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A CLOUD THAT TRANSCENDS BUSINESS MODELS

While cloud isn't a 'place,' it can still be everywhere: bringing cloud benefits to the business

FROST & SULLIVAN VISUAL WHITEPAPER

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In the Rush to Keep the Lights On, Digital Transformation Accelerated— So Did its Challenges

A Frost & Sullivan survey of IT and business professionals showed that as much as 90% of companies were, at some point, on a digital transformation journey. Despite this, many companies struggle with successfully modernizing operations and customer experiences.

While many businesses have leveraged digital strategies for years, the sudden pivot in 2020 remote workforces and virtual customer experiences accelerated transformation strategies. The top business goals in 2020 reflected a renewed focus on improving business efficiency, customer experience, and employee productivity.

To meet these new imperatives, organizations rushed to the cloud to execute the initiatives. As a result, many experienced challenges such as high workload repatriation, exposed cybersecurity vulnerabilities, and spiraling costs.

FROST & SULLIVAN'S 2020 CLOUD SURVEY ON TOP STRATEGIC GOALS

Strategic Business Goals Rated "Crucial" or "Very Important"

79%	78%	77%
Improve business process efficiency and quality	**Improve customer experience**	**Improve employee productivity**
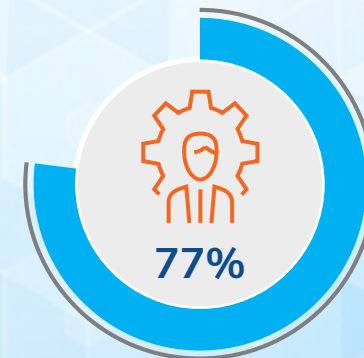
Source: All data Frost & Sullivan unless otherwise noted

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Organizations are Migrating to the Cloud at Unprecedented Rates

58% of companies use on-premise data centers.

However, using the cloud for scalable, nimble data utilization and application management is growing at tremendous speeds.

Across all business sectors in 2020

Multiple cloud usage jumped **54%**

Hybrid cloud adoption rose **14%**

56% of companies use hosted cloud services, and

52% use public cloud infrastructure as a service (Iaas).

By 2025

89% of companies say they will use hybrid services, and
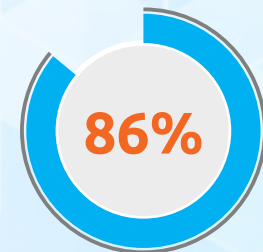
86% will use public IaaS.
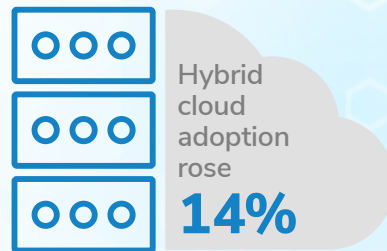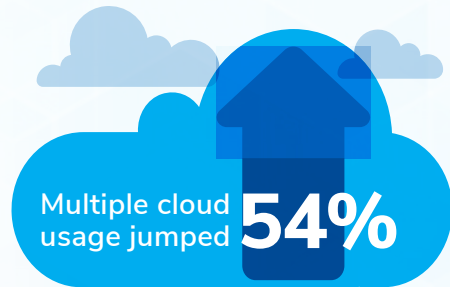
Financial services had among the greatest increase in multi-cloud adoption, soaring **70% over the year before.**

Manufacturing saw some of the highest growth in hybrid cloud usage, **up 26% over 2019**.

Source: All data Frost & Sullivan unless otherwise noted

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Lack of Cloud-related Skillsets is the Leading Challenge in Fully Leveraging Cloud Benefits

Businesses know the value of moving to the cloud, but they struggle with having the expertise to execute cloud strategies. The speed at which technology advances means that more than twice as many companies today say they lack in-house cloud implementation skills compared to two years ago.

38% of companies also note technical challenges beyond their capabilities as the main reason for repatriating cloud apps back on-premise.

