Ten New Steps to DevOps Success

From security to productivity to change management, here are 10 innovative ways to accelerate your digital transformation.

Application development doesn't stand still. There are always new resources. New methodologies. New user expectations. As enterprise development teams adapt their business-critical applications to today's landscape, they face new challenges daily. The modern developer is always on a path to better understanding application interdependencies, complexity, and quality across platforms, environments and languages. The IBM Z team spoke to 10 DevOps trailblazers about the biggest challenges they face every day, and how they approach them.

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Consultant, Works@Scale

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Director, Operating Systems Programming, Fidelity Investments

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Consultant, Methods & Application Modernization

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Emerging Mainframe Technology Global Capability Lead, Accenture

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Increase Business Value with Application Enhancements

Richard Hintz

Consultant, Works@Scale

> "The goal in analyzing an application is determining how it provides value to the customer."

"When one analyzes a legacy application to determine what functions should be migrated to replacement services or retired, the most important point is **understanding how each function provides value** to the customer as well as how responsive the service is to changing customer needs or regulatory requirements. While there may be interest in reducing technical debt in the application by removing outdated logic or decomposing into focused services using microservice principles, in the end the reason **for changing the application is to increase its business value with enhancements**. The business will also benefit if the application is made more flexible and easy to change, allowing more rapid adjustments to business needs."

IBM's take

It's tempting to remove old parts of an application when migrating it to a new system. You'll save time—but at what cost? It's important to understand the value each function in an application provides to the customer. A clear look into an application will make it easier to migrate all of its components, without diminishing any of its value.

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Gain Visibility Into Dependencies

J. Robert Garrett

Director, Operating Systems Programming, Fidelity Investments

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> " Beware of time bombs with long, slow burning fuses. "

"In a large, complex, and heterogeneous environment that has developed and evolved over decades, coupled with the realities of normal staff turnover, **it is difficult to be certain that one has a complete understanding of where all the tendrils of an application run**. There may be functions that are executed very infrequently that have forgotten connections and dependencies that will rise up to bite you long after you think you've wrapped a modernization project, only to cause significant impact to your business. Gaining a complete understanding of all the dependencies and connections embodied in any application is critical."

IBM's take

Running a complex environment means it's hard to know exactly how everything is all connected. Even if an application seems well understood, it might have a seldom-used function that's tied to something else that would cause serious problems if broken. Anyone undergoing a modernization project needs maximum visibility into how everything is connected.

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Tighten Database-Application Integration

Craig S. Mullins

President & Principal Consultant, Mullins Consulting

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> **"Application and database changes must be tightly coupled and orchestrated in tandem for successful DevOps."**

"As the continuous delivery model for applications gains momentum and acceptance, a **tighter integration between application and database change will be required**. Many application changes rely on changes to database structures, whether new columns, adjustment to data type and size, or even indexes for performance. These changes should be tightly coupled to the application changes that drive them. This should include delivering the changes, but also backing them out in the instances when that is necessary. This is more difficult than it may, at first, seem because some database changes are complex requiring structures, authorizations and data to be dropped and recreated. Automation of all of these steps - and integration with the application changes - is imperative for successful DevOps."

IBM's take

The continuous delivery model brings a host of interesting new challenges. For example, if the new version of an application demands structural changes to an existing database, how do you roll out all these changes seamlessly? One approach is automating the various steps it takes to make database changes.

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Champion Change Management

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> " ADDI helps applications to become understandable, readable and traceable again. "

"Convincing z/OS people to enter the world of DevOps isn't just a matter of implementing tools. Over the years they got stuck in their old habits and refuse to allow changes. **Convincing technical people is not only about showing numbers and figures. Show them proof.** ADDI is a great helping hand into the discovery of their applications. The huge amount of legacy code will become understandable, readable and traceable again. They immediately see the advantages when they get insights into their applications that they may have forgotten about over the years. The fear of changing legacy code can be conquered."

IBM's take

Without clear visibility into applications, it's hard to convince people of the need for technology that will actually make their lives easier. When those advantages are easy to understand, the case for rewriting legacy code becomes obvious and the path to change is clear.

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Ensure Accurately Managed Environments

Dez Blanchfield
Chief Data Scientist, GaraGuru

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" It is a fools errand to attempt to manage today's diverse & demanding application and system environments 'the old way.' "

"There can be little doubt that modern systems and applications can only be appropriately managed and maintained with modern day tools. Delivering innovation while controlling both cost and risk through development, operations and support teams to ensure appropriate rapid automated testing, managing configuration, environments, data, and implementation deployment pipeline, requires what some might have once considered impossible. With ADDI, organizations can now meet the challenge of dramatically simplifying the task of scanning application interdependencies, building change management strategies, and implementing effective digital transformation processes by leveraging the API economy, hybrid cloud migration via APIs, and correlating it with runtime operational performance data to achieve cognitive DevOps."

IBM's take

Gone are the days of trying to manage rapidly changing applications with a mix of guesswork and blind faith. Today, modern software development and analytics tools allow for dramatically simplified management of environments, configurations and data. These tools can deliver real-world application analytics at scale, allowing development and operations teams to support innovation while controlling both cost and risk.

