



Cloudification of the Digital Core: A Glimpse into Tomorrow's Intelligent Enterprise



This report has been licensed for exclusive use and distribution by TCS

Yugal Joshi, Partner
Abhishek Mundra, Practice Director
A S Yamohiadeen, Practice Director
Sangamesh Kadagad, Senior Analyst

Copyright © 2022, Everest Global, Inc. All rights reserved.

www.everestgrp.com | EGR-2022-50-V-5028

Contents

Introduction	03
Unlocking business value through cloudification	04
Enterprise approaches and objectives for cloud-based ERP initiatives	07
Driving cloud-based ERP for innovation	08
A blueprint for enterprises to effectively adopt cloud-based ERP	10
The journey to build a future-proof digital core	13
Conclusion: summary and other considerations	13

Introduction

Enterprises with a legacy core face multiple challenges, such as high operating and support costs, the lack of differentiating capabilities, and a high downtime. To mitigate these challenges and drive transformational business value, such enterprises should invest in building a future-proof digital core powered by a cloud-based ERP.

Globally, almost half of all ERP modernization initiatives consist of cloud-based ERP modernization. The key drivers for adoption are improving Total Cost of Ownership (TCO), enterprise agility, and scalability. While enterprises are increasingly investing in cloud-based ERP initiatives, many fail to adopt them successfully and, consequently, realize lower-than-expected benefits.

For successful adoption, enterprises need to have a well-planned solutioning, adoption, and sourcing roadmap. Additionally, they should think beyond lift-and-shift initiatives to drive innovations on core ERP leveraging extended cloud capabilities such as Artificial Intelligence (AI) / Machine Learning (ML), Natural Language Processing (NLP), Internet of Things (IoT), cloud-native tools, and Application Programming Interfaces (APIs).

Enterprises burdened with a legacy core are at a crucial inflection point – to transform now or never. The COVID-19-induced next normal will continue to evolve customer preferences and enterprise business landscapes, and enterprises that have a future-proof digital core will outperform others and succeed.

In this report, we describe how enterprises can effectively future-proof their businesses by building a cloud-based ERP core with our perspectives and key findings on:

- Unlocking business value with cloud-based ERP
- Enterprise approaches and objectives for cloud-based ERP initiatives
- Driving cloud-based ERP for innovation
- A blueprint for enterprises to effectively adopt cloud-based ERP
- A step-by-step journey for enterprises to build a future-proof digital core

Unlocking business value through cloudification

Future-proofing the digital core with ERP transformation

Our research¹ reveals that more than 80% of enterprises believe that core ERP capabilities directly impact the top line, performance, and growth. However, less than 15% of enterprises believe that they have a future-proof platform.

As enterprises seek to future-proof their digital core, they are realizing the need for ERP modernization and are increasingly investing in cloud-based ERP initiatives. Furthermore, when adopting a cloud-based ERP model, enterprise objectives have evolved to enhancing customer experience, improving productivity by leveraging extended cloud capabilities, and bringing cost efficiencies. Taking a cue, leading cloud vendors are building extended capabilities on the cloud and gaining market traction.

One in three SAP ERP central component users has already begun or completed its SAP S/4HANA migration journey and one among the remaining two is looking to invest in ERP transformation in the next two to three years.²

The exhibit below depicts the top enterprise objectives for ERP transformations.

EXHIBIT 1

Top enterprise objectives for ERP transformations

Source: Everest Group (2022)



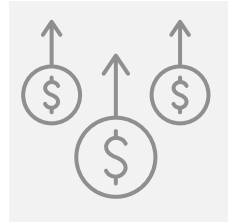
1 Everest Group interactions with CXOs / IT heads of 150+ large enterprises (>US\$1 billion in revenue).

2 Everest Group State of the Market Report 2021: SAP S/4HANA Services – Rise with Industry Transformations.

Challenges in consuming legacy ERP

Enterprises have continued to consume legacy ERP, as modernization is typically accompanied by high implementation costs, the risk of business disruption, and lack of talent availability. However, with increasing challenges in consuming legacy ERP, enterprises are realizing the urgency to modernize.

