

Consumer, Retail And Logistics:

The Movement
Of Enterprise
Applications To The
Cloud



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Introduction

The consumer and retail industry has been an early target of digital innovation. Traditional distribution networks have broken down, and historical data is now used less often for insight and direction into global supply chains.

Instead, the industry is battling a change in consumer tastes and upheaval from digital upstarts that have the power to influence how, where and why things are bought. The new online marketplace is a field ripe for plucking, but firms need to apply a good dose of digital transformation before they can reap the benefits.

Logistics is made up of companies that are at various stages on the digital transformation path. Some are still awash in paperwork, while others have employed machines to increase labor productivity. The advent of artificial intelligence and big data has also had a big impact on supply chains, with humans now taking on higher-value work.

This means that the consumer, retail and logistics (CRL) industry cannot afford to stall in its efforts to innovate business models and disrupt traditional ways of working. New revenue streams and accelerated growth, along with increased efficiencies, will fall to the firms that change the way they do business, using new operating models that factor in both new and older digital capabilities.

The cloud is the foundation on which to build this technological footprint. It is also the accelerator of other forefront technologies, such as omnichannel marketing, digital product engineering and even virtual reality — buzzwords that have taken the CRL industry by storm.

The cloud also enables standardized experiences across CRL operations and customer journeys, whilst

enabling seamless, low latency interaction between multiple systems. As one senior vice president at a UK global retail chain said, “Cloud allows us to tap into ever changing customer preferences in an era of cross-channel customer decision-making. Cloud providers also update features and applications regularly, ensuring we stay ahead of the pack as technology evolves.”

This paper, however, is not about how these firms should be structured in the cloud-native universe. Nor does it seek to uncover how processes should change so that firms that once relied on well-traveled data can use new insights to optimize the business model. Rather, following in the footsteps of the master report titled “[Behind the Scenes of an Intelligent Enterprise: Moving Enterprise Applications to the Cloud](#),” it looks at the drivers, objectives, apprehensions, challenges and perceived advantages of moving legacy applications to the cloud. Here, instead of monolithic implementations and long implementation cycles, we uncover the appetite for firms to use agile, flexible and shorter cycles, and we find out what firms are really looking to achieve on their cloud apps journey, all while never forgetting that the CRL industry is in fact more mature than other industries in strategic and technological acumen. According to the Economist Intelligence Unit, the retail industry is the most mature cloud innovator and is made up of many visionary organizations.¹

At this point, it is worth demystifying cloud applications. Essentially, they are enterprise applications that run the gamut of business operations, including

enterprise resource planning, customer relationship management, supply chain management and human resources management. Vendors such as Microsoft, SAS and Salesforce provide the people, processes and technology element to move CRL organizations along on their digital journey. Firms can also choose to “lift and shift” applications using their own team of systems analysts, coders and solution architects, taking advantage of federated teams that have top-down leadership and buy-in from stakeholders across the organization. As we will see in this report, this is currently the go-to method for implementing cloud applications.

Approaches for cloud app transformation include the line-of-business cloud, which allows a business unit to turn on its service with little assistance from enterprise IT. Another approach is the enterprise

cloud, a single homogeneous architecture that takes advantage of everything-as-a-service (or XaaS) models of engagement. However, we refer you to the master report for a deeper look at these approaches.

So how does the CRL industry compare with other industries, such as high tech, manufacturing or health care, in its transition to the cloud? To find out, Infosys launched a study in the first quarter of this calendar year to understand the experience of application cloud transformation across 181 CRL firms from the United States, Europe, Australia and New Zealand. To understand the pulse of the market moving forward, the survey was further validated by qualitative interviews with senior executives in September and October. Respondents were senior executives involved in digital and cloud initiatives at firms with revenues exceeding \$1 billion.