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Embrace Test-Driven Deployment

Chuck Howard

Business Development Manager, Texas Farm Bureau Insurance

> "An Agile and DevOps track let us move forward and stay focused on priorities."

"We were a legacy shop that did all our testing and gave it to the business unit for approval. We began to realize that test cases didn't match and quality wasn't as good as it should be. We went down an infrastructure path with a test-driven deployment strategy, and began exploring an Agile and DevOps track. This became a path that **made everything more transparent, improved relationships with the business unit, and allowed us to move forward.** It's let us stay focused on priorities."

IBM's take

Modern environments call for new methods for testing. Testing in isolation, shielded from production-environment code coverage and workloads, can produce haphazard results and miss important issues. Embracing a set of DevOps practices that include test-driven deployment is a way to keep quality levels high.

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Modernize Mainframe Development

Torger Thevik

Partner, Head of Enterprise Modernization, Xact

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" Start building application insight, development agility and test infrastructure today, to deliver the mainframe systems of tomorrow. "

"For years, the perception has been that development for the mainframe cannot follow the same processes and rules as for other platforms. For other platforms, development has moved towards an agile process where deliveries are deployed frequently in small batches, while mainframe development has stayed slow, centralized, cumbersome and characterized by large batches and low agility. We have worked to make development for the mainframe server just as simple and intuitive as other development processes, using new tools for change processes, documentation, testing, and feedback systems. All this will tear down the walls, enabling development for mainframe and other platforms into one unified process, while preserving the stability, predictability and quality of the mainframe deployments."

IBM's take

Agile development methods are a natural choice when working on the cloud, but may feel out of step with mainframe development, especially on legacy systems. Too often, you end up with one way of working on cloud applications, and a different way of working on mainframe applications. What happens when teams need to work together, share resources, and cooperate in multiple environments? New tools are finally bringing the two sides together to help them work consistently and efficiently.

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Battle Complexity by Gaining Visibility

Rami Katan

ADDI Architect, IBM and Co-founder, EZSource

"ADDI helps you focus the brain power on the business challenges rather than memorizing code."

"The codebase of big enterprises is a like the world's biggest public library. A medium-size program is like a book with 300 pages, which is challenging to read and keep track of. Big Enterprises are running hundreds of applications which fill floors of rooms in the library. Floors of books for mainframe, Java, mobile and cloud code, all trying to reference each other through APIs. Can individuals keep track of everything using their memory? It is evident that with today's technology **a computer can scan the whole codebase daily and update what changes in it.** It can present all possible relations from within a single program to how programs, transactions or applications connect with each other through graphs reports and interactive usage views. ADDI does exactly that and more."

IBM's take

Big organizations have more code and relationships than any individual can possibly keep track of—but people try anyway. The challenges become especially acute when you have to distribute this knowledge to someone new on the team. Using software to keep track of applications and their various relationships can make this process vastly simpler.

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Adarsh Khanna

Senior Technology Architect, Infosys

"Incomplete understanding leads to high response time to business change due to ineffective impact analysis, incomplete end-to-end testing and not so obvious performance issues. ADDI addresses most of the challenges."

"Application Discovery performs static inventory analysis to visually represent all types of flows/graphs and inter-dependencies. One of its best features is its ability to create complexity reports and an impact analysis document that can be plugged in the estimation model. Delivery Intelligence visually represents test efficiency from code coverage reports and performance metrics and its correlation across historical test data at application and program level. It can identify tests for maximum code coverage enabling fewer tests to run and thereby saving time. ADDI further enables DevOps adoption by providing a clear understanding of mainframe applications with a single view of test and performance metrics."

IBM's take

To adapt to change, organizations need a complete understanding of their applications: functional and technical complexities, functional overlapping, cross capability and interface dependencies, embedded business rules and the cascading impact of making a change. Without clear visibility, it can take too long to respond to an important business change. ADDI, made up of Application Discovery (AD) and Delivery Intelligence (DI), provides the tools that organizations need to understand their applications and move with speed.

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Conquer Fear of the Unknown

Antonio Aguila Jr.

Emerging Mainframe Technology Global Capability Lead, Accenture

" Dream big. Start small. Know where you are. And most importantly, why. "

"Fear of the unknown, and whether to do-it-yourself or get the right partner in modernization and discovery efforts, are typical concerns. Any application modernization strategy is heavily scrutinized, not only on the merits of the solution, but also sometimes based on the agenda (hidden or otherwise) of the sponsors. There are also a lot of urban legends and unconscious bias on modernization efforts on both sides of the fence. Whether it be on the complexity and total cost of ownership of the legacy applications, it is difficult to weed out noise vs. factual information in order to come up with the optimal modernization strategy."

IBM's take

When organizations attempt to modernize applications, just about everyone involved forms an opinion about the pros and cons of the proposed strategy. Whether the project is to remediate, rationalize or re-platform, not having clear information can muddy the waters considerably. Factual information can help a team move past the fear of the unknown, set aside preexisting biases, and come up with the best strategy for modernization.

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Take the next step toward managing complexity, understanding your technology, and equipping your organization to respond quickly to change. Discover more about ADDI today.

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