Some of the key challenges that enterprises face in consuming legacy ERP are:

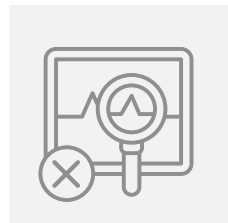


High operating and support costs

- Due to high complexity and customizations in the ERP platform, enterprises incur high maintenance and support costs
- Low talent availability adds to the cost; legacy talent resources are scarce, and the new workforce is not interested in legacy applications

Lack of differentiating capabilities

- Legacy applications do not support frequent updates, and, hence, the platform lacks in terms of the latest capabilities/features, security, and compliance
- Enterprises with outdated functionalities fail to effectively adopt new/add-on technologies or functionalities to drive innovation



Inability to generate real-time insights

- Legacy systems have siloed datasets, and, hence, they lack a single source of truth
- Enterprises continue to struggle with batch processing and lack the ability to generate real-time insights on business operations and customer journeys

High downtime and business disruption risk

- Enterprises experience a high planned downtime for maintenance and support due to a monolithic software architecture and heavy customizations
- Organizations that operate on legacy infrastructure lack a reliable business continuity plan and, hence, carry a high business disruption risk



Our SAP ECC running cost went up significantly by about 35% last year. We were unable to find the right talent and experienced high downtime. We have been watching the market adoption and maturity of SAP S/4HANA closely and have now decided to migrate.

– IT director, a European automobile manufacturer

Business advantages of migrating to the cloud

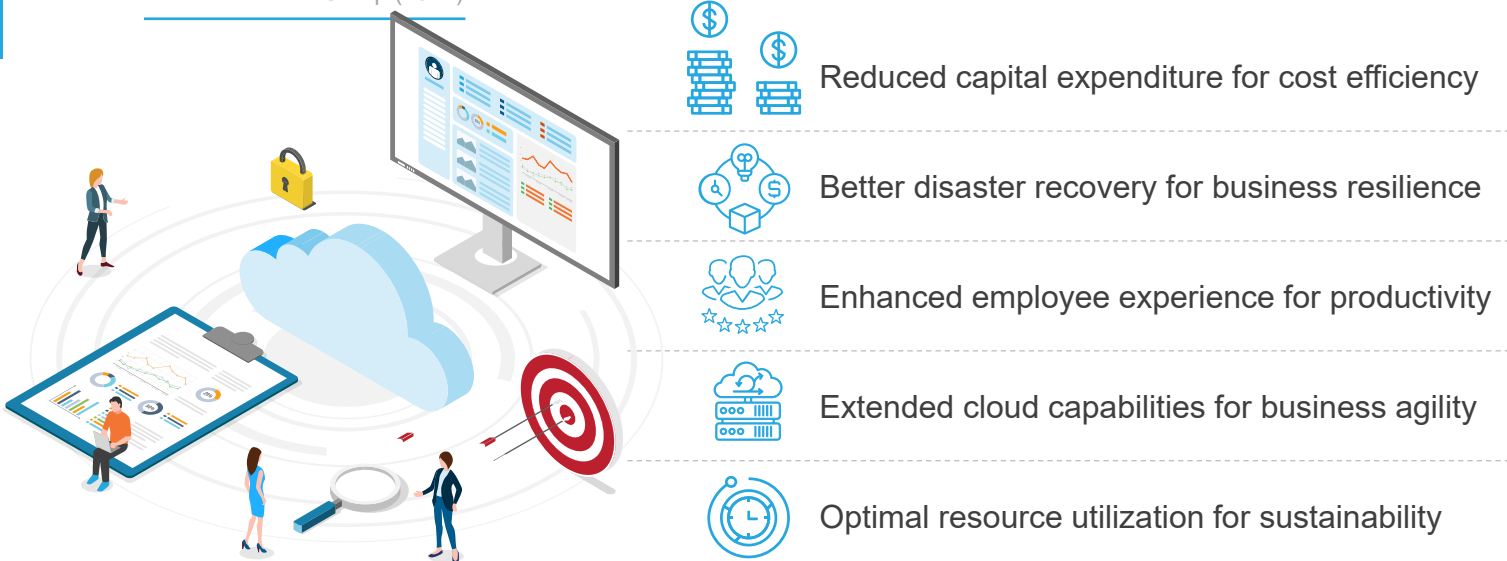
Cloud-based ERP modernization forms a sizable proportion of the overall ERP modernization agenda. It offers the right fit and opportunity to enterprises burdened with a legacy core and facing multiple challenges. Besides mitigating legacy-related challenges, cloud infrastructure offers benefits such as high productivity and improved customer experience, as depicted below.

