

Modernization of legacy applications and systems is essential for companies to successfully compete in today's digital economy.

How Can Application Modernization Drive Digital Transformation?

May 2021

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This IDC In Conversation discusses the benefits and challenges of application modernization (AppMod) in Asia/Pacific (AP). AppMod commonly refers to updating business applications that may be deployed on-premise and/or via traditional virtual machine (VM) technologies; and bringing them to the cloud while supporting them with fast-moving DevOps practices like continuous integration/continuous delivery (CI/CD), application programming interfaces (APIs), microservices and containerization. In many respects, modernization of legacy applications and systems is essential for companies to successfully compete in today's digital economy.

For larger organizations, digital technology investments are often made to support digital transformation (DX). This focus has continued despite the COVID-19 pandemic, with direct DX investment in the AP region still growing at a compound annual growth rate (CAGR) of 20% and is expected to reach US\$182 million in 2024. However, the widespread fallout of the epidemic has refocused many DX initiatives into improving business resilience. In the IDC CXO Survey 2020, 61% of C-suite surveyed in ASEAN said that "building business resilience and mitigating risk with a focus on stability" is the top priority for 2021. In fact, the demand for business resilience has heightened the importance of digital technologies that can stabilize operations. It is commonly recognized that traditional approaches are no longer sufficient in the changed business environment, where most types of engagements have to 'go digital', as well as ensure performance at scale. Compounding the complexity is the challenge in also trying to adopt intelligent solutions such artificial intelligence (AI) and robotic process automation (RPA), as they require a modern cloud-native architecture to run effectively.

This document also highlights the evolving roles of AppMod in the context of DX, the COVID-19 pandemic and how AP organizations have already leveraged AppMod to deliver superior business results.

Q1. AppMod - transplanting existing legacy applications to newer platforms and transforming them with improved architectures and interfaces - has long been seen as important. But how has AppMod evolved to support DX, particularly in the wake of the COVID-19 pandemic?

A. AppMod initiatives often seek to support more immersive customer experiences, reduce the time-to-market for new products and services, accelerate decision-making and improve operational agility. Of these, the importance of customer experience delivery has remained unchanged over the years, as facilitating customer interactions for new generation consumers and end-users is key for almost every business' survival. This is often the reason for companies to start their DX journey.

The perceived importance of the other benefits of AppMod varies depending on the nature of their business. For example, asset-heavy industries such as energy and agriculture tend to value the timeliness of decision support more than new product development; while for companies within travel, hospitality and consumer goods verticals, it is usually the other way around. Interestingly, the COVID-19 pandemic has tested many businesses operations' stability, agility and robustness against unplanned changes. As a result, more organizations are digitalizing their processes and modernizing their applications to enhance and automate day-to-day operations. In the longer run and when done correctly, this should also translate into lower operational costs and better scalability.

Q2. There are many approaches of AppMod - re-platforming, redesign, leverage of APIs, microservices, etc. How has the scope of these choices changed in recent years? Especially with the shift to cloud platforms?

A. Different types of AppMod serve companies in different stages of the cloud journey. Infrastructure virtualization, for example, often easily caters to solutions wishing to remain on-premise and involves a relatively simple process of converting to local VMs.

For cloud deployments, the considerations are more involved. In recent years, we have seen a much wider choice of easy-to-use cloud platforms and their capabilities have improved significantly, making the shift to cloud no longer a one-off decision, but rather an ongoing journey. In this journey, companies need to consider not only where to run business applications, who will manage the compute and storage resources, but also how to utilize the data for analytical insight generation, new application development and business model innovation.

Some workloads may require a lift-and-shift of the application to the cloud VM end-states; however, companies wishing to leverage cloud-native services such as containers and platform as a service (PaaS) to ease deployment and/or achieve improved business agility, will likely require their applications to be re-architected and re-written. Navigating towards a cloud native architecture requires a longer-term perspective which necessitates synergies among multiple internal stakeholders and external providers, in order to create a sustainable return of investment. In short, this is why companies must rethink the scope of their AppMod.

Q3. With so many emerging technologies and so many applications in the modern enterprises, IT investments need to synchronize across different strategic initiatives in data, cloud and innovation. How can AppMod support and help build a company's data, cloud and innovation strategies?