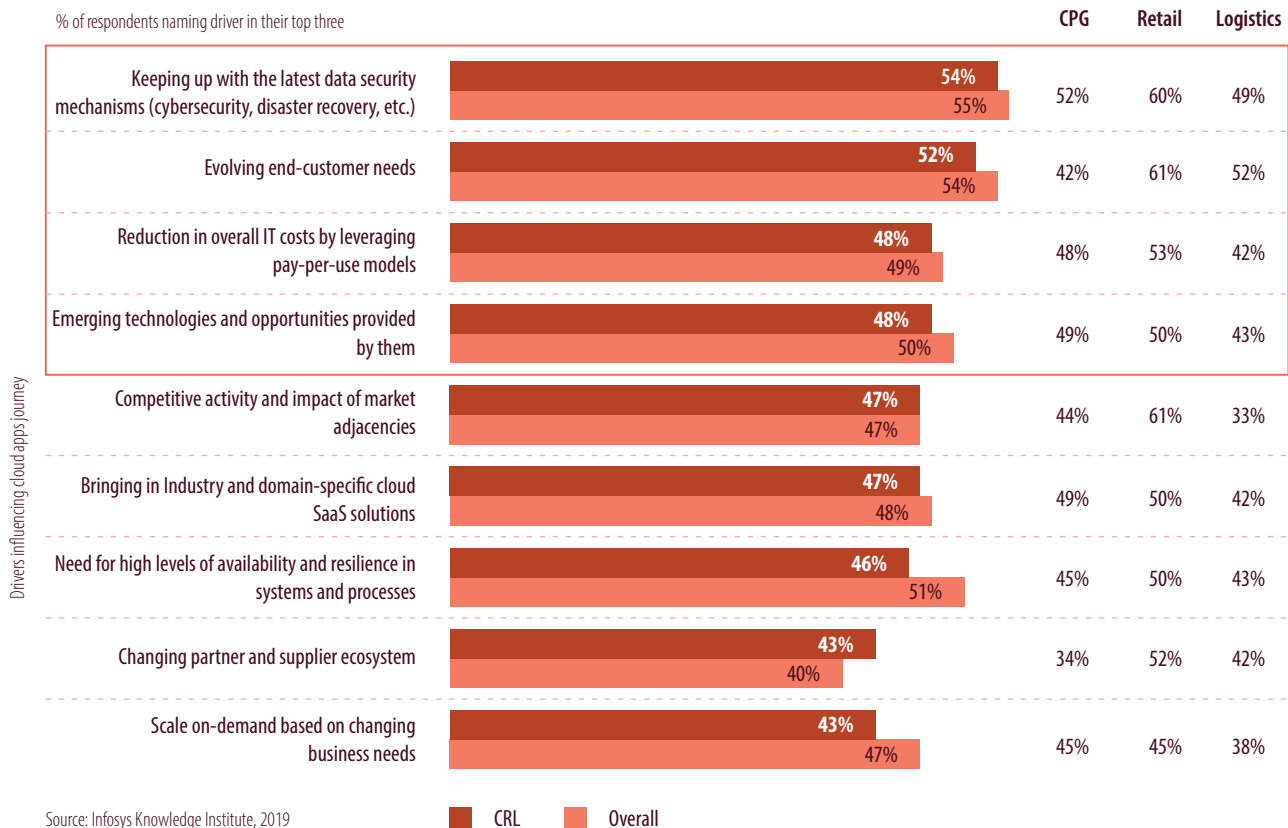


The cloud: a strategic move for enterprise applications

What is driving CRL firms to transition legacy applications to a cloud environment? And what are the pull factors that make the cloud so attractive for incumbent firms?

This research found that the three preeminent drivers were as follows: keeping up with data security mechanisms (54%), meeting evolving customer needs (52%) and improving efficiencies by reducing costs (48%) (Figure 1).

Figure 1. Top drivers include data security, evolving customer needs and reduced costs



Increased data security is top of mind for business and IT leaders the world over. Many recent reports have suggested that the cloud is in fact more cyber-resilient than on premises environments and is subject to fewer cyber breaches. Disaster recovery mechanisms are also prevalent in cloud application environments. Data is copied to highly secured servers that provide a single version of proof.

