NAVIGATE YOUR DIGITAL TRANSFORMATION WITH CLOUD

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INTRODUCTION

Cloud along with other technologies such as Big Data, Internet of Things, Artificial Intelligence and Blockchain have made it possible for enterprises to have bolder visions for the future. The new technologies motivate them to accelerate their digital transformation journey and deliver more rewarding experiences to clients.
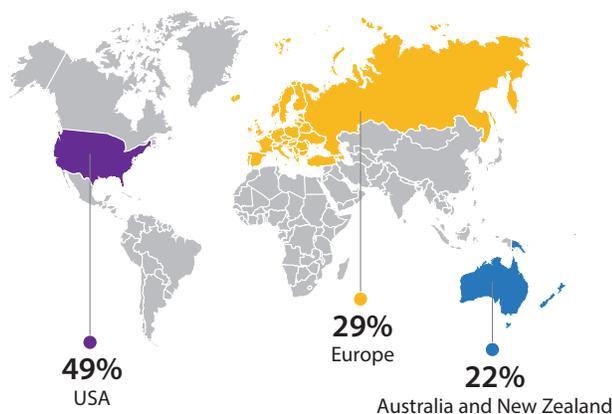
Cloud initiatives have mushroomed across the enterprise as businesses recognize the inevitability of cloud computing in their quest for digital transformation. Enterprises are gradually shifting focus from incremental to transformational benefits.

Enterprises need to put in place the essential technology infrastructure to ensure their ambitious plans succeed. Cloud along with other technologies such as Big Data, Internet of Things (IoT), Artificial Intelligence and Blockchain have

made it possible for enterprises to have bolder visions for the future. The new technologies motivate them to accelerate their digital transformation journey and deliver more rewarding experiences to clients.

To better understand the specifics of cloud initiatives, Infosys surveyed 876 executives from organizations with over US$ 1 billion in revenues across the United States, Europe, Australia and New Zealand. The respondents were senior executives involved in cloud initiatives representing both technology and business functions. Respondents represented industries, grouped into seven industry clusters, namely Financial Services and Insurance, Consumer Goods, Retail and Logistics, Manufacturing, Healthcare and Life Sciences, Telecom, Energy and Utilities, and High-tech.
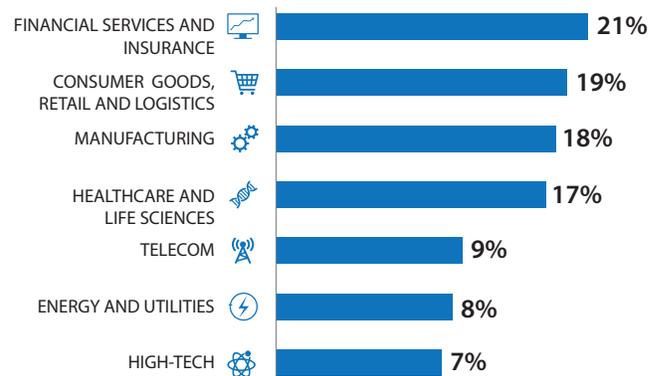
Figure 1: Respondent geographies

49% USA

29% Europe

22% Australia and New Zealand

Figure 2: Industries represented

Industry	%
FINANCIAL SERVICES AND INSURANCE	21%
CONSUMER GOODS, RETAIL AND LOGISTICS	19%
MANUFACTURING	18%
HEALTHCARE AND LIFE SCIENCES	17%
TELECOM	9%
ENERGY AND UTILITIES	8%
HIGH-TECH	7%

The principal aim of the study was to identify and understand major cloud initiatives, both from strategic as well as implementation perspectives. The strategic component included

plans, drivers, concerns, and expected outcomes. The implementation viewpoint was provided by adoption level across different business functions, implementation

challenges, and types of cloud models in use. The report represents the information we gathered and insights we developed from our enterprise respondents.

EXECUTIVE SUMMARY

Enterprises are serious about cloud but are at different stages of the journey

Cloud initiatives are widespread across different business functions

Enterprise workload is unevenly spread across public, private, and hybrid cloud models

Robust cloud ecosystems are a necessity for enterprises aspiring to win the digital race and achieve significant business performance improvements. As enterprises navigate their cloud journey, it is necessary to remain flexible and frequently assess industry trends to make required course corrections.

Undoubtedly, cloud adoption is rising but is it mainstream across the enterprise? What factors drive enterprises to the cloud and what prevents aggressive large-scale adoption? Are these concerns and challenges warranted, and how do they impact implementation? What are leaders considering next?

These questions can help enterprises review the progress of their cloud programs and optimize their cloud journey.

1. Enterprises are serious about cloud but at different stages of the journey

An overwhelming 94 percent of enterprises surveyed had a stated enterprise-wide cloud strategy, validating the notion that the cloud is well-entrenched. However, there is

a dichotomy in the way enterprises execute the strategy. 49 percent of the respondents stated that the strategy is well-defined and followed religiously while 45 percent said that the strategy exists only as a guideline and individual business functions or geographies have the flexibility to develop their own. Only a meager 6 percent appear to be floundering with the absence of an enterprise-wide strategy.

2. Cloud initiatives are widespread across different business functions

Typically, enterprises adopt cloud initiatives in the areas of End User Productivity and Business Support functions to start with and then extend it to Core functions. Therefore, it was no surprise to find cloud adoption of 61 percent in End User Productivity areas and 59 percent in Business Support functions. Extensive collaboration required in End User Productivity (email, intranet, knowledge management) and Business Support functions (finance, HR, CRM) make them natural targets for cloud adoption. Core functions (manufacturing, supply chain) (55 percent) tend to be more cautious.

3. Enterprise workload is unevenly spread across public, private, and hybrid cloud models

Among those enterprises that prefer private cloud, a significant 61 percent have 25-50 percent of their workload on the private cloud, while 21 percent have over 50 percent of their workload on it. The reasons to opt for private cloud include cost reduction (46 percent), security (40 percent), and regulatory outcomes (36 percent). However, among enterprises that prefer public cloud, 56 percent stated that they have 25-50 percent of their workload on it. Reasons for choosing public cloud include scalability (39 percent), higher availability (36 percent), and pace of upgrading the IT landscape (35 percent). Enterprises are cautious about the hybrid model as evinced from the low adoption levels; 97 percent have less than 50 percent of the workload on the hybrid cloud.

