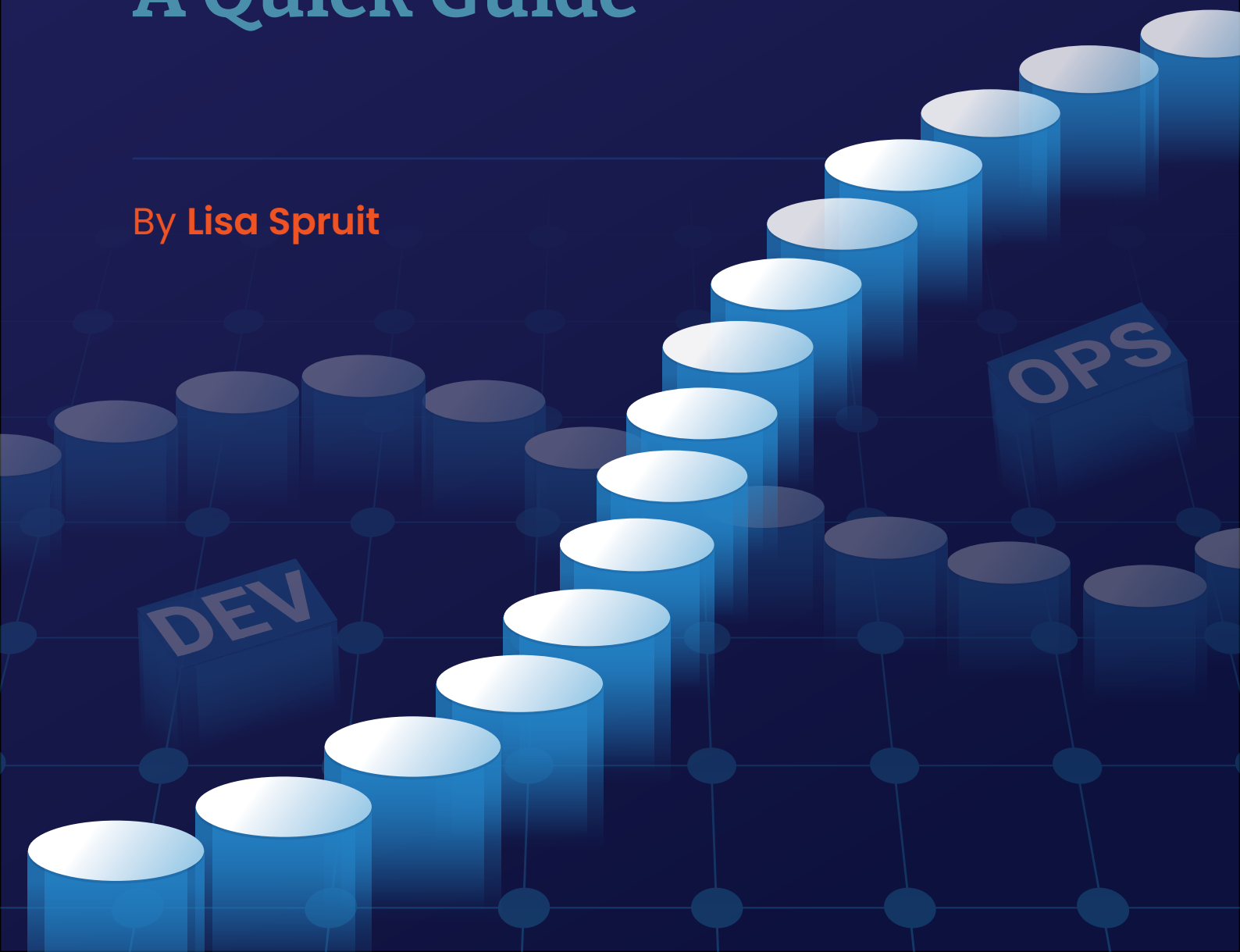


# Enterprise DevOps Steppingstones: A Quick Guide

By Lisa Spruit



Over the past 15 years, DevOn has been a trusted partner for organizations seeking high performance Software Delivery. Our expertise lies in guiding Agile and DevOps transformations, as well as facilitating public cloud adoption, all with the aim of delivering value rapidly, securely, and reliably. Through our extensive experience, we have consolidated various conceptions of DevOps into a comprehensive model, enabling us to effectively communicate the concept of DevOps at the enterprise level.

