Mainframe Modernization **Playbook**

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Introduction

For decades, mainframe applications have encompassed the heart of enterprise workloads for many organizations— from Fortune 500 companies to mid-size enterprises as well as government agencies around the world. However, more and more of those organizations are turning to cloud platforms to consolidate data and optimize business functions.

Three key factors are driving this transformation:

1. **Agility:** Organizations need an IT system that can provide functional updates in shorter cycles to keep up with the increasing pace of business.

2. **Cost:** On-premise legacy systems are significantly more expensive to maintain than modern cloud technologies.

3. **Risk:** Fading knowledge of legacy systems leads to a decreased ability to respond to a major incident.

Organizations that hope to achieve or maintain a competitive market position cannot continue to use legacy mainframe systems in isolation. Rather, a successful modernization process is about uncovering all the treasures from the legacy world and discovering how they can be best utilized for a future in the cloud.

With that in mind, here are the top five plays for a successful mainframe migration.

Play #1: Know where you are

The first step toward mainframe migration is assessing your organization's modernization readiness. What is your current IT landscape? Where does your organization fall on the path to digital transformation?

While there is no one-size-fits-all approach to cloud adoption, providers can help streamline the assessment process through standardized frameworks like the Modernization Maturity Model from Amazon Web Services (AWS). This model distills the migration journey to five distinct categories: Infrastructure, Application, IT Process, Management, and Culture, which are then broken down into five levels of cloud readiness, from least to most mature. For instance, if your organization utilizes a siloed mainframe for data management, it will score a "1" in Infrastructure, versus a cloud-native system which would score a "5." As another example, a waterfall approach for software development, relying on large releases every two to three years, would score a "1" under IT Process, while a team using a SecDevOps way of working that can deploy mini releases every day would score a "5."

Context is key to determining your unique path to mainframe modernization. Therefore, Deloitte's Cloud Adoption Framework brings in the business view to shape the best cloud journey for your needs. To optimize value throughout your journey, make sure you understand where you are before planning where you're going. Frameworks like the Modernization Maturity Model simplify each step of the process, reducing the time to realize your cloud migration.

Modernization Maturity

Part of the Migration & Modernization Journey

|	1	2	3	4	5
Infrastructure	Mainframe	Distributed	Cloud-ready	Cloud-optimized	Cloud-native
Application	Procedural, Transactional, Relational, Hierarchical	N-tier Portable Virtualized	Loosely-coupled Relational 'Macro' Container	Components API Services Containers	Microservices NoSQL BASE transactions
IT Process	Waterfall	Iterative	Agile	DevOps	DevSecOps
Management	Initial	Managed	Defined	Measured	Optimized
Culture	Departmental	Directed	Collaborative	Trusted	Performance

Play #2: Turn data into agility

One of the main drivers pushing organizations to modernize their legacy systems is a desire for greater agility to meet the demanding pace of business today. The key to unlocking that agility lies in freeing data from monolithic mainframe silos so it can be leveraged to power sharper business decisions. That's why organizations choose a migration partner like AWS with the infrastructure in place to enable the big data processing, real-time analytics, and machine learning necessary to extract these crucial insights from your data.

When moving data to the cloud, you also need to understand where you are moving it for different use cases, the types of data you are moving, and the network resources available, among other considerations. AWS offers a wide variety of services and partner tools to help you migrate your data sets, whether they are files, databases, machine images, block volumes, or even tape backups. Whatever your legacy system, AWS and Deloitte can help your organization achieve greater agility through the broadest set of data analytics tools on the market.

Play #3: The road ahead

Legacy systems in large corporations do not exist in isolation. These systems often contain millions of lines of code that power many critical business functions. Therefore, modernization requires an adequate roadmap based on your organization's specific priorities. Deloitte's consulting offering in Application Modernization and Migration to AWS cloud begins with the creation of such a roadmap, focusing on core system improvements rather than reinventing what already works. Once Deloitte understands your organization's unique goals and has a firm grasp of your current infrastructure, they recommend a streamlined process to achieve those goals.