THE CLOUD CAST

Types of enterprise players

The principal objective of the Infosys study was to gain an in-depth understanding of the experience with enterprise cloud programs. Cloud has featured in the strategy and budget for almost a decade now. Despite its long-standing presence, many enterprises are still at the lower end of the maturity scale when it comes to maximizing the advantages of cloud programs.

We assessed the intensity of adopting cloud initiatives relative to the commitment to more such programs over the next three years.

We discovered four distinct clusters which provide clues into enterprise cloud thinking and behavior:

PATHFINDERS
Enterprises with moderate cloud adoption, and actively seek to derive more business value from the cloud

ASPIRANTS
Enterprises with low adoption of cloud across functions, and mostly have a tactical approach towards the cloud

DEFENDERS
Enterprises that understand the importance of cloud, but have a siloed approach and unsure about how to derive business value from the cloud

TORCHBEARERS
Enterprises with high adoption of cloud across functions, and seek to be fully integrated and a cloud-first organization

19% 19% 11% 51%

TORCHBEARERS

Forward-thinking enterprises which appreciate the strategic importance of the cloud to their transformation plans define this cluster. They have an enterprise-wide strategy that is either followed religiously (64 percent) or acts as a guideline for business groups (42 percent). Such enterprises demand sophisticated outcomes from their cloud programs like enhancing customer experience and building a solid cloud foundation to ease digital transformation.

Consequently, these enterprises have implemented cloud programs across all or most functions in their organization. They also have a keen eye on the future and set lofty goals such as becoming a fully integrated and cloud-first organization. Fifty-one percent of our respondents fall into this cluster.

PATHFINDERS

Ambitious enterprises that understand the significance of the cloud to their business yet are cautious about taking bolder steps, comprise this cluster. The Pathfinders look to Torchbearers enterprises to set the trend and emulate their practices once proven. There is an enterprise-wide strategy present in most of these organizations, but it mostly acts as a guidepost for individual business units (23 percent) and is followed diligently to a lesser extent (15 percent).

These firms have taken the initial step to implement cloud programs in End User Productivity functions and are yet to extend the cloud across other functions fully. Their planning reflects their caution too as they favor a phased approach to cloud programs while trying to derive more business value. Nineteen percent of our respondents form this cluster.

DEFENDERS

Enterprises that are aware of the cloud's advantages and are yet to fully appreciate how the cloud can propel their organization into a transformational trajectory make up this cluster. There is an enterprise-wide strategy present which is either adhered to faithfully (16 percent) or works as a guiding principle for business units (21 percent). Despite the strategy, these enterprises seldom take a holistic approach and remain satisfied with incremental benefits across business functions. Nineteen percent of our respondents fall into this cluster.

ASPIRANTS

Enterprises with a vague sense of how to go about cloud transformation define this cluster. While many have an enterprise-wide strategy as a guideline (14 percent), the goals of Aspirants predominantly remain tactical with a desire to move only parts of their applications landscape to the cloud. They are furthest away from becoming a cloud-first organization with their narrow approach to the cloud. Eleven percent of our respondents fall into this cluster.

Fifty-eight percent of Australia and New Zealand enterprises from the study form the Torchbearers cluster. Australia and New Zealand enterprises have always been eager to adopt new technology trends compared to global counterparts and embracing cloud technologies is no exception. European enterprises comprise 25 percent of the Pathfinders cluster and 19 percent of the Aspirants cluster. In Europe, rates of cloud adoption differ across countries. For example, the UK and Scandinavian countries adopt the cloud significantly faster than France and Germany.

Region	Respondent Classification*			
	Torchbearers	**Pathfinders**	**Defenders**	**Aspirants**
Australia and New Zealand	58%	14%	20%	8%
Europe	41%	25%	15%	19%
USA	54%	18%	20%	9%

* Percentages have been rounded up

Manufacturing, Financial Services and Insurance, and Consumer Goods, Retail and Logistics industries are fast adopters of the cloud and have a high percentage of respondents who are Torchbearers and Pathfinders. The cloud is helping Manufacturing firms, Financial Services and Insurance firms, and Consumer, Retail and Logistics firms improve their operations by bringing in speed, agility, flexibility, and scale.

By making the operations more efficient, these enterprises now meet customer demands better while enhancing business performance. Manufacturing enterprises appear to be the most progressive with their cloud strategy, execution, and vision with a significant 66 percent constituting the Torchbearers cluster. These enterprises have consistently scored high on possessing an enterprise-wide strategy (59 percent), adoption across functions (over 80 percent) and their vision for a cloud-first future (42 percent). Global expansion plans and complex supply chains mandate extensive collaboration and integration which explains the high adoption of cloud among manufacturers. The Financial Services industry is a fast adopter and is bullish about cloud programs.

Industry	Respondent Classification			
	Torchbearers	**Pathfinders**	**Defenders**	**Aspirants**
Financial Services and Insurance	50%	24%	16%	11%
Consumer Goods, Retail and Logistics	49%	20%	22%	10%
Manufacturing	66%	11%	12%	11%
Healthcare and Lifesciences	45%	19%	24%	12%
Telecom	53%	18%	13%	18%
Energy and Utilities	42%	22%	25%	11%
High-tech	50%	22%	20%	8%

EMBARKING ON A CLOUD JOURNEY: UNDERSTANDING THE STRATEGY AND EXPECTATIONS

Cloud adoption drivers and their significance on decision-making

Enterprises opt to go with the cloud by considering strategic drivers - the top two are external drivers, emerging technologies and opportunities they present (50 percent) and competitive activity (49 percent). Not surprisingly the bulk of the respondents are from the progressive Torchbearers cluster. Further, with the spotlight on technologies such as Artificial Intelligence and Machine Learning, DevOps, and Big Data, cloud computing is firmly established as a foundation for digital transformation.

Reduced IT costs which is what started the cloud movement is third at 45 percent. Cost is among the top two drivers for the Pathfinders and Defenders.

Cloud computing can significantly reduce the costs of owning and maintaining IT infrastructure. It has been known to lower IT costs by up to 40 percent explaining why enterprises consider it as a critical driver.

> *Cost is among the top two drivers for the Pathfinders and Defenders*

Operational triggers such as scale on demand, data security, need for high levels of system availability and resilience still matter but are not top priorities.

While enterprises have identified critical drivers for cloud adoption, however, it is possible that a different set of drivers influence the pace of decision making. For example, 79 percent of enterprises said Data Security is not a top driver but agree it can have a high impact on the speed of decision-making. Eighty-three percent of US respondents strongly voted for the significance of Data Security. Similarly, meeting evolving end customer needs also impacts the pace of decision-making.