The model explained in this whitepaper serves as a valuable resource for understanding and implementing DevOps practices in an enterprise context.



## Introduction

DevOn brings over 15 years of experience in DevOps transformation, encompassing tools, technology, practices, and cultural adoption to achieve high-performance. In this whitepaper, we provide insights into our experiences with Agile and DevOps transformations and recognizing their interconnectedness. Agile methodologies empower organizations to plan, organize, and collaborate effectively, with the Agile Manifesto highlighting the importance of technical excellence for agility. DevOps, often seen as the natural evolution of Agile, complements this by incorporating technology and practices that enable seamless value delivery across teams. Before delving into specifics, it is essential to understand the core principles of DevOps as outlined in "The Phoenix Project" by Gene Kim (2018).

## Flow

The first principle, known as the First Way, emphasizes the significance of flow. It involves eliminating waiting times and achieving continuous activity, resulting in uninterrupted value delivery. Waiting times can arise due to various factors, such as deployment rights restrictions, slow environment provisioning, or lengthy testing setup. Enabling flow requires diligent efforts to eliminate these bottlenecks and ensure a smooth and uninterrupted delivery process.

## Feedback

The second principle, the Second Way, highlights the importance of feedback. Deploying software with errors is wasteful, as subsequent efforts to fix these errors only compound the problem. Timely detection of errors allows for quick resolution and reduces the cost associated with addressing them. Early defect identification and prompt feedback are crucial for improving overall efficiency.

## Continuous Experimentation and Learning

The third principle, the Third Way, centers around continuous experimentation and learning. Achieving optimal flow and feedback necessitates constant exploration of new technologies, testing software, alternative approaches, and architectural enhancements. Allocating a portion of the development cycle to reducing technical debt (around 20%) is crucial for ensuring software quality, improving deployment technology, implementing CI/CD practices, and enhancing the underlying technical architecture across the application landscape.

# Agile and DevOps Transformations

Differentiating between Agile and DevOps implementations helps to create clarity and focus. In general, Agile or Scrum implementations require substantial upfront effort and have a broader initial impact. They entail significant organizational and team-level changes, introducing roles like Product Owner and Scrum Master, transforming planning and budgeting practices, and promoting team stability.

In contrast, DevOps implementations can be gradual and opportunistic, addressing specific bottlenecks and yielding immediate results without requiring a complete overhaul. While the initial impact may be relatively smaller, it effectively eliminates bottlenecks, improves flow, and accelerates feedback. Initiating DevOps initiatives during an ongoing Agile transformation can generate the most comprehensive impact.

## Steppingstones

At DevOn, we have developed the Enterprise DevOps Steppingstones model, comprising three main elements, to guide successful DevOps implementations. This approach encompasses the Approach of the organization towards transformation, the People & Process aspect, along with nine technology accelerators which facilitate DevOps transformation. The implementation does not have to involve adopting all steppingstones simultaneously. We will explore how to make informed choices and identify relevant scenarios.

# Steppingstones Model

For High Performing DevOps Enterprises

## Approach

Clear  
Objectives

01

Smart  
Improvement

02

People  
Development

03

## People & Process

Aligned  
Leadership

04

Lean  
Organization

05

Great Place  
To Work

06

## Technology Accelerators

Continuous  
Integration(CI)

07

Continuous  
Delivery(CD)

08

Automated  
Testing

09

Automated  
Autonomy

10

Automated  
Reliability

11

Automated  
Security &  
Compliance

12

Future Proof  
Infrastructure

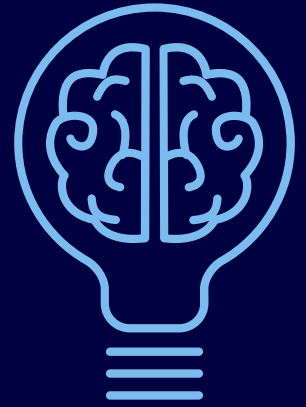
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Control over  
Cloud Cost