Beyond mapping your modernization journey in the short-term, AWS and Deloitte can help you create a future-state roadmap that plans for subsequent modernization steps which may be necessary over time. This collaborative method is proven to reduce effort and complexity throughout migration, ultimately leading to faster time to cloud and less wasted cloud spend.
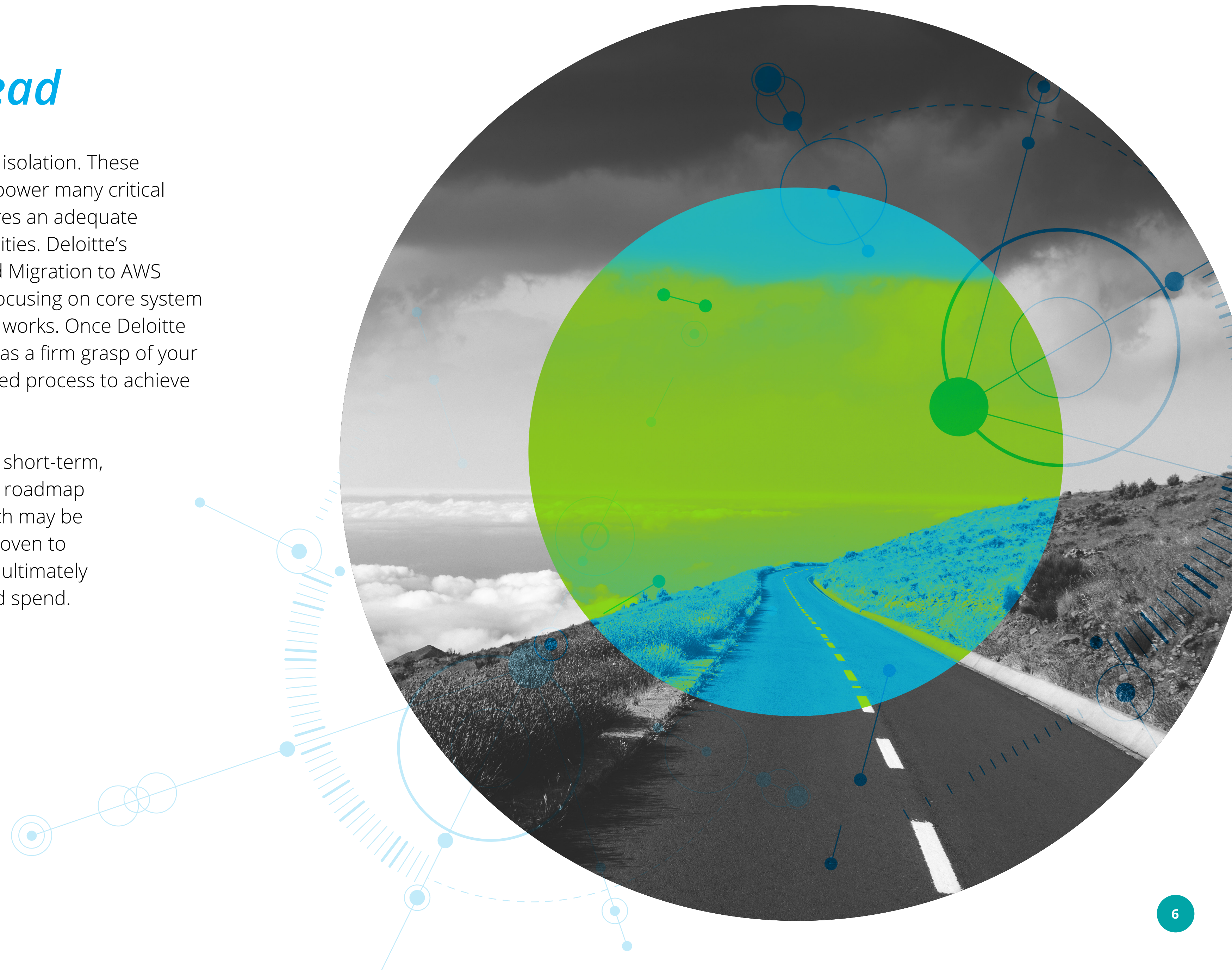
Play #4:
Drive growth through hybrid cloud models

According to a recent Deloitte survey, IT leaders are increasingly seeking out hybrid migration models where mainframes and cloud technology can coexist in harmony. This approach combines on-premises core systems, private and public cloud, and edge environments to maximize organizational capabilities and drive growth. That's why a central tenet of AWS and Deloitte's cloud migration strategy is garnering value out of an organization's current legacy systems—because they understand leveraging existing assets with innovative cloud technologies can maximize value throughout modernization and beyond.

Play #5: Automate migration

One frequently cited barrier to cloud migration is a fear of incurring downtime in central business functions that run on legacy systems. Deloitte addresses this issue head on by creating a fully automated process to migrate workloads to AWS without interrupting existing legacy systems. The innovative solution powered by the innoWake™ product suite automatically converts source code from COBOL, Natural, PL/1, or CA Gen to modern programming languages like Java or .NET. The products also extract business rules and remove technical debt from legacy systems, while automating testing to validate a new system's functionality.

The time and effort saved through automation can then be used to upskill and prepare the organization's workforce to work within the future operating models, ultimately minimizing execution risk.

Customer Success

Two market leaders have come together to merge unmatched infrastructure and scale with decades of global modernization experience to create a proven path to mainframe migration. Discover how AWS and Deloitte are already demonstrating the success of their collaboration.

Utah Department of Human Services

Deloitte and AWS recently migrated the workload of a 25-year-old mainframe for the State of Utah Department of Human Services (DHS), which wanted to modernize its Child Support application to improve access and usability for its citizens.

The DHS's current technology stack was limiting its ability to change business processes and scale. <u>Using Deloitte's automated transformation capabilities</u>— in this case updating the programming language from COBOL to Java—***the team was able to move 2.5M lines of code and 2 TB of DB2 data into AWS GovCloud.*** Ultimately, this approach reduced infrastructure procurement and setup time from weeks to a matter of hours, improved batch performance by enabling horizontal scaling, and lowered overall costs due to the new elastic infrastructure. Best of all, the change allowed the department to process 600K transactions per day for the thousands of families who depend on child support in Utah.