TOP THREE CLOUD IMPLEMENTATION CHALLENGES OF 2020

Managing costs — **68%**

Ensuring compliance/security of data & apps — **65%**

Keeping up with the pace of new technology — **64%**

While costs and compliance are top-of-mind, **KEEPING UP WITH THE PACE OF TECHNOLOGY IS A SIGNIFICANT CONCERN FOR NEARLY TWO-THIRDS OF BUSINESSES.**

BUSINESSES CITING INSUFFICIENT EXPERTISE AS A SIGNIFICANT HURDLE TO CLOUD IMPLEMENTATION

57%

41%

26%

2018   2019   2020
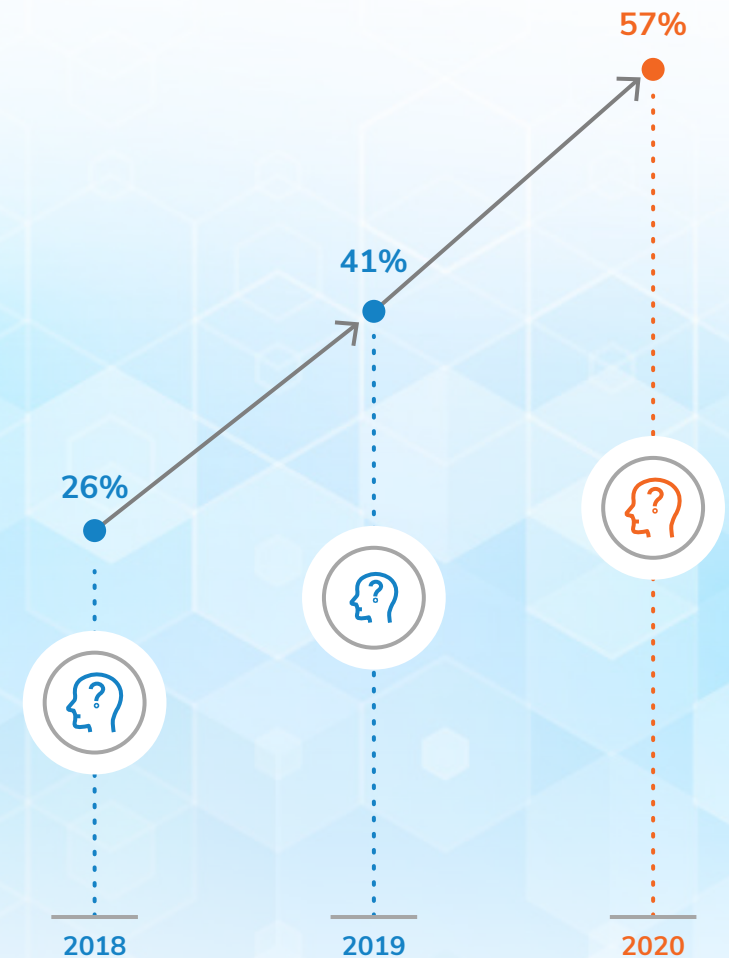
Source: All data Frost & Sullivan unless otherwise noted

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Financial Benefits of Doing Cloud Right vs. the Costs of Doing It Wrong

Reduced cost is consistently rated as one of the top drivers for cloud adoption. Fees related to cloud usage can scale up and down with the business, reducing the risk of overstretching a budget, as might happen with on-premise data center expansion.