We believe cloud programs can provide enterprises the thrust that they need to create a next-generation IT foundation that can respond to business environment changes far more effectively than ever before. It mandates a holistic approach to cloud transformation, a necessity in today's digital age.

Top drivers	Torchbearers	Pathfinders	Defenders	Aspirants
1	Competitive activity	Emerging technologies and opportunities provided by them	Reduced IT costs	Competitive activity
2	Emerging technologies and opportunities provided by them	Reduced IT costs	Emerging technologies and opportunities provided by them	Scale on-demand
3	Evolving end customer needs	Competitive activity	Competitive activity	Emerging technologies and opportunities provided by them, data security trends

Figure 3: Cloud adoption drivers and their significance on decision-making

	Key drivers	Significance					
Emerging technologies and opportunities provided by them	50%	2%	7%	21%		28%	41%
Competitive activity	49%	1% 2% 6%		21%		29%	41%
Reduction in overall IT costs by leveraging pay per use models	45%	1% 1% 3% 6%		22%		33%	36%
Evolving end customer needs	43%	1% 2% 3%	16%		35%		42%
Scale on-demand based on changing business needs	41%	1% 4% 7%	18%		34%		37%
Keeping up with the latest data security mechanisms	40%	1% 2% 5%	13%		32%		47%
Need for high levels of availability and resilience in systems/processes	39%	3% 1% 6%	18%		37%		35%
Changing partner/supplier ecosystem	30%	2% 5% 6%	22%		33%		32%
Bringing in industry/domain specific cloud SaaS solutions	19%	1% 1% 1% 6%	18%		34%		40%

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7
Least significant   Most significant

Enterprises have clarity on expected outcomes

Having formal goals when drawing a strategy ensures clarity in execution. Enterprises articulated expected outcomes along with the timeframe needed to achieve them. The most anticipated results do not necessarily rank as immediate priorities, showing that enterprises are willing to wait to reach the desired state.

The most anticipated outcomes are delivering an enhanced experience to customers and other stakeholders (52 percent) and standardizing and integrating the technology landscape across the enterprise (50 percent). Over 80 percent of enterprises expect to derive both these outcomes within the medium term (up to two years) with over 50 percent choosing to get it done within a year itself.

It is encouraging to see the priority accorded to stakeholder experience, a sure sign that enterprises are evolving beyond tactical goals into customer-centric organizations. More organizations from the Torchbearers cluster seek to deliver enhanced experiences.

Respondents from Telecom (63 percent), High-Tech (58 percent) and Consumer Goods, Retail and Logistics (57 percent) industries viewed

The Torchbearers, Pathfinders, and Defenders clusters target this outcome indicating that those enterprises with an established plan for cloud program identify the need for technology standardization.

enhanced customer experience as a key expected outcome in the immediate term (within six months) because:

- Today's customers demand personalized experiences and are willing to pay for it
- The pervasiveness of social media has impacted customer loyalty
- New technologies make it possible to engage more meaningfully with the customer

Enterprises are bound to treat standardizing and integrating the technology landscape as necessary given the diverse spread of technology systems across the organization, ranging from legacy to more advanced systems. The Torchbearers, Pathfinders, and Defenders clusters target this outcome indicating that those enterprises with an established plan for cloud program identify the need for technology standardization. Sixty-nine percent of respondents treated standardizing and integrating the technology landscape as a short to medium term priority.
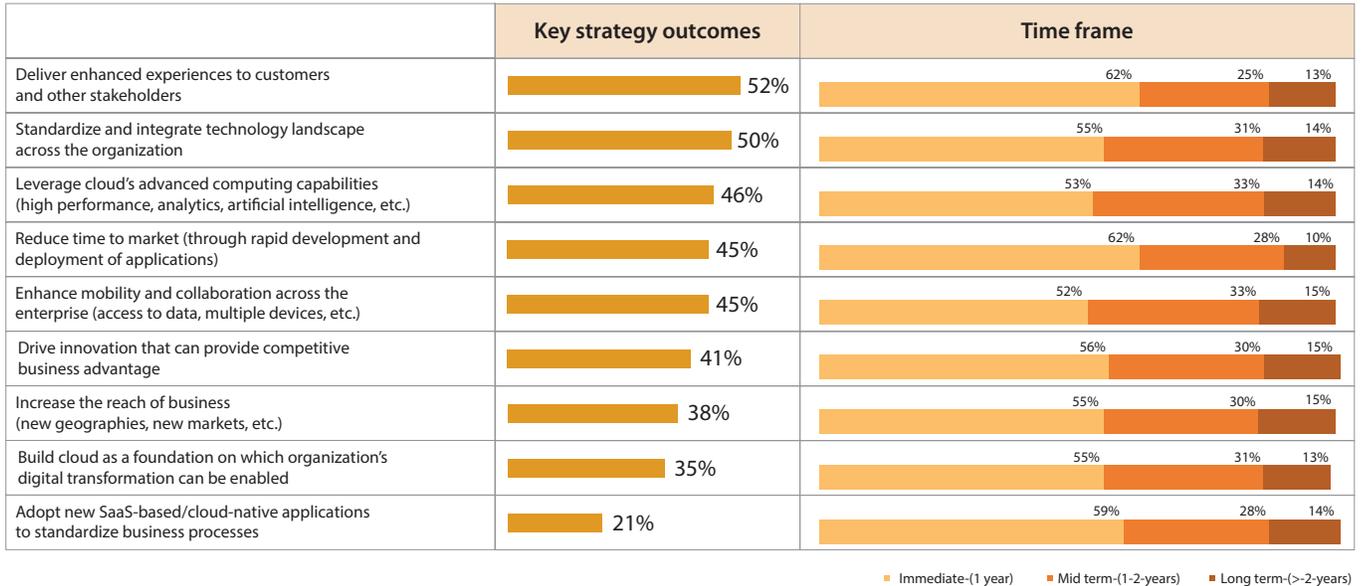
While the desired outcomes played out well into the medium term, the short-term priorities (defined as up to one year) are reduced time to market (62 percent), enhanced experience to customers (62 percent) and other stakeholders and adopting new cloud-native applications to standardize business processes (59 percent).