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Portfolio  
Management

15



# The Approach

## 01 Clear Objectives

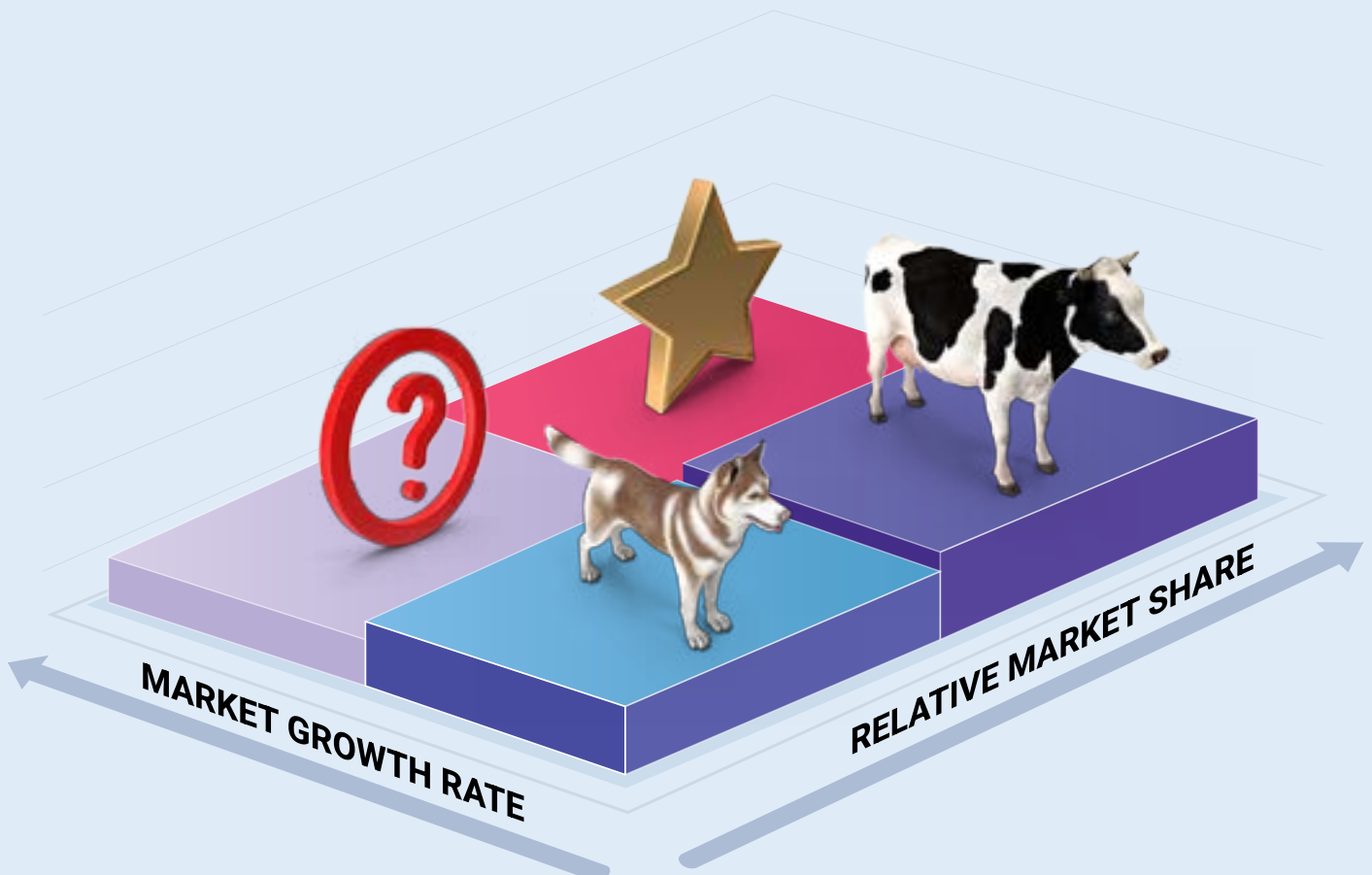
Our approach comprises three essential steppingstones. The first steppingstone, Clear Objectives, is often misused by leadership in organizations when trying to express their journey. Many of them struggle to articulate the “Why” behind DevOps initiatives, resulting in a narrow focus on faster, better, and cheaper outcomes. Unfortunately, this perception can inadvertently create resistance within the organization. To foster a more effective transformation, it is crucial to shift the focus towards making life easier for teams and helping them become more productive and value-oriented. By demonstrating care and support, the desired outcomes of speed, quality, and cost-effectiveness will naturally follow.

The true objective of DevOps implementation should be to create an environment conducive to flow and feedback. Avoid framing it solely as a cost-reduction endeavor. It is fundamentally about improving the overall performance of the organization.