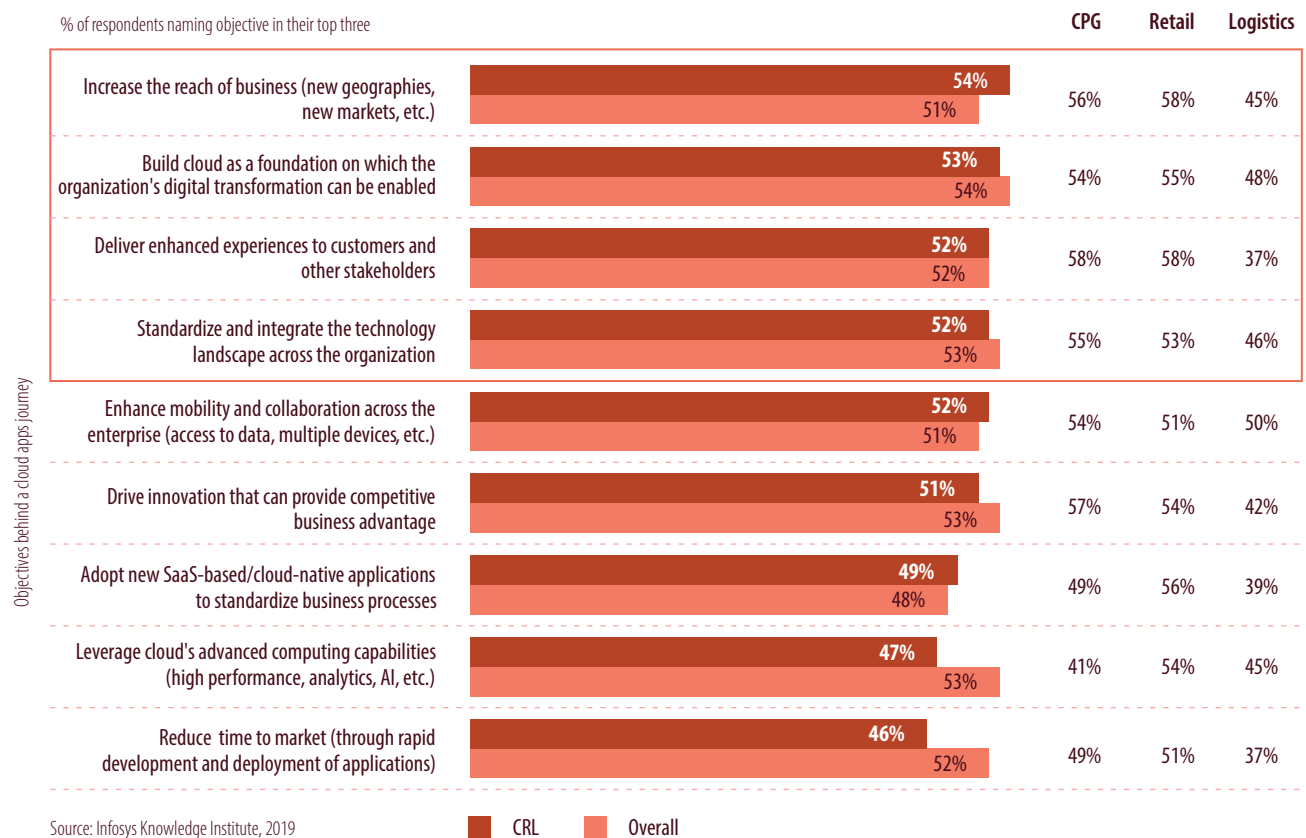
With customers now demanding always-on, always-connected communication with CRL companies, the high availability of the cloud is critical. Tech giants such as Netflix have seen their growth margins soar because they can guarantee almost 100% availability:

their servers run on AWS, and when one system goes down, another picks up where it left off. More availability means happier customers.

With cloud, CRL firms pay only for what they use, giving them the impetus to measure and track value realization

The cloud provides an elastic environment that increases efficiencies. CRL firms that use cloud technology will pay for only what they use while it gives them the impetus to measure and track value realization.

Figure 2. New geographies and markets, and the cloud as a foundational technology to build other capabilities guide CXO decision-making



What drives a business to transform and the expected end of cloud transformation are two different things. This research found that the most common thought in CXOs' minds concerns increasing the reach of the business and finding new markets (54%) (Figure 2).

For one senior director in a major U.S.-based CPG firm, the ability to expand the company overseas was the driving force behind cloud adoption. "We needed to build an agile, scalable platform for new businesses," she said. "Also, we didn't want to run heavy applications on-premises; these would require huge bandwidth and resources and are fraught with bugs when interacting with other platforms. New cloud platforms also ensure more reliability."

Increasing reach in retail means finding ways to merge online and store experiences, optimize business

processes, and take the game to nimbler, more powerful online brands. The cloud provides a platform with which to monetize data, and with software as-a-service solutions, firms can now use the cloud to form new partnerships or open offices with minimal costs.

The cloud is a mainstay digital initiative. With vendors such as Salesforce, cloud platforms provide the scaffolding to build other digital capabilities that accelerate digital transformation. Salesforce Einstein (artificial intelligence) and Salesforce Force.com (coding environment) provide quick ways for incumbents to turn on a new service. They also enable a self-service culture that allows citizen analysts (laymen with no formal data science training) to do deep analytics, improving the business and generating growth.