Cloud-based SAP ERP transformations can potentially reduce running costs by 10-20% and enhance uptime.¹

EXHIBIT 2

Business outcomes of a cloud-based ERP

Source: Everest Group (2022)



¹ Based on Everest Group analysis of 300+ enterprise platform case studies.

Enterprise approaches and objectives for cloud-based ERP initiatives

While the benefits of cloud-based ERP are well established, enterprises still struggle to effectively reap the expected business outcomes due to the lack of a well-thought-through implementation roadmap and business case.

Based on their primary objectives, enterprises typically take two approaches to build a cloud-based ERP core:




- **Cloud for efficiency:** Enterprise objectives are primarily focused on reducing TCO and driving operational efficiencies through the lift and shift of legacy workloads to the cloud
- **Cloud for innovation:** Enterprises drive innovation by building differentiated capabilities through the extensive leverage of extended cloud capabilities

The exhibit below lists the key objectives, benefits, and focus areas of both the approaches.

EXHIBIT 3

Enterprise approaches to cloud-based ERP

Source: Everest Group (2022)

	Cloud-based ERP for efficiency	Cloud-based ERP for innovation
 Key objectives	<ul style="list-style-type: none"> • Lower capex/TCO • Increased flexibility, scalability, and reliability 	<ul style="list-style-type: none"> • Faster time-to-market of products • Enhanced operational resilience • Increased interoperability and future-proof architecture • Repeatable innovation
 Benefits	<ul style="list-style-type: none"> • Reduced run spend on infrastructure • Fewer tickets and ongoing maintenance • Decreased processing time 	<ul style="list-style-type: none"> • Increased product development agility • Faster and frequent releases • Enhanced stakeholder experience • Ability to generate real-time insights • Increased revenue through portfolio expansion and cross-sell
 Focus areas	IT infrastructure + business operations	IT infrastructure + applications + business operations + technologies

Nearly 67% of enterprises realize lower-than-expected savings from cloud initiatives.¹

The cloud for innovation approach offers transformational value for enterprises in terms of improved stakeholder experience, higher developer and team productivity, and efficiency/value through the use

1 Everest Group research with 194 CXOs from enterprises with over US\$1 billion in revenues.

“ Initially, we thought investing in ERP beyond lift-and-shift was a sunk cost, and, so, we did nothing beyond that for two years. Today, we regret not using emerging cloud capabilities earlier. Our recent cloud investments have enabled us to effectively map our customer profiles and significantly improved our in-house IT’s efficiency.

– CIO, an ANZ-based public sector organization

of extended cloud capabilities, such as advanced analytics, AI/ML tools, data warehousing, application development platforms, and APIs.

While creating the overall business case for cloud-based ERP transformation, enterprises need to think beyond operational and cost benefits – they should assess their risk appetite, create a blueprint of the future roadmap, estimate the sustainability of their existing platforms, map talent requirements, and build a sound business case to select the right approach for their cloud-based ERP journeys.