A significant 87 percent of Energy and Utilities and 75 percent of High-tech respondents look to reduce time to market within a year. This view was mirrored by 70 percent of European respondents as well, 81 percent of Energy and Utilities respondents voted to adopt new cloud-native applications to standardize business processes as a short-term priority. The Energy and Utilities industry is in a state of flux thanks to increasing consumer expectations, environmental awareness, and regulations. Reducing costs, digital transformation and driving a substantial competitive advantage are critical for survival, explaining their choice of short-term goals.

Figure 4: Key expected outcomes and timeframes for achieving them

	Key strategy outcomes	Time frame		
Deliver enhanced experiences to customers and other stakeholders	52%	62%	25%	13%
Standardize and integrate technology landscape across the organization	50%	55%	31%	14%
Leverage cloud's advanced computing capabilities (high performance, analytics, artificial intelligence, etc.)	46%	53%	33%	14%
Reduce time to market (through rapid development and deployment of applications)	45%	62%	28%	10%
Enhance mobility and collaboration across the enterprise (access to data, multiple devices, etc.)	45%	52%	33%	15%
Drive innovation that can provide competitive business advantage	41%	56%	30%	15%
Increase the reach of business (new geographies, new markets, etc.)	38%	55%	30%	15%
Build cloud as a foundation on which organization's digital transformation can be enabled	35%	55%	31%	13%
Adopt new SaaS-based/cloud-native applications to standardize business processes	21%	59%	28%	14%

■ Immediate-(1 year)   ■ Mid term-(1-2-years)   ■ Long term-(>-2-years)

Concerns continue over cloud models, return on investment (RoI), and solution provider reliability

The Torchbearers cluster was most vocal about choosing the right cloud model (55 percent) and delivering RoI (50 percent). The Pathfinders cluster was most concerned about overly relying on external solution providers (44 percent).

"

One of the main challenges is the choice of the model to implement - there was a lot of confusion and skepticism about each model. Then we also had some challenges with getting the people ready to handle the change after it is implemented.

– CXO of a large US-based financial services provider

"

Despite an abundance of information on the pros and cons of each cloud model, enterprises still grapple with the choice of the right model for their business. Public cloud usage offers many advantages, but enterprises hold back citing reasons such as data security and compliance. Fifty percent of respondents struggle with this choice, and all regions and industries mirror this view.

Forty-one percent were concerned with gaining stakeholder confidence by delivering appropriate RoI demonstrated through reduced costs, increased efficiencies, and collaboration. Cloud transformation has an overarching impact across the enterprise demanding deep engagement from both business and IT stakeholders. In this cross-functional context, it is imperative to demonstrate RoI frequently and retain stakeholder confidence to ensure success.

While enterprises are not averse to working with external solution providers, however, 40 percent were apprehensive about relying significantly on such partners. It is likely that enterprises are unsure about how to deal with external

partners given that they are learning their way through the cloud journey and hence reluctant to hand over control to external partners.

The Torchbearers cluster was most vocal about choosing the right cloud model (55 percent) and delivering RoI (50 percent) while the Pathfinders were most concerned about overly relying on external solution providers (44 percent).

Australia and New Zealand respondents viewed the need for a dedicated team to drive the transition (49 percent) and alignment between IT and business on the cloud roadmap (44 percent) as significant concerns.

From an industry perspective, 38 percent of Consumer, Retail and Logistics industry respondents were anxious about finding the right talent and skills to manage cloud transition. Healthcare and Life Sciences participants treated availability of internal expertise (39 percent), alignment between IT and business on the roadmap (36 percent) and need for a dedicated team to drive the transition (33 percent) as significant concerns.

Figure 5: Concerns before launching cloud programs

	Overall	Torchbearers	Pathfinders	Defenders	Aspirants
Deciding on the cloud approach to adopt	50%	55% [1]	43% [1]	49% [1]	45% [1]
Stakeholder confidence around RoI	41%	50% [2]	31%	38%	19%
Significant reliance on external solutions providers	40%	41% [3]	36% [2]	44% [2]	32% [2]
Availability of internal talent to manage the transformation	38%	41% [3]	35% [3]	41% [3]	27% [3]
Alignment between IT and Business on the roadmap	35%	41% [3]	34%	31%	19%
Accountability and need for a dedicated team to drive the transformation through	32%	34%	33%	32%	21%
Organizational readiness	31%	35%	28%	29%	20%
Building the strategic and operational roadmaps that lead to conclusive outcomes	27%	31%	24%	27%	17%
Need to continuously upgrade to new technologies	25%	29%	29%	15%	15%
Concerns with respect to enterprise information security	24%	30%	20%	23%	9%
Overcoming post migration challenges with respect to cost and maintenance	23%	27%	18%	25%	13%

Ranking 1, 2 and 3 based on importance associated with each category.

WALKING THE TALK: UNDERSTANDING CLOUD IMPLEMENTATION EXPERIENCES

Implementation brings on a new set of challenges

> *The main challenge we had in initiating cloud was the concerns posed around data security. Though this is addressed by encrypting the data, it is not a fast process. This resulted in the additional concern around the timelines which are envisaged.*
>
> *– Director at a US-based insurance firm*

As enterprises launch cloud programs, they face a set of challenges different from the ones anticipated at the onset. With legacy systems still rampant in most enterprises, it's no surprise that aligning legacy systems (59 percent) is stated as a top challenge. Handling legacy systems will require significant investments from enterprises as they work out how to migrate them to the cloud. It's not a simple matter of "lift-and-shift" applications but involves a more comprehensive approach.

Australia and New Zealand respondents (63 percent) appear to be more troubled with this challenge compared to the US and Europe. Others who view this as a severe challenge include 69 percent of Manufacturing, 63 percent of Healthcare and Life Sciences, and 63 percent of Energy and Utilities respondents.

The second rung of challenges which are of equal concern (56 percent) includes deciding on the choice of tools and technologies,

resources with cloud skill sets, accurate estimation of time and costs, promoting culture change, and collaboration with external service providers. Manufacturing respondents feel the most pain with these challenges.

The diverse nature of challenges articulated shows that multiple solutions need to come together simultaneously to make cloud programs succeed. It is unlikely that enterprises are fully equipped to handle the varied set of challenges on their own. External partners present the best path to success with their ability to provide resources with diverse skill sets at the same time.

Organizations without a strategy for cloud initiatives perceive a scarcity of skill sets and ability to maintain current service levels during the transition as significant challenges. It appears that this cluster is yet to encounter all the issues that typically plague organizations that are at a more advanced stage in cloud implementation.