The four types of enterprises

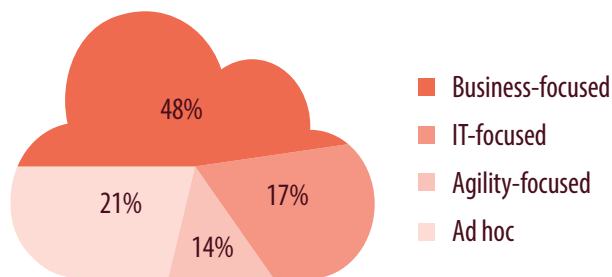
This research also found that firms can be clustered into four groups, depending on their level of maturity and direction.

Maturity was determined by asking the following questions:

- Are the business objectives of CRL firms strategic or operational in nature?
- Do business or IT-led reasons drive CRL enterprises to the cloud?
- Are enterprises occupied with quick wins today, or are they thinking and planning for the future?
- Have CRL enterprises expanded to include the external ecosystem, or are they internally focused?

This examination led to the following clusters (Figure 3):

Figure 3. Almost half of the respondent firms were business-focused, with an almost even split between agility-focused and IT-focused firms



Source: Infosys Knowledge Institute, 2019



Business-focused (48%):

Visionary enterprises looking at long-term business impact. They have a keen eye on enhanced customer and employee experiences, increased innovation and market reach, and keeping up with the changing ecosystem.



IT-focused (17%):

Enterprises that are absorbed in technology-led operational outcomes and not fundamentally changing their business model in response. Typically, these firms look for short-term outcomes, including reduced costs, high availability, data security and advanced compute capabilities such as analytics and AI.



Agility-focused (14%):

Progressive enterprises focused on improving organizational agility. These firms rely heavily on operational transformation to deliver business outcomes.



Ad hoc (21%):

Enterprises lacking a clear vision and plan for IT or business transformation. They respond to triggers in an ad hoc fashion.

Compared with the median across industries, there were more business-focused and ad hoc firms in the CRL industry, with fewer IT-focused organizations. This diverse spread shows that firms across CRL are at different stages in their cloud apps journeys, suggesting that retail, being more mature, is focused on outward-facing gains. The logistics industry, with fierce

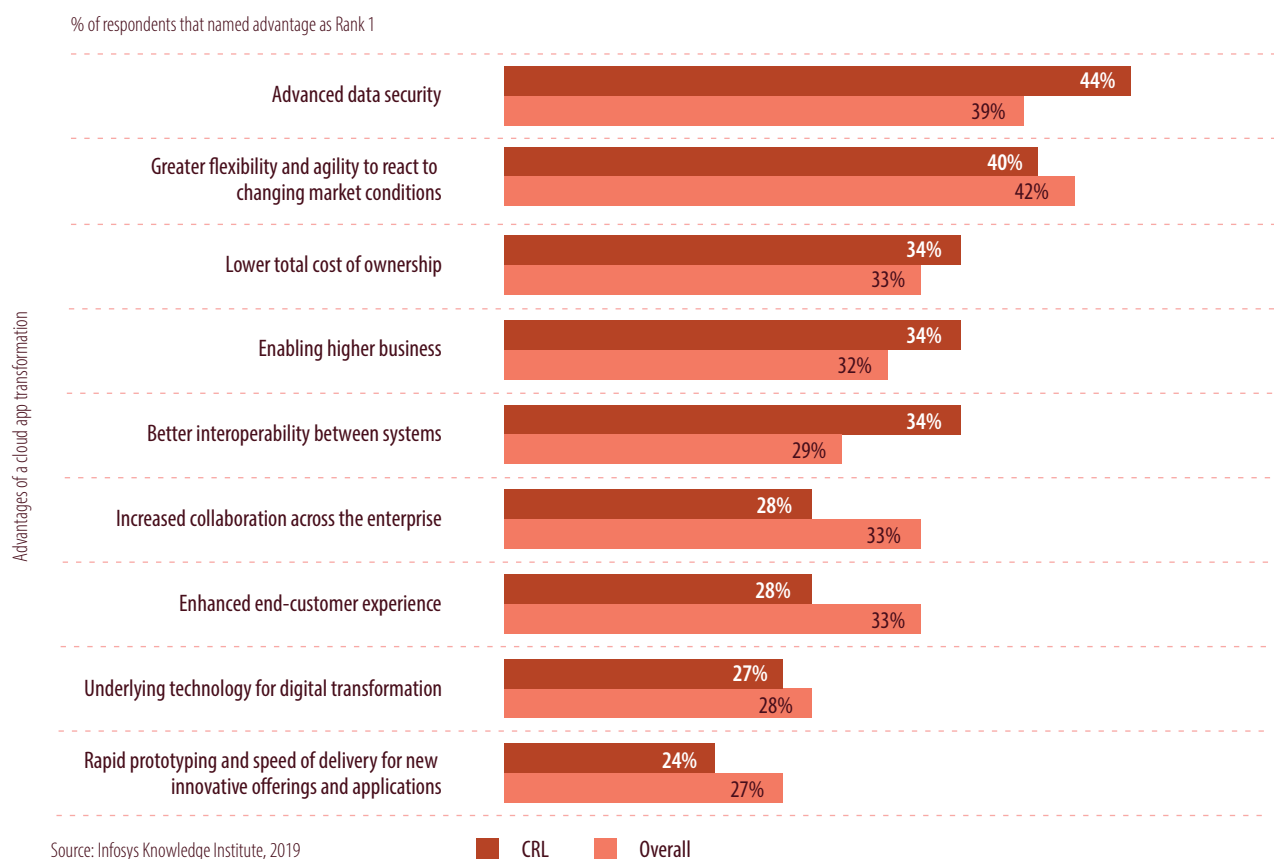
competition and very thin profit margins, is perhaps responding in an ad hoc fashion to various triggers.