However, being ill-prepared for cloud migration can also be expensive, considering the high rates of workload repatriation.
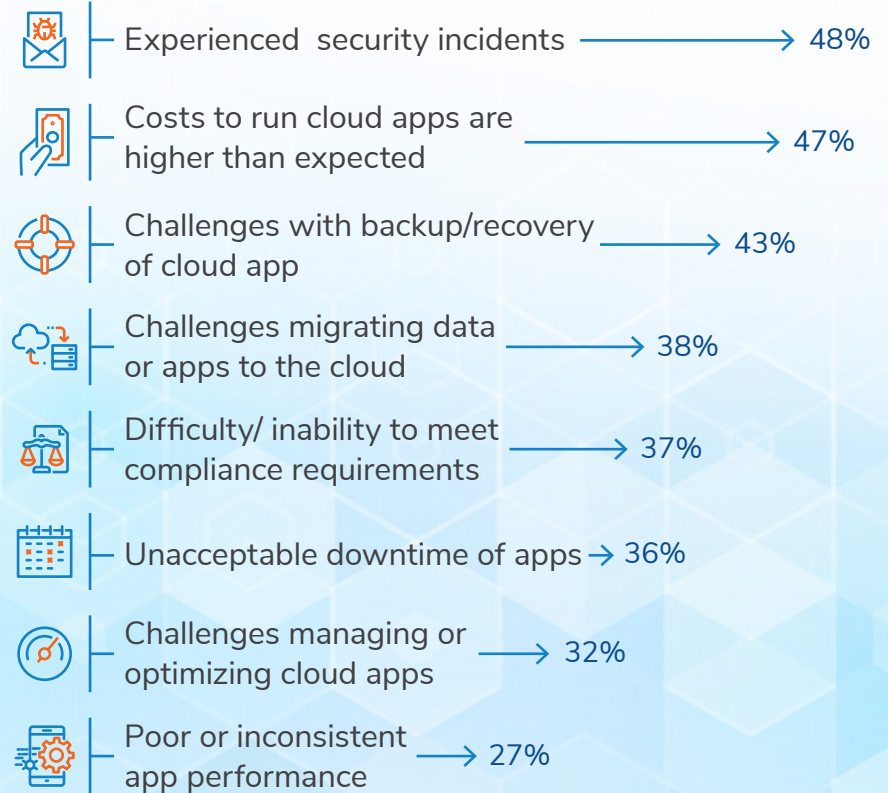
▶ **59% of companies had to repatriate workloads**, and another 30% are considering doing so.

▶ **Security, costs, and backup challenges** were the top reasons for repatriating workloads.

▶ Despite these challenges, **almost half of new workloads (49.8%) are run on the cloud**, with cloud-based applications expected to outpace on-premise applications in the years to come.

TOP REASONS FOR REPATRIATING A WORKLOAD

Experienced security incidents → 48%

Costs to run cloud apps are higher than expected → 47%

Challenges with backup/recovery of cloud app → 43%

Challenges migrating data or apps to the cloud → 38%

Difficulty/ inability to meet compliance requirements → 37%

Unacceptable downtime of apps → 36%

Challenges managing or optimizing cloud apps → 32%

Poor or inconsistent app performance → 27%

THE "RIGHT" CLOUD MAY NOT BE A PUBLIC CLOUD: businesses can have a cloud experience brought to them, which provides the cloud benefits of agility, flexibility, and scalability without the risks of a DIY public cloud migration.

Source: All data Frost & Sullivan unless otherwise noted

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Getting a True Cloud Experience, Anywhere

Cloud is not a place; it is a strategic arrangement of executing processes with superior scalability, agility, and value over alternative methods defined by limited infrastructure, storage, or computing parameters.

A true "cloud experience" should be defined less by what it is and more by what it provides to operations and business objectives.

SCALABLE, AGILE, AND FAST

An ideal cloud experience expands— and contracts—computational power and provides a pay-as-you-grow fee structure with capacity and cost transparency. Operating at cloud speed gives organizations unmatched advantages by enabling rapid system upgrades or new app launches instead of waiting months to build out hardware and add to teams.

SELF-SERVICING CAPABILITIES

Another advantage of an advanced cloud experience is a mechanism through which users can self-service their requests within secure, preset parameters. AI-based automation drives these capabilities, can execute tasks more quickly and accurately than manual systems, and frees up precious IT resources to work on higher-value projects while ensuring more consistent and robust access and security to systems.