Driving cloud-based ERP for innovation

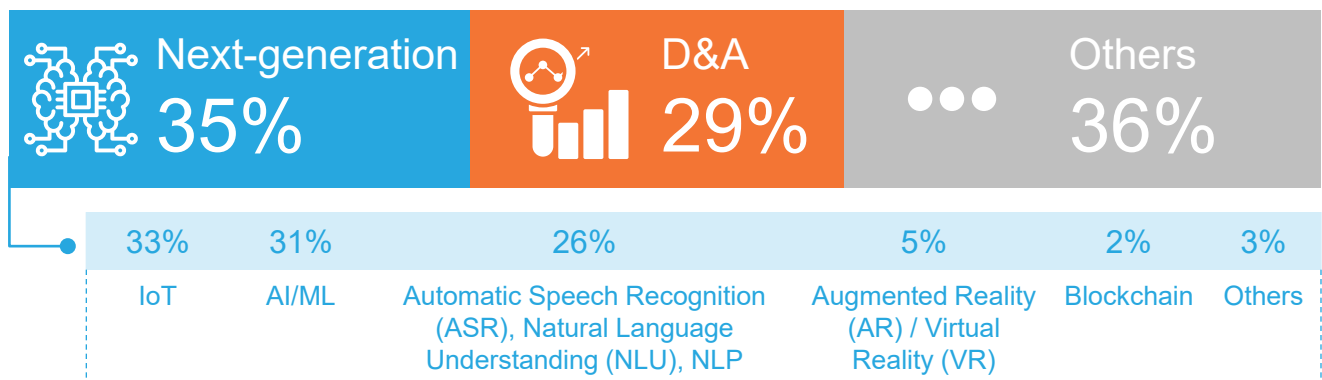
As enterprises drive innovations on the cloud, they should proactively evaluate and leverage capabilities such as AI/ML, NLP, IoT, low-code tools for app development, and APIs to further their innovation charter. To assist enterprises, cloud vendors such as Google Cloud are building tools focused on process optimization and self-sufficiency for enterprise in-house teams, as depicted in below.

EXHIBIT 4

Offerings of hyperscalers split across areas¹

Source: Everest Group (2022)

100% = 178



¹ Everest Group - State of the Market Report - Cloud Hyperscalers: A Critical – But Not the Only – Building Block of Enterprise IT.






At the same time, it is important for enterprises to choose the right-fit vendor to meet their needs. Organizations can use the exhibit below to identify and map relevant cloud vendor capabilities and implement mature use cases across capability areas to generate robust business outcomes.

EXHIBIT 5

Use cases across capability areas to drive innovation using capabilities of hyperscalers such as Google Cloud

Source: Everest Group (2022)

REPRESENTATIVE LIST

Technology/capability area	Key use cases
 <p>AI-/ML-powered technology offerings such as Looker / Vertex AI</p>	<ul style="list-style-type: none"> • Build, deploy, and train custom AI/ML models to automate business processes • Visualize and analyze data with predictive capabilities
 <p>API gateways such as APIgee</p>	<ul style="list-style-type: none"> • Leverage APIs to establish a secure data monetization channel • Integrate siloed data assets and build a unified data platform to enable a single source of truth • Monitor API traffic patterns to find anomalies and prevent bot attacks
 <p>Managed application platforms such as Anthos</p>	<ul style="list-style-type: none"> • Build and deploy existing container-based applications and microservices-based architectures • Migrate existing VM-based applications to containers
 <p>Data management tools such as BigQuery / Dataflow</p>	<ul style="list-style-type: none"> • Democratize historical data from legacy software • Efficient storage and management of business data
 <p>IoT solutions such as Google Cloud IoT solutions</p>	<ul style="list-style-type: none"> • Monitor asset health and build maintenance schedules • Send automated health/safety alerts to employees in hazardous environmental conditions (gas leak, machine breakdown, etc.)

Enterprises leveraging the above extended cloud capabilities for their ERP transformations, including SAP workloads, have reaped business benefits, including 20-30% reduced effort for updates and releases and 50-60% improved IT team productivity.¹

Additionally, enterprises should chalk out a strategy to continually assess their ERP landscape by leveraging cloud offerings such as Google Cloud Cortex Framework.