# Three Core Value Streams

Understanding the perspective of the company's board is critical. Boards often employ frameworks like the BCG model, which categorizes products as stars, cash cows, or dogs. When introducing a new product, it starts as a question mark, eventually progressing to a star, a high-market-share player in a rapidly growing market. As the market matures, the star product becomes a cash cow before eventually declining into a dog. Creating stars requires substantial investments, establishing new domains, pipelines, and dedicated environments. In contrast, optimizing cash cows necessitates efficient testing, automated deployment, CI/CD capabilities, and empowering teams to handle deployments independently. Reliability, ensuring services remain available and trustworthy, is paramount for sustaining customer trust.

Each of these three value streams requires specific DevOps capabilities. Identifying the primary focus area helps direct efforts toward the most impactful improvements.



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## Smart Improvement

Smart improvement revolves around focus. Facilitating adherence to standards and providing a “Golden Path” that offers standardized solutions streamline processes within the organization. Non-standard solutions often arise due to time constraints or unfamiliarity with the enterprise’s established systems, resulting in suboptimal outcomes. Value Stream Analysis, a Lean practice, plays a vital role in identifying and eliminating bottlenecks. Conducting workshops involving key stakeholders helps pinpoint improvement areas and prioritize them based on their impact and cost of delay. Employing the Weighted Shortest Job First principle assists in sequencing improvements based on their cost-to-impact ratio.

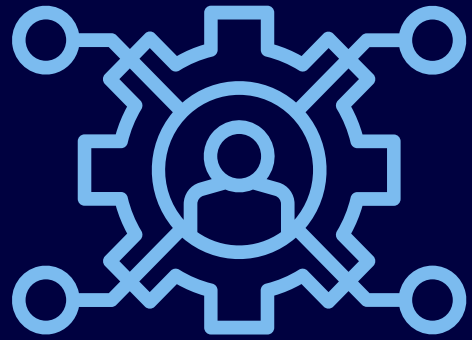
To ensure knowledge dissemination and adoption of best practices, establishing an inner-source platform or knowledge hub becomes crucial. This platform encompasses standardized building blocks, pipeline templates, testing templates, and practical guidance on utilizing enterprise-specific tools. Combining inner-source with the Golden Path approach facilitates the proliferation of standardized practices across teams, enhancing overall efficiency and reducing variability.

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## People Development

While discussed later in this whitepaper, people and organization aspects significantly contribute to the success of DevOps implementations. Practices such as unit testing, CI/CD, SRE, monitoring, and auto-repair require time and effort to master. Leaders must embrace a supportive approach that encourages learning, growth, and experimentation. Providing training, establishing sounding boards, implementing peer review mechanisms, and coaching individuals facilitate professional development. Guilds, specialized communities of practice focused on specific areas like CI/CD or React Native, foster knowledge sharing, innovation, and collaboration. A strategic approach to talent management, which includes reskilling and addressing performance gaps, ensures that the right individuals are positioned in the right roles. Measuring team maturity through assessments and utilizing platforms like hackerearth can provide valuable insights for growth planning. Organizing hackathons and tech days encourages innovation and learning, unleashing untapped potential within the organization.



# People & Process

04

## Aligned Leadership

Effective leadership alignment is a prerequisite for successful DevOps transformations. Allocating time for improvement is essential, ensuring that teams have the necessary resources and support to drive change. Leadership at all levels, including middle and upper management, must exhibit behavioral changes that align with DevOps principles. Measuring and validating success also requires a shift in metrics and evaluation criteria. Leveraging strategic initiatives as DevOps pathfinders helps align business priorities with DevOps goals, streamlining resource allocation.

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## Lean Organization

Embracing lean practices and cultivating a customer-focused mindset are key aspects of a lean organization. Understanding the needs of the business customer and connecting them to the DevOps implementation streamlines the process. Limiting work in progress, focusing on priorities, and fostering flow-driven optimization contribute to improved predictability and delivery.

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## Great Place to work

Organizational design and team structures play a critical role in DevOps success. Applying concepts like Conway's Law and Team Topologies (Skelton, 2019) enables effective collaboration and reduces cognitive load. Stream-aligned teams, enabling teams, complicated subsystem teams, and platform teams, along with their corresponding interaction patterns, form the building blocks for organizing teams and facilitating collaboration. Creating a great place to work requires providing a supportive context for teams to thrive. This includes psychological safety, autonomy, pride in craftsmanship, and opportunities for growth and innovation.