Read the master report titled “Behind the Scenes of an Intelligent Enterprise: Moving Enterprise Applications to the Cloud” for more insight into each cluster.

Enterprise clusters expect both strategic and operational benefits

As well as being the main driver for change in the CRL industry, advanced data security is also the top-cited benefit from a cloud apps transformation (44%) (Figure 4). Greater flexibility and agility to respond to market conditions (40%), lower cost of ownership (34%) and higher business continuity (34%) also figured in leaders’ minds as the main fruits of cloud apps transformation.

Figure 4. Benefits include advanced data security, greater market flexibility and lower TCO



We have already spoken about the advantages of data security and how it is provided by cloud technology. Resiliency of systems through server patching and disaster recovery mechanisms form the argument here.

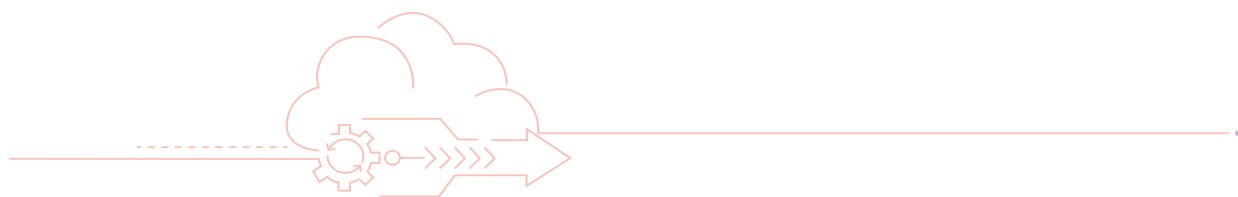
The cloud takes pressure of infrastructure and operations personnel through server switching and automated tooling

The cloud also enables business agility through rapid provisioning of cloud instances. Cloud providers such as Amazon Web Services and Microsoft Azure leverage economies of scale, which incumbents can use in a self-service fashion to get what they want, when they want it. The cloud also enables business continuity through server switching and automated tooling, taking the pressure off infrastructure and operations personnel.

Firms that migrate to the cloud take advantage of the efficiencies that cloud service automation provides, ensuring there is always money in the back pocket to provision new infrastructure at peak loads.

Lower cost of ownership is a given with cloud migration. The elastic nature of cloud technology means that automated monitoring tools shut down environments that aren't being used, saving money. Consolidating cloud infrastructure — which improves cloud transparency — also provides further efficiencies and leads to greater bargaining power with managed service providers, along with more efficient management of cloud instances and reduced business risk. This again ensures greater business continuity and spurs growth.