A. As we have noted, the compelling requirements for successful AppMod have evolved to emphasize the synergy with data, cloud and innovation initiatives. Otherwise, the inter-dependencies among different stakeholders end up becoming a stumbling block for DX. For example, business function leaders are often most focused upon where the applications are deployed and the acceptable levels of user experience; IT leaders are more concerned with ensuring seamless management of the platforms and workloads to deliver efficient operations; whereas business transformation leaders will want to ensure data pipelines and workflows support agile application development and deployment. We recommend getting leadership teams in IT, business transformation and business functions together to align on the desired end-states and business objectives.

With these defined, there is a clear scope for AppMod. It also helps to consider the following: Does the desired outcome justify the necessary financial and operational investments? What risks do we face if we do not modernize either a specific application or applications? What is the opportunity cost of failing to modernize now, as opposed to later? Business leaders should carefully examine and document their reasons for any AppMod initiative, their expected outcomes, and as much as possible, formalize a methodology for measuring those outcomes.

Q4. What can go wrong and how best to avoid it?

A. AppMod requires careful project planning and extensive collaboration. Delays and cost overruns are commonplace. Failing to meet expectations for enhanced user experiences or flexibility in data consumption and solution delivery will negatively impact the organization's business and their brand. In general, the application of strong project management principals, such as progressive scoping, objectives setting, clear mapping to organizational/departmental business goals, is very important.

AppMod can be understood and evaluated narrowly at the application layer, as the name implies, however its impact goes deeper to the data layer and the platform/infrastructure layer. Therefore, it is important to include all these layers in the planning stage. Moreover, AppMod should be approached from a perspective of not just adopting technology; but also ensuring that accompanying changes in business processes, practices and culture are likewise planned, budgeted and enacted.

Q5. Choosing a right partner for solutioning or implementation is another important issue for many organizations in this region, what do you see as the key considerations for companies to keep in mind?

A. Choosing the right partner, or sometimes the right partner ecosystem, is crucial in navigating the cloud and AppMod journey. Partners should have proven technical capabilities, credentials and strong partnership with cloud ecosystem, as well as development and project management skills and experience with the broader business processes the apps are designed to support. All these pieces are necessary to provide transparency of project execution, limit project risk and provide the basis for a successful strategic (rather than a purely tactical) initiative. Availability of local resources is another critical factor, and the extent of communications required call for on-site support in local languages. That is why many mature global vendors are cultivating and expanding their partner network in AP locations.

Q6. Can you tell us about a few case studies where AppMod has delivered real business value to organizations?

A. One of our customers is one of the largest wireless telecommunication providers in India. The company has global presence in 18 countries across AP and Africa. For them, effective staff collaboration was a challenge, largely due to unsatisfactory end-user experiences. The company was in the process of transforming their work culture by adding mobile experiences, and required a technology platform to reduce their IT and administrative overheads. The scope of the project included the redesign of the content management system, the re-architecting of the app development platform, and the re-platforming of native mobile applications and the responsive user interface redesigns for both mobile and desktop devices. Since the implementation, the company has recorded more employee participations and interactions in various organization initiatives and performed better on the collaborative delivery of business goals.

As another illustrative instance, we assisted a customer with modernizing of their data platform. This company is a non-banking financial corporation that operates in more than 30 countries, with huge volumes of transactional data to manage and support their asset management solutions. Their data platform needed to be modernized to facilitate various authorization, analysis and visualization requirements of their distributed global user base. The scope of the implementation encompassed many components, including full lifecycle deployment of processes and tools for an environment that consisted of the data ingestion module, the authorization platform, the ETL tool, the visualization tool, the DevOps services, cloud storage and the compute optimization tool. As the result of this implementation, the business has seen greatly improved data concurrency and accelerated data extraction to support its business growth.

About the Analyst



Dr. Chris Marshall, Associate Vice President

Dr. Chris Marshall is responsible for IDC's Big Data, Analytics, and Artificial Intelligence practice in Asia. Dr. Marshall's core research coverage includes the development of Data Analytics and Machine Learning competencies and their implications – the threats and opportunities facing organizations as they seek to digitally transform, augment and automate their knowledge-based work. Previously, Chris was a senior executive in IBM Watson Financial Services where he led their AI-enabled risk and analytics practice in Asia. Before joining IBM, he held senior business development and management roles in big data and analytics at KPMG, Oracle and UBS.

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