Figure 6: Challenges faced during implementation and their significance

	Significance of challenges						
	1	2	3	4	5	6	7
Application refactoring/tweaking to suit cloud architectures	2%	2%	7%	11%	25%	26%	26%
Tracking and monitoring systems/processes on cloud	2%	4%	5%	15%	22%	27%	26%
Aligning existing legacy systems/architectures and technology environments	1%	3%	5%	11%	21%	33%	26%
Resource skillsets with cloud orientation	2%	2%	6%	13%	22%	30%	26%
Accurate estimation of time and financial costs involved	3%	3%	4%	10%	25%	31%	25%
Pace of execution/implementation of the initiative	2%	2%	6%	13%	24%	29%	25%
Deciding on choice of tools/technologies to pick from	1%	2%	6%	11%	23%	32%	24%
Maintaining current services levels during transition	1%	3%	6%	10%	26%	26%	28%
Lack of high levels of clarity in the execution roadmap	2%	4%	7%	16%	22%	27%	22%
Absence of an internal dedicated cloud team to drive the initiative	3%	3%	6%	14%	23%	29%	22%
Promoting a culture change within the organization	3%	3%	4%	14%	20%	29%	27%
Collaboration/integration with external service providers/stakeholders	2%	2%	7%	11%	23%	32%	24%
Navigating existing agreements	2%	3%	6%	13%	24%	28%	25%

Least significant → Most significant (1 → 7)

All business functions have adopted the cloud

- The US and Australia and New Zealand to a large extent are high adopters of cloud in the End User Productivity and Business Support areas.

- Manufacturing organizations lead the way in adoption of cloud initiatives.

- Financial Services firms (62 percent) have actively adopted cloud for Business Support functions.

- Cloud in the End User Productivity areas showed pickup across Consumer, Retail and Logistics (66 percent), Hi-tech (65 percent) and Energy and Utilities (60 percent).

While cloud computing adoption is rising swiftly, is it uniform across the enterprise or are there pockets spearheading the adoption?

The three business functions, End User Productivity areas (61 percent), Business Support (59 percent) and Core (55 percent) showed over 50 percent adoption of cloud initiatives. End User Productivity areas encompass collaboration and productivity systems and Business Support functions include finance, HR, CRM, and so on. The collaboration required in both End User Productivity and Business Support functions makes them a natural choice for cloud initiatives. Besides, most of the applications servicing these functions are from third parties and likely to be in SaaS mode, forcing a move to the cloud.

One of the key reasons for going cloud would be the opportunity to function collaboratively across the organization. Our industry by default functions in a siloed manner across functions. Cloud based services, have helped make this simpler and more intuitive for everyone.

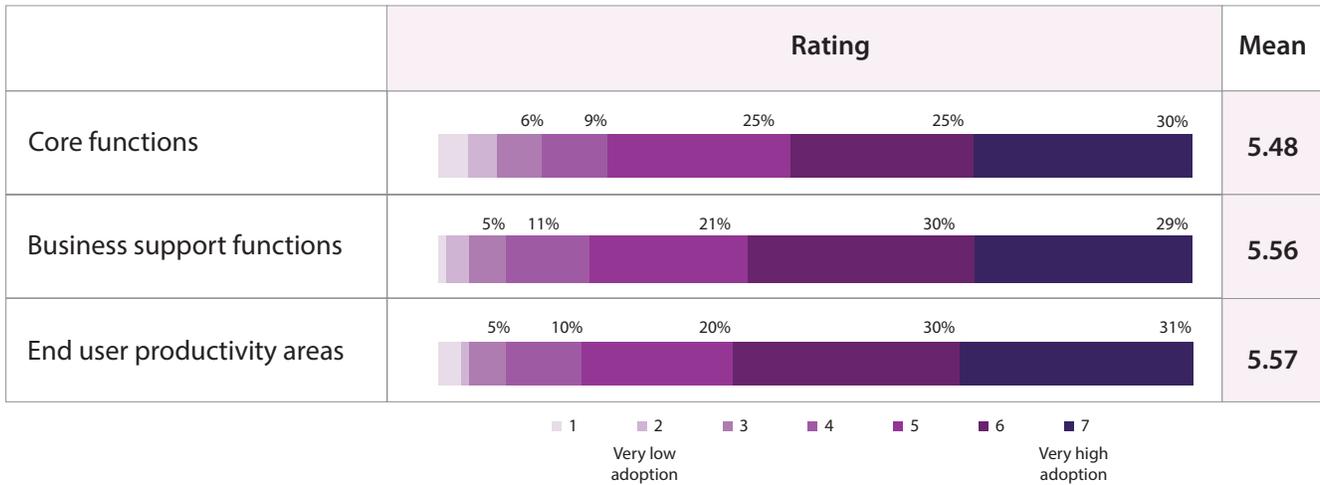*– Director at a financial services firm in the US*

Core functions (55 percent) that involve areas critical to the company's survival are not as prevalent on the cloud as expected. Regionally, the US (65 percent) showed a higher propensity towards the cloud. High-Tech (63 percent), Manufacturing (61 percent) and Financial Services (61 percent) are high adopters, whereas Telecom industry has a lower adoption at 35 percent.

Figure 7: Cloud adoption across functions

	Rating	Mean
Core functions	6% 9% 25% 25% 30%	**5.48**
Business support functions	5% 11% 21% 30% 29%	**5.56**
End user productivity areas	5% 10% 20% 30% 31%	**5.57**

■ 1 ■ 2 ■ 3 ■ 4 ■ 5 ■ 6 ■ 7
Very low adoption   Very high adoption

The study considered the adoption of cloud initiatives in the Data and Analytics function independently despite its ubiquity across departments. Both Australia and New Zealand (76 percent) and US (73 percent) respondents have aggressively implemented cloud initiatives in this area. Enterprises will find it easier to switch Data and Analytics systems to the cloud as they are on newer technologies. Moving firmly established enterprise-wide legacy systems to the cloud is challenging and helps explain the slower adoption rate.

Today's cloud models only handle partial workloads

> *Private cloud allows us to have greater flexibility during the initial stages, when the long term scalability of the program/application is not clearly envisaged. Post scale is achieved, we will contemplate if a change in model is required. In addition, security in a private cloud is better, considering the nature of the information we work with, an additional layer of safety is always helpful.*
>
> *– CXO at a financial services firm in the US*

Despite enterprise experimentation with cloud initiatives over the last decade, most respondents confirmed they have erred on the side of caution when choosing their cloud model. The spread of workload between public, private and hybrid models is not evenly distributed, leaning dominantly toward private models.