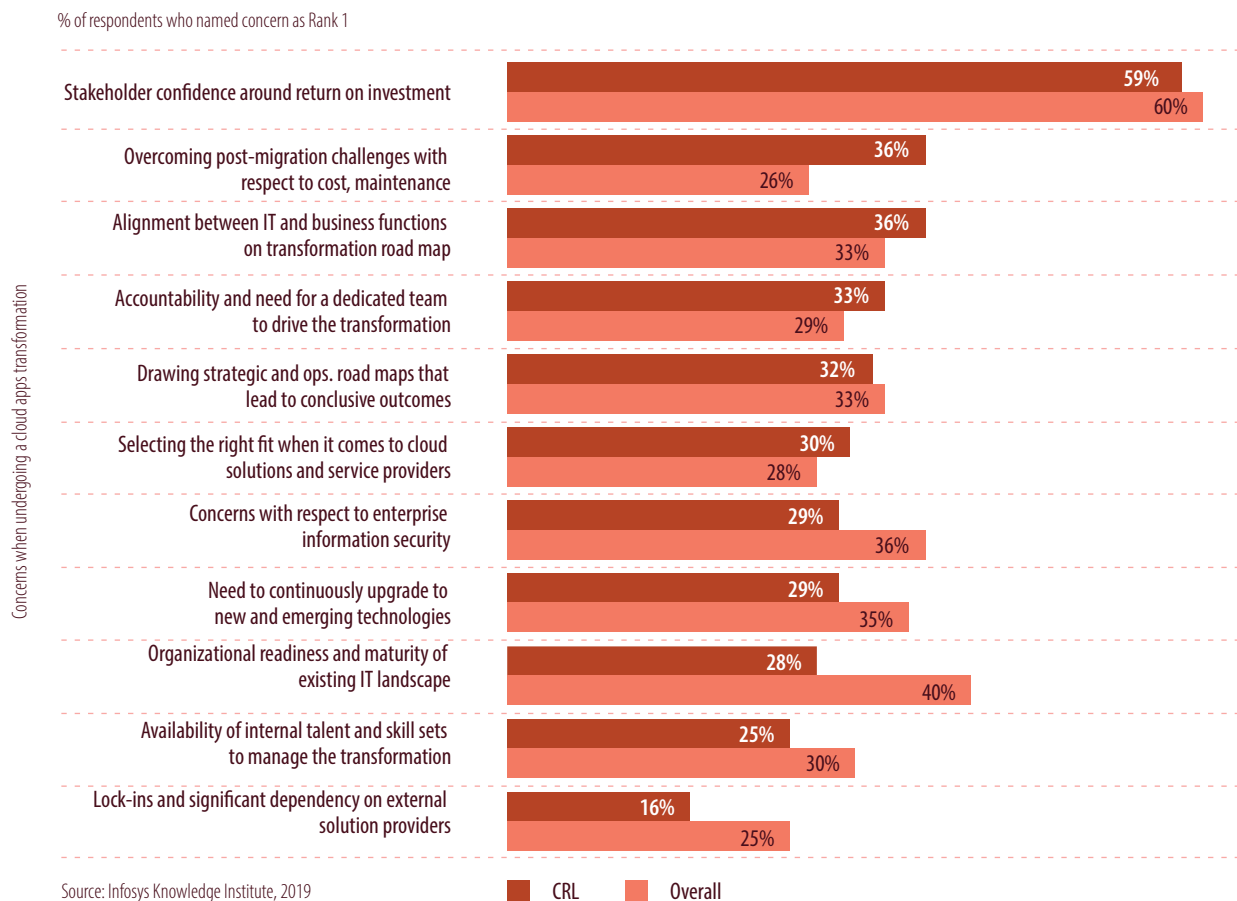
At the regional level, respondents from Europe (48%) and Australia and New Zealand (50%) saw greater flexibility to react to market changes as the dominant advantage. In the U.S., advanced data security (44%) was top of mind.



Cloud concerns persist, characterizing large-scale programs

Cloud transformation programs mandate high investments and consequently garner significant visibility, especially among senior-level leaders. Large-scale programs of this nature require ownership and direction from top management to succeed, so delivering significant ROI deservedly becomes a top concern across business and IT groups in the CRL industry. In this research, a full 59% voted stakeholder confidence around ROI as the major concern of a cloud apps program (Figure 5).