A MANAGED AND CUSTOMIZED EXPERIENCE

Leading modern cloud service providers optimize an organization's specific workload needs, going above and beyond general-purpose technology and solutions. Advanced solution providers help avert costly repatriation situations or application outages for businesses lacking the skillsets needed to pivot existing applications to the cloud or create new cloud-native ones.

Source: All data Frost & Sullivan unless otherwise noted

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Cutting through the Fog: Clarifying Cloud Usage

▶ **CLOUD ADVANTAGES DO NOT REQUIRE FULL PUBLIC CLOUD MIGRATION**
Some businesses shy away from using the cloud because they have already invested heavily in on-premise infrastructure, have regulatory or compliance concerns about cloud security, or lack in-house expertise in running cloud applications. However, businesses can get the same agility, scalability, and even pay-as-you-go fee structure of the cloud with hybrid cloud—and even with full on-prem—solutions from leading vendors.

▶ **GOING TO THE CLOUD WITHOUT EXPANDING IN-HOUSE SKILLSETS AND TEAMS**
Businesses that move to a public hyperscaler without the help of an enterprise-grade solution provider may not have the support they need in operations, scaling, or cybersecurity. Enlisting a partner that brings the cloud to the business averts these challenges and will often upgrade the IT experience to one that is more streamlined and efficient than before.

▶ **USING A SOLUTION PROVIDER ENSURES CONTINUITY OF OPERATIONS AND APPLICATIONS**
Using a solution provider that brings cloud benefits to the business will typically take less time than having an in-house team migrate apps to the cloud in a piecemeal fashion. The latter can cause *more* disruptions: workflows may get repatriated, unintentional security vulnerabilities may be created, and technical debt can mount. Regardless of the current state of a business's data and systems, turning to a trusted partner can reduce costs and accelerate an organization's digital transformation.

THE FOLLOWING CASE STUDIES ILLUSTRATE HOW TO IMPLEMENT CLOUD BENEFITS DESPITE VARYING CIRCUMSTANCES.

NEARLY TWO-THIRDS OF BUSINESSES say they use a solution provider to help navigate cloud migration and usage
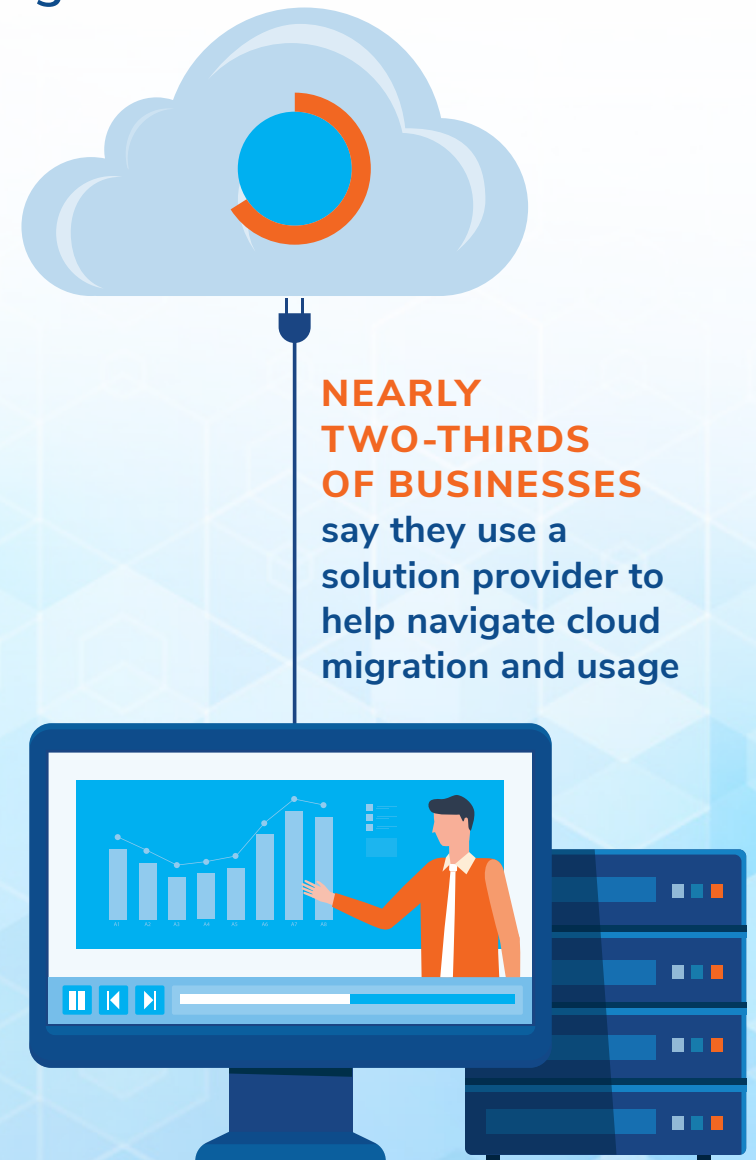
Source: All data Frost & Sullivan unless otherwise noted