European and US enterprises are more open to adopting public cloud, and Australia and New Zealand leads the small segment of respondents looking at a well-balanced cloud model. Among industries, telecom is most inclined towards private while high-tech enterprises are the most inclined toward the public cloud.
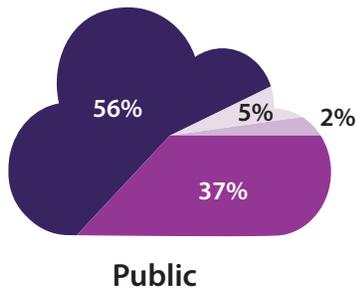
Classification	Proportion
Pro Private	48.51%
Pro Public	28.76%
Well-balanced	18.4%

Figure 8: Workload spread across the cloud models

Private
- 61%
- 13%
- 8%
- 18%

Public
- 56%
- 37%
- 5%
- 2%

Hybrid
- 52%
- 45%
- 2%
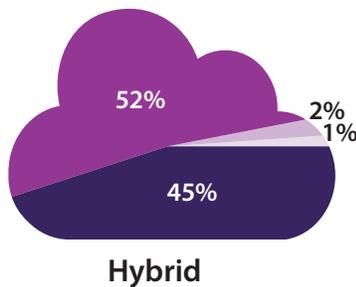- 1%

Legend:
- 0-25%
- 25-50%
- 50-75%
- 75-100%

For workload transfers over 50 percent, enterprises chose the private cloud. Some reasons why enterprises opt for private clouds include data security, regulations, and ease of re-architecting applications. Excluding the Healthcare and Life Sciences industry, over 55 percent of respondents from the other sectors have 25-50 percent of their workload on a private cloud. The Pathfinders, Defenders, and Aspirants clusters also have a higher share of workload on it.

In comparison, over 90 percent of enterprises use the public cloud for workloads up to 50 percent. Australia and New Zealand (64 percent) leads the way in utilizing the public cloud for 25-50 percent of their workload. High-Tech (67 percent) and Manufacturing (62 percent) respondents have transitioned over 25 percent their workload to a public cloud. Public cloud model adoption is more widespread in forward-thinking organizations such as Torchbearers.

Enterprises have alleviated concerns such as security and compliance to take advantage of the scalability, flexibility and cost benefits typically associated with the public cloud. However, the public cloud's one-size-fits-all approach may not suit sensitive or legacy applications, preventing enterprises from moving more applications.

Enterprises are at the beginning stages of using hybrid cloud models and have moved only small workloads. Working with hybrid clouds demands significant expertise, perhaps a key reason for lower adoption rates as respondents cite this as a challenge.

The Torchbearer enterprise is leading the way in moving more work to this model.

The hybrid cloud model offers workload flexibility whereby workloads can move between private and public clouds based on business sensitivities. This flexibility is perhaps the reason why industries that handle large volumes of sensitive data including Financial Services, Healthcare and Life Sciences, and Telecom have started using the hybrid cloud for larger workloads.

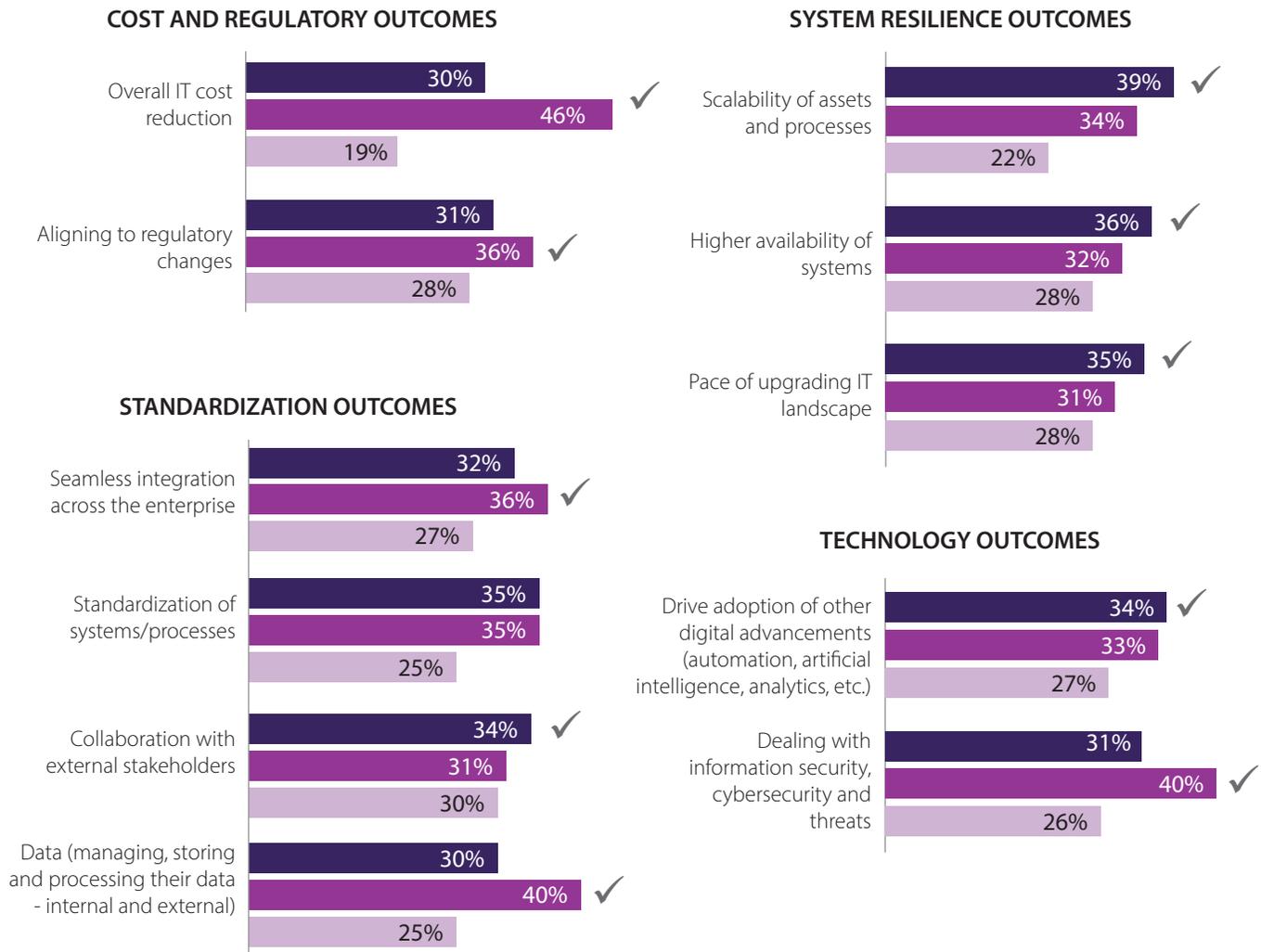There are three reasons why organizations are not moving more of their workload to the cloud:

1. Mature players with core functions mostly residing in legacy systems are less likely to attempt a transition.

2. Evaluating the cost of changes with the expected business benefits may show that a shift to the cloud is not warranted.