Figure 5. Return on investment and post-migration challenges concern CXOs



Overcoming post-migration challenges (36%) was also a critical challenge for the CRL industry, and it was much higher than the median figure (26%) across the board. This points to the fact that this industry is further along on the business road map. However, as we will see in the following sections, CRL is actually trailing the industry average on adopting cloud apps solutions. This indicates that more adoption doesn't necessarily mean more advanced use of the cloud. Rather, visionary

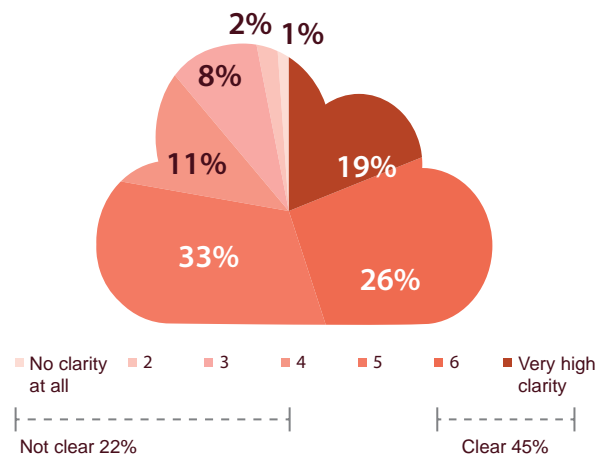
firms in CRL are thinking big and starting small, slowly building confidence in one digital initiative before using the cloud to move into new markets and innovate the business model.

Australia and New Zealand (70%) and Europe (61%) were most expressive in their concerns around building stakeholder confidence. The U.S., being more advanced, was more concerned about post-migration challenges (43%) and aligning IT and business functions (45%).

The importance of a clear strategy and road map

Game-changing initiatives such as digital transformation cannot succeed without the support of multiple stakeholders across the organization. To garner the support, stakeholders must have clarity on the initiatives and what to expect from them. Although almost half the respondents (45%) said they had clarity on the digital path, a significant 22% said they were unclear (Figure 6).

Figure 6. Almost a quarter of CRL firms are unclear about the digital path they are taking



Source: Infosys Knowledge Institute, 2019

Further cross-tabulation analysis found that CRL firms with high levels of clarity were most often business-focused firms with mature transformation blueprints in place. These firms are driven by keeping up with data security mechanisms (54%) and meeting evolving customer needs (52%), showing both an internal and

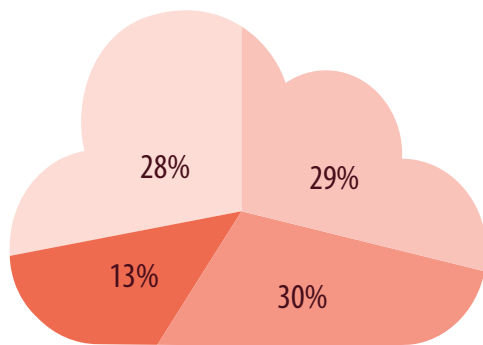
external focus. They were also keen to reduce IT costs and improve efficiencies while standardizing the technology landscape across the organization.

Higher levels of clarity were exhibited by respondents from Australia and New Zealand (50%).

Cloud adoption is underway, yet slower than average

Though CRL firms are well on their way to cloud adoption (Figure 7), they are more immature than the industry average; only 43% of CRL firms have moved either some or all of their major applications to the cloud, which is seven percentage points below the median across industries. U.S. firms were more bullish in this data, with 49% having moved all or some applications to the cloud.

Figure 7. Forty-three percent of CRL firms have moved some or all major applications to the cloud, which is below the industry average



	Current state of cloud transformation (%)	Overall	CRL	USA	EU	ANZ	CPG	Retail	Logistics
	Base	853	181	98	58	25	58	68	55
1	Some pilots and POCs for cloud adoption are underway, but currently, all enterprise applications are still on-premises	24	28	24	29	36	24	31	27
2	Cloud adoption is underway for some applications and functions, but none have been completed	26	29	27	31	36	24	22	44
3	Cloud adoption is already complete for some enterprise applications and functions	34	30	35	26	24	31	38	20
4	All major enterprise applications have moved to cloud	16	13	14	14	4	21	9	9

Source: Infosys Knowledge Institute, 2019

This is a seemingly paradoxical find. We have mentioned that this industry is more advanced than firms in, for example, health care and life sciences, which begs the question: Why are CRL firms stalling on actually implementing their vision? Perhaps a deeper dive into the particular characteristics of consumer, retail and logistics companies is necessary for an explanation. Logistics firms are only just coming around to the idea that both brains and silicon are needed in this old-fashioned industry, which might be the reason for a weaker showing in this data. Also, logistics firms are grappling with the advent of industry 4.0 and all the

complexity that the “internet of things” and AI bring about. With that in mind, these firms might be waiting for stronger-use cases before making their move to the cloud.