¹ Based on Everest Group analysis of 50+ cloud ERP case studies.

A blueprint for enterprises to effectively adopt cloud-based ERP

In the past, many enterprises have failed to successfully adopt cloud-based ERP due to the lack of a well-planned solutioning, adoption, and sourcing roadmap. Enterprises should develop a comprehensive roadmap underpinned by the values showcased in Exhibit 6 and ensure that they tick all the checkboxes in Exhibit 7 when solutioning for SAP on the cloud, such as Google Cloud. They should also identify the right partner ecosystem to drive the initiative factoring in the considerations listed in Exhibit 8.





EXHIBIT 6

Values underpinning effective cloud-based ERP

Source: Everest Group (2022)

KEY ATTRIBUTE

ENTERPRISE CONSIDERATIONS

<p>Security</p> 	<p>As risks continue to evolve, enterprises should have an enterprise-wide framework to ensure security. They should invest in threat intelligence sources to enhance their security posture and prevent threats across endpoints.</p>
<p>Interoperability</p> 	<p>Organizations should strongly consider adopting an open cloud architecture that facilitates the ease of orchestration across technology stacks and hybrid workloads to future-proof the business with a best-fit platforms strategy.</p>
<p>Agility</p> 	<p>Enterprises should move beyond the redundant, monolithic legacy architecture, map the overall solution into identifiable modules/functions, and adopt a microservices-based architecture for enhanced agility. They should also foster a DevOps culture among employees to embrace rapid and repeatable innovation.</p>
<p>Resilience</p> 	<p>Companies should have a strong business continuity plan in place. They should carry out a comprehensive landscape assessment to identify process inefficiencies and areas to drive innovation. They should also keep the industry context in mind to identify and implement platform(s), modules/functionalities, and emerging technologies to reimagine processes and ensure compliance.</p>
<p>Value</p> 	<p>Enterprises should develop the overall roadmap by identifying the right environment for different workloads, instances required, deployment timelines/models, and capabilities/functionalities required. The overall business case should be built by factoring in a cost-benefit analysis of the initiative.</p>

1 Based on Everest Group analysis of 50+ cloud ERP case studies.

EXHIBIT 7

A checklist for cloud-based ERP adoption

Source: Everest Group (2022)

REPRESENTATIVE LIST

- Embed security by design



 - ENDPOINT SECURITY:** Have you invested in threat intelligence tools to secure all endpoints?
 - DEVSECOPS:** Have you built a DevSecOps culture to integrate security tools and technologies within developer workflows?
 - DATA PROTECTION:** Do you have visibility across all your workloads and a well-defined customer data protection plan in place?

- Build an interoperable platform ecosystem



 - ARCHITECTURAL FLEXIBILITY:** Do you have the flexibility to run all types of workloads independent of the architecture (monolithic or modern)?
 - VENDOR LOCK-IN:** Can you switch your cloud vendor easily without significant business disruption / transition costs?
 - HOSTING FLEXIBILITY:** During M&As, can you easily integrate new applications running on different environments?

- Foster an agile culture to embrace innovation



 - TIME-TO-MARKET:** Can you rapidly build new offerings and deliver them to the market?
 - FLEXIBILITY AND SCALABILITY:** Do you have high flexibility to scale up/down cloud infrastructure needs based on business requirements?
 - MICROSERVICES-BASED ARCHITECTURE:** Can you make enhancements to specific features/functionalities without significant business disruption?
 - AGILE CULTURE:** Can you adopt new products / innovation quickly?

- Be compliant and prepared for the next normal



 - BUSINESS CONTINUITY:** Do you have a strong business continuity plan and a mechanism in place to ensure regulatory compliance?
 - REAL-TIME INSIGHTS:** Do you have a well-integrated data landscape that offers a single source of truth that can generate real-time insights?
 - INDUSTRY-SPECIFIC CAPABILITIES:** Have you implemented industry solutions underpinned by cloud capabilities to bring in deep domain functionalities?