3. A risk-averse company may decide to play it safe and stay away from disruptive changes.

Enterprises understand what gains to expect from each cloud model

Figure 9: Suitability of cloud for various outcomes

COST AND REGULATORY OUTCOMES

Overall IT cost reduction
- Public: 30%
- Private: 46% ✓
- Hybrid: 19%

Aligning to regulatory changes
- Public: 31%
- Private: 36% ✓
- Hybrid: 28%

STANDARDIZATION OUTCOMES

Seamless integration across the enterprise
- Public: 32%
- Private: 36% ✓
- Hybrid: 27%

Standardization of systems/processes
- Public: 35%
- Private: 35%
- Hybrid: 25%

Collaboration with external stakeholders
- Public: 34% ✓
- Private: 31%
- Hybrid: 30%

Data (managing, storing and processing their data - internal and external)
- Public: 30%
- Private: 40% ✓
- Hybrid: 25%

SYSTEM RESILIENCE OUTCOMES

Scalability of assets and processes
- Public: 39% ✓
- Private: 34%
- Hybrid: 22%

Higher availability of systems
- Public: 36% ✓
- Private: 32%
- Hybrid: 28%

Pace of upgrading IT landscape
- Public: 35% ✓
- Private: 31%
- Hybrid: 28%

TECHNOLOGY OUTCOMES

Drive adoption of other digital advancements (automation, artificial intelligence, analytics, etc.)
- Public: 34% ✓
- Private: 33%
- Hybrid: 27%

Dealing with information security, cybersecurity and threats
- Public: 31%
- Private: 40% ✓
- Hybrid: 26%

✓ *Represents most preferred mode for a specific outcome*

Legend: ■ Public ■ Private ■ Hybrid

The respondents who didn't specify a particular preference have not been represented in the graph

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The study reveals that enterprises expect private cloud initiatives to deliver on reduced IT costs (46 percent), data management (40 percent) and information security and cybersecurity threat mitigation (40 percent). The common belief is that cost-advantages are associated only with the public cloud, but that does not hold good in all situations. For example, applications with predictable requirements are better off in a private cloud infrastructure.

A public cloud environment is expected to score high on scalability (39 percent), increased availability of systems (36 percent), faster upgrading IT landscape (35 percent), and standardized systems and processes (35 percent).

It is apparent from the study that while cloud has become an integral part of an enterprise's path to digital transformation, enterprises are at distinctly different levels of maturity

in their cloud journey. The varying maturity levels are demonstrated by cloud adoption level across functions, choice of cloud deployment model and the sophistication of expectations from the selected cloud model.

The cloud may begin with the boardroom, but it ends with IT leaders

Our organization is increasing its focus on IoT across various functions. Due to this our cloud strategy is mostly revolving around public cloud. The bandwidth that is required for our analysis can be easily accommodated. If we try to do this in a private cloud, we will need to invest a significantly larger capital. Based on the technologies we are focusing on, the preference of the cloud model is also changing, many of my industrial peers are also looking at public cloud.

– SVP at a manufacturing firm in Europe

Our survey highlighted the roles stakeholders play during the enterprise decision-making process. Business leadership plays a significant role to define outcomes from cloud transformation programs and in the final selection of external vendors. IT leadership, on the other hand, is actively involved in conceiving

technology design and strategy, evaluating and selecting vendors, and overseeing transformation execution.

We found CXOs more engaged across the decision-making lifecycle in the progressive companies. While IT leaders stay involved through the course of the cloud journey,

business leaders also engage at relevant decision points, increasing the chances for success. In the case of Aspirants, business heads play a more active role in the definition, final decision-making and overseeing stages.

Figure10: Roles played by various stakeholders

Legend:
- Executive Layer – Business leadership (CEO/COO/CFO)
- Line of Business Heads
- Executive Layer – IT leadership (CTO, CIO)
- IT Program Leaders
- External Consultants

Chart 1 — Defining the key business outcomes from cloud transformation program: 79% / 78%; 50%, 29%, 44%, 34%, 16%

Chart 2 — Conceiving the design and strategy for cloud adoption from a technology perspective: 68% / 83%; 34%, 34%, 46%, 37%, 17%

Chart 3 — Evaluation of cloud solution providers, other external vendors: 65% / 82%; 33%, 32%, 44%, 38%, 18%

Chart 4 — Final decision-making on cloud solution provider, other external vendors: 72% / 73%; 47%, 25%, 44%, 29%, 15%