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Center of Patient Excellence Cures Ailing On-prem System with HPE Synergy and HPE GreenLake

As one of Latin America's leading healthcare institutions, San Vicente Fundación in Colombia serves high-risk populations and performs highly complex procedures such as transplants, functional neurosurgery, and oncology treatments. Composed of two major campuses, the institute has over 700 physicians and specialists and 1,300 nurses. It conducts over 200,000 appointments per year. As such, the hospital contends with high volumes of sensitive patient data, processing over 4,500 medical orders per day.

The hospital realized it needed to accelerate its digital transformation due to its growing patient population, increasing modernization of procedures and records, and intensifying regulatory mandates on patient information. San Vicente Fundación systems also were slow and unreliable. The hospital's IT leaders wanted the speed and flexibility of a cloud-based solution; however, migrating to a public cloud was untenable due to ambiguity in Colombia's medical record privacy laws. Hence, San Vicente Fundación turned to one of its existing partners, HPE, for a cloud experience with on-premise infrastructure through a suite of services. For example, HPE Synergy provided upgraded computing capacity with less data storage space. As the world leader in SAP migrations, HPE implemented the desired SAP HANA environment across hospital systems, such as ERP, quality testing, and customer relationship management. Cost was a consideration for the non-profit hospital, so HPE GreenLake delivered a cloud-like, pay-per-use fee model for the on-prem solution.

HPE provides 100% uptime and a streamlined experience, along with being up to four times faster than the previous system. IT can do more with a single vendor, a centralized network system reduces platform complexity, and scaling and adding servers can be done more quickly. This allows the hospital to spend less time and resources on data storage and operations and improve its cutting-edge, lifesaving services.

HOSPITALS A NEW FRONTIER IN DIGITAL INNOVATION*

Precision medicine informatics grew to over **$5 billion globally in 2020.**

Gene-based therapies are expected to grow **33% yearly through 2024.**

Global telehealth will grow to **over $50 billion in 2021**, driven by virtual care options. **Over one-third of patient interactions are expected to be virtual.**

*Source: Frost & Sullivan's Developing Innovative ROI Streams and Patient-centric Virtual Care Approaches will Shape the Global Healthcare Industry, March 2021
https://www.hpe.com/psnow/doc/a50000508enw?jumpid=in_lit-psnow-red

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Cloud Benefits are Not Restricted to the Cloud

The unprecedented events of the COVID-19 pandemic underscored the complexities of vaccine development and distribution. Data generation, utilization, and security play an integral role in the industry.

Security and redundancy of information and applications, along with visibility across the organization, are a challenge for the industry. Many major global manufacturers that dominate the landscape are the outcome of years of merger and acquisition (M&A) activity, resulting in complex networks of subsidiaries, regions, products and value chain partners. They are all subject to different regulations and with users and data centers across dozens, even hundreds, of locations. Due to heavy regulatory and cybersecurity demands, major pharma companies and their ecosystem partners often need to keep at least some of their data, systems, and apps on-premise.