# Technology Accelerators

The technology accelerators, represented as steppingstones, provide a range of recommendations based on specific needs and goals:

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## Continuous Integration(CI)

A fundamental aspect of DevOps transformations is the implementation of continuous integration. CI enables organizations to establish a consistent and automated software delivery process. By integrating code changes frequently and automatically, teams can quickly identify and address any integration issues, reducing the likelihood of conflicts and improving collaboration among developers. CI also promotes a more streamlined and efficient development workflow, allowing teams to continuously validate and verify their changes through automated tests and build processes.

**08**

## Continuous Delivery (CD)

Another crucial component of DevOps transformations is continuous delivery. CD focuses on automating the deployment and release processes, enabling organizations to consistently deliver software updates to production environments in a reliable and efficient manner. By automating the entire software delivery pipeline, teams can minimize manual errors, reduce deployment time, and enhance the overall quality of their releases. CD empowers organizations to achieve faster feedback loops, enabling faster time-to-market and the ability to respond rapidly to customer needs and market demands.

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## Automated Testing

Prioritizing automated testing helps achieve faster and more reliable change delivery, reducing defects and improving overall software quality.

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## Automated Autonomy

Enabling teams to order resources and services through APIs or automated forms accelerates delivery and eliminates unnecessary dependencies and delays.

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## Automated Reliability

Investing in automated reliability practices enhances the availability and performance of systems, reducing downtime and increasing customer satisfaction.

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## Automated Security and Compliance

Emphasizing shift-left security practices and automated compliance enables early detection of security vulnerabilities and ensures adherence to regulatory requirements. Automating compliance processes simplifies validation and reduces the time and effort spent on audits.

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## Future-Proof Infrastructure

Organizations undergoing cloud transformations should focus on establishing future-proof infrastructure capabilities aligned with cloud principles. Adapting traditional infrastructure mindsets to the cloud paradigm is crucial, as failure to do so can lead to inefficiencies and increased costs.

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## Control over Cloud Cost

Another critical aspect of a DevOps transformation is gaining control over cloud costs. With the increasing adoption of cloud services, organizations need to ensure that their cloud usage remains optimized and cost-effective. By implementing effective cost management strategies, teams can track and monitor cloud expenses, identify areas of overspending or resource waste, and make informed decisions to optimize their cloud infrastructure. Having control over cloud costs allows organizations to allocate resources efficiently, scale applications appropriately, and optimize the cost-to-value ratio of their cloud investments. It enables better financial planning, ensures that budgets are utilized effectively, and ultimately contributes to the overall success and sustainability of the DevOps initiative.

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## Portfolio management

Most of the problems in your enterprise on a team level have been solved. The problems that remain are problems across teams. In order to make improvements happen across teams organizations need a portfolio management approach with proper tooling.

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**By selecting and implementing the appropriate technology accelerators based on specific needs and goals, organizations can drive their DevOps transformations effectively.**

# Tips & Antipatterns

It is important to avoid antipatterns that hinder the success of DevOps transformations:

- Implementing DevOps within a waterfall process instead of adopting Agile practices limits the benefits achievable from DevOps.
- Insufficient investment in training and engineering hinders the adoption of DevOps practices. Providing opportunities for learning, hands-on experience, and obtaining certifications is crucial for mastering the required skills.
- Recognizing that many team-level problems have been solved, the focus should shift toward addressing challenges that span multiple teams. Portfolio management plays a vital role in coordinating efforts and prioritizing improvements across teams.
- Translating cost savings into immediate staff reduction can demotivate teams and hinder DevOps progress. Instead, reinvesting savings to further accelerate agility, such as through test automation or innovation-focused initiatives, yields greater long-term benefits.

By following the recommendations outlined in the whitepaper and avoiding common pitfalls, organizations can achieve a successful DevOps transformation, enabling them to deliver value faster, reliably, and with improved efficiency.

## Summary

The “Enterprise DevOps Steppingstones: A Quick Guide” by DevOn offers valuable insights and practical recommendations for organizations looking to embark on a DevOps transformation journey. The whitepaper, based on years of experience and expertise from DevOn, provides a comprehensive model for implementing DevOps practices at an enterprise level.