- Build a business case mapping all the requirements



 - ROADMAP AND BLUEPRINT:** Do you have a comprehensive implementation roadmap that covers functionalities, number of instances, implementation timelines, etc.?
 - BUSINESS CASE:** Have you prepared a comprehensive business case mapping the business benefits and value across different phases and workloads?
 - SERVICE LEVELS & KPIS:** Have you established infrastructure, business, application, and experience-level SLAs and KPIs to be tracked?

EXHIBIT 8

Key considerations for enterprises to identify the right partner ecosystem

Source: Everest Group (2022)

REPRESENTATIVE LIST



Cloud vendor

- **Cloud capabilities:** Assess all extended capabilities, such as API gateways, AI/ML, and data management tools, that can drive innovation
- **Partnership depth:** Check for strategic alliances with the specific ERP partner and recent investments / proof points
- **Vendor lock-in:** Take a cautious approach to vendor lock-in, enforced by hyperscalers, by pushing their native platform offerings



Platform vendor

- **Proof points:** Analyze named case studies / references in your domain with scaled transformations
- **Talent:** Ensure talent availability; check the training resources available with the vendor to upskill resources
- **Industry functionalities:** Evaluate the maturity of industry-specific functionalities/solutions and frameworks
- **Cloud agnosticism:** Ensure long-term support for the platform across clouds



Service provider

- **Prior experience:** Check for named case studies / references with scaled ERP (or select platform/s) transformations in your domain
- **Outcome-focused:** Assess the service provider's willingness to contractually commit to cost efficiencies and KPIs impacting your top line with a strong governance model
- **Innovation:** Look for mature IP assets that can drive innovation/time-to-market
- **Credibility:** Awards/recognitions

Other considerations

- Enterprises should also evaluate end-to-end Business Transformation-as-a-Service offered by system Integrators such as RISE with SAP, which includes a set of key SAP products/tools and embedded services to guide enterprises in their digital transformation journeys, including ERP
- For niche functional/technology-specific initiatives on ERP, enterprises should consider engaging specialist providers along with large global service providers
- Before building a new customized feature/module, enterprises should assess off-the-shelf solutions/add-ons on technology vendor marketplaces or tech vendor-certified SaaS solutions with other Independent Software Vendors (ISVs)

The journey to build a future-proof digital core

As enterprises seek to future-proof their digital core with a cloud-based ERP leveraging the cloud, such as Google Cloud, we recommend that they undertake a three-phased approach, as detailed below.

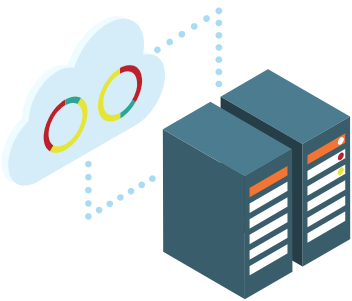
EXHIBIT 9

The journey to build a future-proof digital core

Source: Everest Group (2022)

REPRESENTATIVE LIST

SHORT TERM



- Migrate on-premise enterprise application instances to the cloud infrastructure
- Use capabilities such as Google Cloud's APIgee to modernize the data landscape and implement an enterprise-wide API strategy
- Develop CI/CD pipelines to automate workflows
- Foster a culture of innovation to embrace change and evolution

Key business value: drive operations efficiency

MID TERM



- Adopt cloud-native principles to build applications and implement a continuous application modernization strategy. Leverage a microservices- and container-based architecture and DevSecOps principles
- Leverage tools such as Google Cloud's Vertex AI and Vision AI to embed intelligence across business processes
- Build user-centric and responsive interfaces

Key business value: enable new streams of revenue

LONG TERM



- Build interoperable capabilities to leverage workloads across different environments
- Leverage capabilities such as Google Cloud Cortex Framework to drive innovation
- Develop conversational and interactive interfaces to further improve stakeholder experience
- Implement real-time platform-monitoring and self-healing capabilities