One major pharma company recognized that it needed to streamline its operations and create a healthier data ecosystem. It turned to HPE's Synergy solution to meet these needs while complying with on-prem restrictions. HPE Synergy brought cloud-like benefits of asset management and redundancy, as well as scalability, by building an on-prem private cloud that seamlessly integrated disparate resources. This "composable infrastructure" solution began being implemented in 2018, helping the pharma company be more prepared for the events of 2020, as well as creating a more stable and efficient business for the development of new treatments and research.

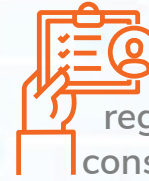**PHARMA FACTS: UNIQUE CHALLENGES REQUIRE STRONG ON-PREM DATA SOLUTIONS AND STRATEGIES**

Data breaches would be catastrophic to business: exceptional cybersecurity protection of patient information & IP is necessary.

Data privacy and usage
follow strict regulatory constraints.

Varying government mandates
require keeping records for 10-15 years.

Having major global players created through M&A activity means **data may be kept in hundreds of disparate locations around the world** & subject to varying regulations.

Source: All data Frost & Sullivan unless otherwise noted

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Stay On-prem, Operate Like the Cloud, and Bridge the Tech Gap for SMBs

Small and medium businesses (SMBs) are critical to the global economy and yet are an underserved market for advanced data infrastructure solutions. Hyperscale cloud providers may not find much benefit in tailored services that only apply to a few small organizations and cannot achieve economies of scale. Plus, SMBs often do not have the skillsets to build, run, manage, and secure workloads on the cloud or on-premise.
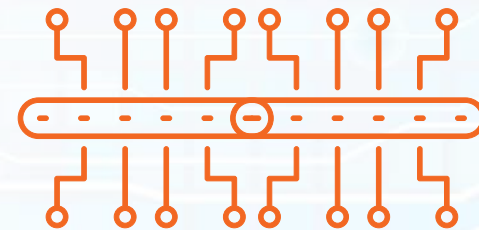
SMBS DON'T NEED TO LOSE OUT ON CLOUD-LIKE EXPERIENCES

SMBs employ 60% or more of workers in most countries.*

"Composable infrastructure" knits together different servers, networks, & storage **into one seamless solution**.

SMBs may recognize they need cloud-type services, but a full pivot could be costly. **Providing cloud-like experiences, regardless of infrastructure, helps them compete.**

*Source: Facebook/OECD/World Bank (2020), The Future of Business Survey, available at: dataforgood.fb.com/global
Other sources: Frost & Sullivan and HPE

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Smart Cloud Solutions Apply to Governments and Businesses

The benefits of connected and data-driven solutions reach well beyond the realm of the private sector: as cities and governments strive to create healthier and more inclusive societies, they increasingly rely on intelligent sensors, apps, and the cloud to help manage traffic, reduce emergency response time, improve their environmental footprint, and make services accessible to all. In Australia, the state of Victoria is at the forefront of modernization. Victoria's main city, Melbourne, is one of the world's smartest and most connected cities, according to Frost & Sullivan research.

In 2008, the Victorian government created a state-owned enterprise, Cenitex, to provide advanced and secure digital services to over 35,000 government employees across hundreds of sites. As the volume and criticality of data continued to swell from new systems, devices, and users, Cenitex recognized it needed to future-proof through more flexible and secure infrastructure. It needed a solution that would bring the cloud to Cenitex, avoiding costly and time-consuming on-prem build-outs.

HPE provided Cenitex with HPE GreenLake, which creates a flexible, scalable, and secure cloud experience that gives Cenitex the room to grow and with costs commensurate to that growth. HPE also provided HPE Synergy, a composable infrastructure that manages and optimizes Cenitex's remaining data center assets. Cenitex can now fully engage in new and advanced smart government solutions without concerns of overreaching its costs or losing functionality. Even before the implementation was complete, Cenitex recognized availability and performance improvements and a remarkable 15-fold reduction of its on-prem footprint.