Meet the AWS and Deloitte Solution

Deloitte's consulting offering in Application Modernization and Migration to AWS cloud, powered by innoWake™, offers a comprehensive solution for enterprises' mainframe migration and modernization journeys.

Deloitte's automated, tools-based approach supports legacy technology written in a variety of programming languages, such as common business-oriented language (COBOL), Natural, Job Control Language (JCL), Programming Language One (PL/1), CA Gen, and others. The innoWake™ solution helps enterprises migrate legacy applications and associated technology stacks to AWS cloud, while minimizing execution risk. This critical step of being off the mainframe unlocks possibilities for further efficient modernization and capability enhancements.

Ready to take the first step in your modernization journey?
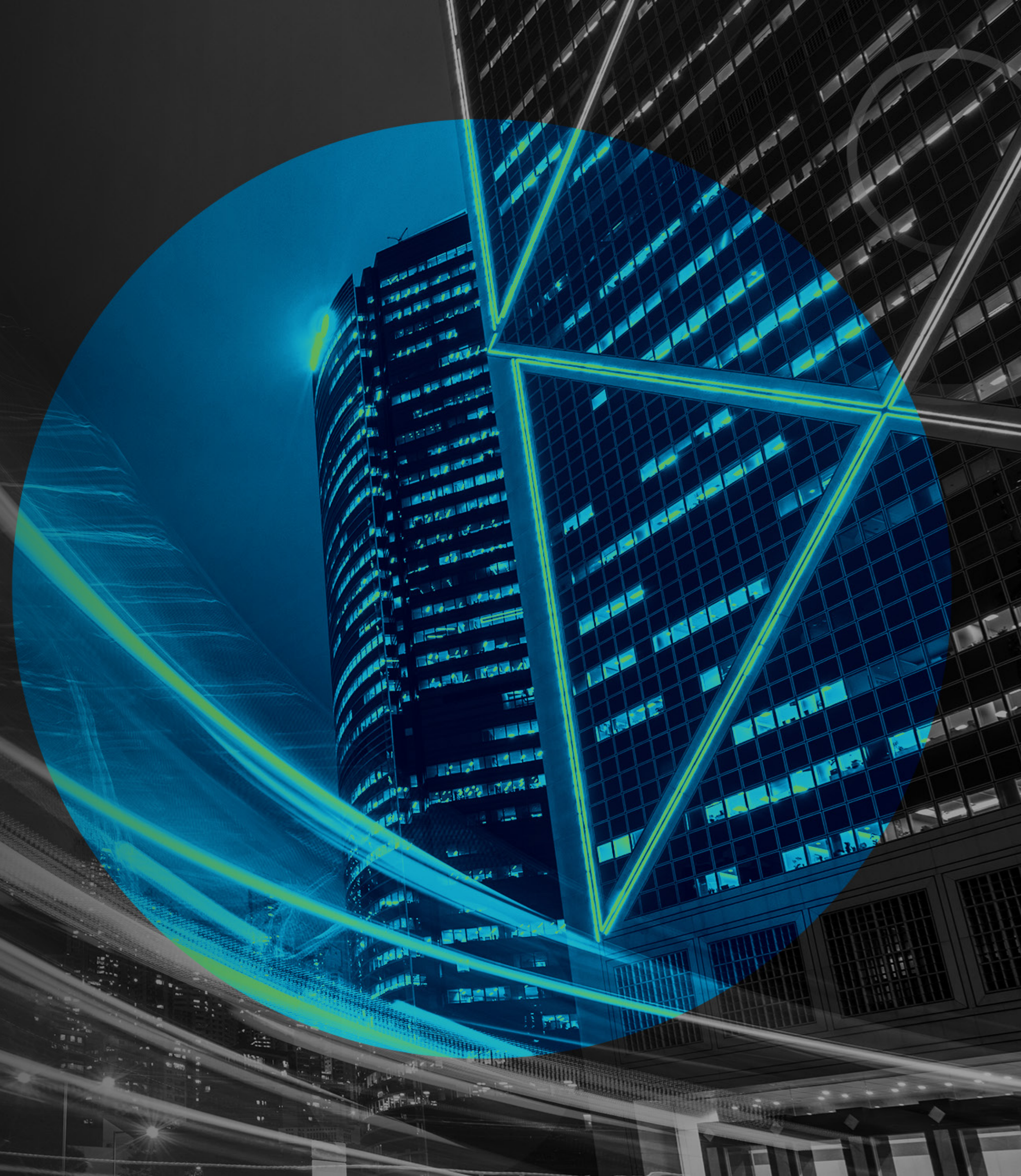
Get in touch

Bjoern Langmack

blangmack@deloitte.com

Global App Modernization and Migration leader
Deloitte Consulting LLP