Key business value: ensure business resilience

Conclusion: transform now or never

The next normal will be characterized by the phasing out of certain business processes, the emergence of new ones, and a compelling need for enterprises to rapidly build new capabilities to stay relevant. To succeed, we believe that enterprises should forge ahead with the following considerations in mind:

- **Re-architect with cloud-native:** Newer architectures such as microservices offer benefits including lower running cost and increased agility and scalability. While solutioning for cloud-based ERP, enterprises should transform complex business processes such as supply chain and manufacturing into lighter microservices components and enable real-time integration with the core ERP to drive innovation. To effectively re-architect complex processes, organizations should undertake a phased rollout, with a well-planned strategy. They should list out all the microsegments within business processes in the order of business criticality and begin to re-architect the ones with low business dependency. Gradually, they should convert all the mapped microsegments into self-integrable microservices components
- **Leverage the ecosystem:** Unlike earlier times when enterprises had to build applications on their own from scratch, they can now leverage a cloud-based platform ecosystem, such as an SAP on Google Cloud, to expedite time-to-market and bring differentiated capabilities. Enterprises should evaluate offerings such as Rise with SAP, which offers a set of tools/products and embedded services to guide enterprises in their core ERP journeys. We believe that such offerings when adopted effectively and in relevant areas can help enterprises differentiate among other peers
- **Overcome the resistance to change:** Roughly 53% of enterprises cite change resistance as a key obstacle to realizing intended outcomes.¹ Organizations should not underestimate the need for change management in ERP transformations across user groups. To reap desired benefits and ensure success, enterprises should engage with an experienced service provider on a dedicated scope of work with committed KPIs and delivery timelines for change management. An effective change management strategy involves a multi-pronged approach that encompasses the aspects of people, process, technology, culture, and business to yield effective results:
 - **People:** manages people's beliefs/behaviors, addresses their fears and preconceived notions through empathetic listening
 - **Process:** leverages platform adoption and transformation to drive process reengineering and become nimble, simple, and agile
 - **Culture:** reorients the organizational culture to support change and minimize reactive resistance by aligning it with professional and organizational outcomes
 - **Technology:** adopts new/enhanced technology to bring in modernization, autonomy, intelligence, and oversight
 - **Structure:** moves away from a hierarchical reporting structure and governance, and creates new departments/units

Enterprises with a cloud-based ERP that is secure, agile, and resilient will outperform others and succeed in the next normal. Those with a considerable legacy burden will be unable to keep up with changing customer preferences and will ultimately lose the competitive race. To accelerate their transformation journeys, enterprises should partner with technology partners, which are increasingly building new capabilities, and leverage the platform ecosystem, which has converged to offer differentiated offerings with attractive incentives.

1 Everest Group – Digital Services State of the Market Report 2021: Fostering Value through Rearchitecting Change Management.



Everest Group is a research firm focused on strategic IT, business services, engineering services, and sourcing. Our clients include leading global companies, service providers, and investors. Clients use our services to guide their journeys to achieve heightened operational and financial performance, accelerated value delivery, and high-impact business outcomes. Details and in-depth content are available at www.everestgrp.com.

This study was funded, in part, by TCS



For more information about Everest Group, please contact:

+1-214-451-3000

info@everestgrp.com



For more information about this topic please contact the author(s):

Yugal Joshi, Partner

yugal.joshi@everestgrp.com

Abhishek Mundra, Practice Director

abhishek.mundra@everestgrp.com

A S Yamohiadeen, Practice Director

as.yamohiadeen@everestgrp.com

Sangamesh Kadagad, Senior Analyst

sangamesh.kadagad@everestgrp.com

This document is for informational purposes only, and it is being provided "as is" and "as available" without any warranty of any kind, including any warranties of completeness, adequacy, or fitness for a particular purpose. Everest Group is not a legal or investment adviser; the contents of this document should not be construed as legal, tax, or investment advice. This document should not be used as a substitute for consultation with professional advisors, and Everest Group disclaims liability for any actions or decisions not to act that are taken as a result of any material in this publication.