SMART AND CONNECTED CITY PROFILE

Melbourne has a robust, data-driven focus on improving mobility, providing services such as renewable energy electric vehicle chargers, e-hailing, ride-sharing, and micro-mobility. It is also testing autonomous vehicles with the Australian Integrated Multimodal Ecosystem, La Trobe Autonomous Bus trial, & the Transurban connected and autonomous vehicle trials.

SMART CITIES DRIVE TECH SPENDING

Top technologies driving smart cities are **artificial intelligence (AI)** and **5G communications**.

Estonia is a world leader in smart government, with nearly all (**over 99%**) of public services digitized.*

By 2025, connected cities **will spend $327 billion on new technologies.***

Source: Frost & Sullivan's Future of Connected Living, February 2021

Next Steps for Creating a Cloud Experience

All organizations, from local SMBs to multinational giants, need scalability, agility, and a low total cost of ownership. Whether a business retains on-prem hardware, wants to migrate to the cloud, or prefers a hybrid scenario, achieving cloud benefits-as-an-outcome will likely dominate the conversation in the coming years.

Frost & Sullivan recommends businesses evaluate their current state, explore their potential, and then engage with a solution provider that enables their journey. A solution such as HPE GreenLake brings the cloud advantage to the business, utilizing the right infrastructure components to achieve an optimal outcome. The right partner can accelerate digital transformation while helping keep costs in check, enabling businesses to operate more efficiently and generate new revenue streams more quickly than the competition. This is likely why, as of 2020, 64% of companies had, at some point, engaged a third-party cloud advisor, and another 27% were considering it.

ASSESS YOUR CURRENT SITUATION

Can on-prem resources grow with the business? Are they flexible, secure and scalable, or static and disparate? Have cloud initiatives been fruitful or led to costly repatriation?

OUTCOME MATTERS MORE THAN INFRASTRUCTURE

Smart solutions facilitate business growth and innovation, whereas infrastructure is simply the road to get there. Identify business needs first and use a solution provider that can meet these needs quickly with fees and compute power in step with business growth.

COMMUNICATE ACROSS STAKEHOLDERS

It's easy to start with IT-related benefits and relegate other teams to later in the process. However, understanding priorities across the organization keeps unanticipated concerns from becoming roadblocks and streamlines vendor selection.

Most solution providers will tout strong security and streamlined implementation for IT teams, but what about scalable fee structures that address CFO concerns? Has the vendor worked in the same vertical industry, and can it speak the same language as operations? Will upper management get better organizational visibility, and will the compliance teams gain faster and more accurate auditing capabilities? Understanding a partner's ability to fit the business results in a smoother process and faster return on investment.

Source: All data Frost & Sullivan unless otherwise noted

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ABOUT HPE

HPE GreenLake cloud services provide customers with a powerful foundation to drive digital transformation through an elastic as-a-service platform that can run on-premises, at the edge, or in a colocation facility. HPE GreenLake combines the simplicity and agility of the cloud with the governance, compliance, and visibility that comes with hybrid IT. HPE GreenLake offers a range of cloud services that accelerate innovation, including cloud services for compute, container management, data protection, HPC, machine learning operations, networking, SAP HANA, storage, VDI, bare metal and VMs. The HPE GreenLake Cloud Services business is rapidly growing with over $4.5 billion USD in total contract value and more than 830 partners selling HPE GreenLake. Today, HPE GreenLake has more than 1000 customers across 50 countries in all industry sectors and sizes including Fortune 500 companies, government and public sector organizations, and emerging enterprises.

For more information on HPE GreenLake, please visit: https://www.hpe.com/us/en/greenlake.html.

Growth is a journey. We are your guide.

For over six decades, Frost & Sullivan has provided actionable insights to corporations, governments and investors, resulting in a stream of innovative growth opportunities that allow them to maximize their economic potential, navigate emerging Mega Trends and shape a future based on sustainable growth.

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