Chart 5 — Overseeing and reviewing the execution of cloud transformation program: 61% / 79%; 33%, 28%, 41%, 38%, 18%
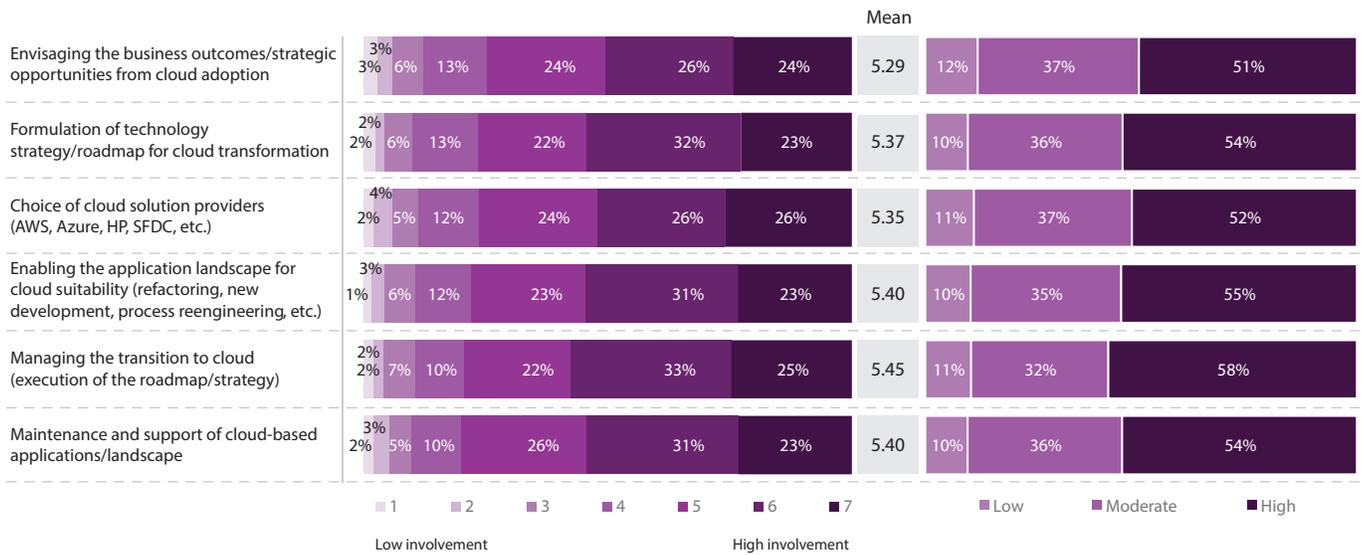
External stakeholder involvement is high across all implementation stages

Consultants, IT service providers, and cloud solution providers are a pervasive component of cloud implementation. External partners are involved in managing the transition to cloud (58 percent), preparing for cloud transition through refactoring, new development and reengineering (55 percent), and maintaining and support of the cloud environment

(54 percent). Australia and New Zealand and US respondents are more willing to engage external vendors in these areas. A significant 54 percent, with 63 percent from Australia and New Zealand, said external consultants are also involved in formulating the technology roadmap for cloud programs.
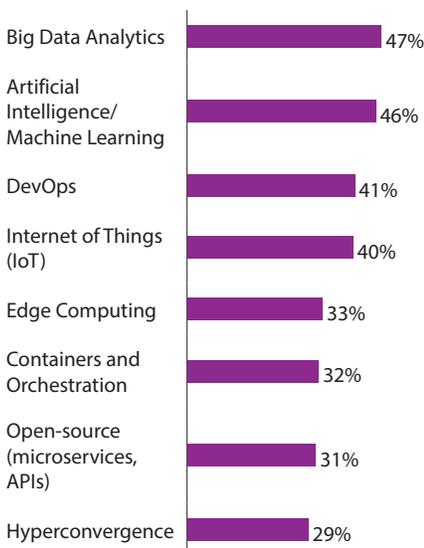
Enterprises employ standard criteria such as the effectiveness of solution proposed, pricing, and the ability to manage transformations in large organizations to evaluate external vendors.

Figure 11: Involvement of external stakeholders

	1	2	3	4	5	6	7	Mean	Low	Moderate	High
Envisaging the business outcomes/strategic opportunities from cloud adoption	3%	3%	6%	13%	24%	26%	24%	5.29	12%	37%	51%
Formulation of technology strategy/roadmap for cloud transformation	2%	2%	6%	13%	22%	32%	23%	5.37	10%	36%	54%
Choice of cloud solution providers (AWS, Azure, HP, SFDC, etc.)	4%	2%	5%	12%	24%	26%	26%	5.35	11%	37%	52%
Enabling the application landscape for cloud suitability (refactoring, new development, process reengineering, etc.)	3%	1%	6%	12%	23%	31%	23%	5.40	10%	35%	55%
Managing the transition to cloud (execution of the roadmap/strategy)	2%	2%	7%	10%	22%	33%	25%	5.45	11%	32%	58%
Maintenance and support of cloud-based applications/landscape	3%	2%	5%	10%	26%	31%	23%	5.40	10%	36%	54%

Low involvement   High involvement

New technologies will have a tangible impact on the cloud

Figure 12: Value add brought in by complementary technologies/developments

Big Data Analytics	47%
Artificial Intelligence/Machine Learning	46%
DevOps	41%
Internet of Things (IoT)	40%
Edge Computing	33%
Containers and Orchestration	32%
Open-source (microservices, APIs)	31%
Hyperconvergence	29%

To identify future trends, we solicited participant views on the influence of new technologies on cloud programs. Respondents selected from a diverse set of technologies that they believed add business value when adopted in combination with the cloud. Big Data Analytics (47 percent), Artificial Intelligence, and Machine Learning (46 percent) are expected to be most beneficial in this context. Energy and Utilities (51 percent) and Financial Services (52 percent) industries were confident about Big Data Analytics adding significant value.

As enterprises become digital natives, they prioritize newer technologies such as Big Data Analytics, Artificial Intelligence, and Machine Learning to accelerate the journey. Cloud is an established and integral part of this transformation, and enterprises expect seamless integration of the newer technologies with the cloud.

THE FUTURE OF CLOUD ENTERPRISE

Torchbearers stand out from Pathfinders because they have aggressively embraced cloud initiatives while the Pathfinders have adopted a more cautious approach.

Defenders and Aspirants must move their cloud strategy from transition led to transformation led to establish a scalable foundation.

As enterprises proceed with digital transformation, cloud is an essential enabler to reduce IT costs, enhance customer experience and business agility, and compete in the market. The Infosys study highlighted four categories of enterprises on the cloud journey, with the Torchbearers cluster being the benchmark for others to follow.

Torchbearers stand out from Pathfinders because they have aggressively embraced cloud initiatives. The reasons for their success include a well-crafted strategy and execution aligned to business goals across business functions, building business stakeholder confidence by demonstrating return on investments and showcasing business outcomes, and working with the right partners.

There is a significant gap between the Torchbearers and Pathfinders,

and between the Defenders and Aspirants. The Defenders and Aspirants must take a cue from Torchbearers and Pathfinders and accelerate their cloud approach and move their cloud strategy from transition led to transformation led, helping focus not only on digitizing the core, but also reimagine customer experiences, drive innovation, benefit from analytics and insights derived from data and more.

Multiple challenges will emerge, but investments in cloud transformation initiatives have demonstrated achievement of long-term benefits. Navigating the digital journey with cloud by working with the right partner who can provide both, strategic consulting and technology solutions will go a long way in rapidly achieving transformational business outcomes.

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