The guide emphasizes the interconnectedness of Agile and DevOps transformations, highlighting the importance of technical excellence and the seamless delivery of value across teams. It explores the core principles of DevOps, including flow, feedback, and continuous experimentation and learning, as outlined in “The Phoenix Project” by Gene Kim.

The whitepaper outlines the importance of differentiating between Agile and DevOps implementations and highlights the benefits of initiating DevOps initiatives during ongoing Agile transformations.

It introduces the Enterprise DevOps Steppingstones model, comprising People & Process and nine technology accelerators, such as Continuous Integration (CI) and Continuous Delivery (CD), to guide successful DevOps implementations.

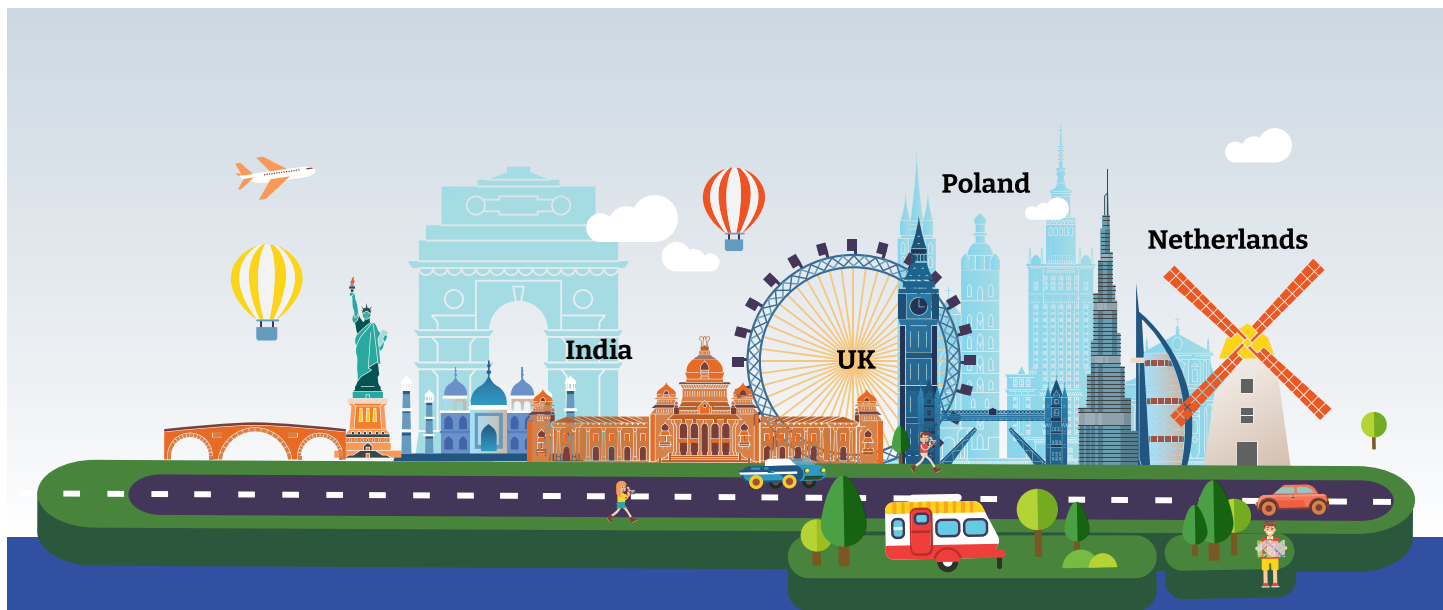
Additionally, the guide emphasizes the significance of clear objectives, three core value streams, smart improvement, people development, aligned leadership, lean organization, and creating a great place to work as essential aspects of a successful DevOps transformation.

The whitepaper also provides insights into various technology accelerators, including automated autonomy, testing, reliability, future-proof infrastructure, security and compliance automation, and control over cloud costs, explaining their importance in driving DevOps transformations effectively.

Lastly, the whitepaper advises organizations to avoid antipatterns that hinder DevOps success, such as implementing DevOps within a waterfall process, insufficient investment in training, and translating cost savings into immediate staff reduction.

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**If you want to know more about how to embark on this journey with your organization, do not hesitate to schedule a call or come by for some delicious coffee.**



## CONTACT US

Speak with one of our experts

Our insights can help you take advantage of change. If you're looking for fresh ideas to address your challenges, please feel free to reach out to us for a quick brainstorm.

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