In retail, there is a need for rapid experimentation and DevOps ways of working before the cloud’s full potential can be realized. The necessary cultural changes will need to be made before these firms get a leg up on their journey. However, these cultural shifts rarely happen quickly, and usually not as quickly as changing consumer tastes.

Three choices for migration to the cloud: LOB, enterprise or hybrid

CRL enterprises must carefully examine the objectives and expected outcomes before deciding on the cloud approach.

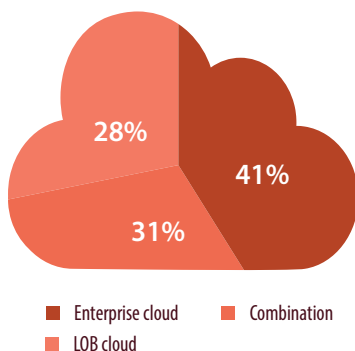
The line-of-business approach allows a business unit to independently activate a new cloud service with less involvement from the enterprise IT team. Such an approach is best suited for situations that require quick deployments and minimal disruption. Moreover, CRL enterprises can select best-in-class software, such as SAP SuccessFactors or NetSuite, by adopting an LOB approach.

In contrast, enterprise-level cloud approaches are complex, requiring immense efforts, but they are ideal for long-term projects that integrate applications on a single homogeneous platform. Such efforts cause significant disruption and take a long time to complete.

The combination option presents the best of both approaches. Care should be taken using this approach, however, as it can increase cloud complexity, with business unit strategy conflicting with wider CXO initiatives.

CRL firms in this research opted most often for the enterprise cloud approach (41%) (Figure 8).

Figure 8. The enterprise cloud approach (41%) was highly preferred to the LOB cloud approach (28%)



Approach adopted	Overall	CRL	U.S.	EU	ANZ	CPG	Retail	Logistics
Base	814	168	90	55	23	51	63	54
LOB cloud	31	28	28	29	26	27	29	28
Enterprise cloud	39	41	41	38	48	43	33	48
Combination	30	31	31	33	26	29	38	24

Source: Infosys Knowledge Institute, 2019

Compared with other industries, there was a great disparity (13 percentage points) in the number opting for the enterprise versus LOB approach. CRL firms are looking for high business continuity and the flexibility to manage adverse market conditions. Though we have seen that the CRL industry is more mature than others, adoption is lower, so enterprise cloud is a safer bet, given it ensures all infrastructure stacks run seamlessly and perform optimally. Alignment between IT and business functions on the transformation road map was also a big issue for CRL firms, and the LOB approach can lead to a host of coordination and other compatibility problems.

Compared with other industries, there was a great disparity in the number opting for the enterprise versus LOB approach

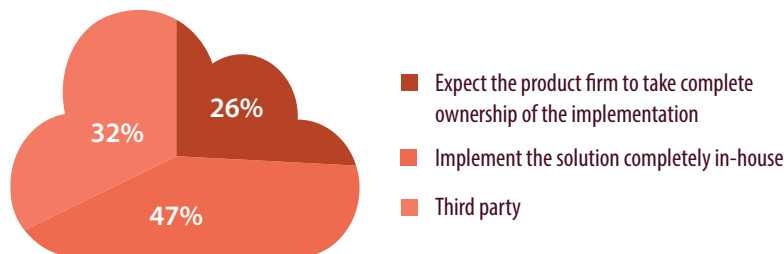
According to this research, the enterprise cloud model heightens collaboration (61%), achieves better interoperability between systems (59%) and lowers TCO (58%). Those plagued by issues because of siloed systems that have difficulty communicating with each other often opt for this model, as it offers standardization across the enterprise.

The implementation process

Once the cloud solution has been identified (SAP, Oracle, Salesforce, etc.), how do firms go about actually implementing these solutions? Is a third party a stronger choice, or should firms implement the solution in-house?

It is important to note that unlike most industries we have analyzed in this cloud apps study, CRL firms actually prefer to implement in-house (42%) rather than work with third-party vendors (32%) (Figure 9).

Figure 9. In-house implementations (42%) were preferred over third-party solutions (32%)



Product implementation (%)	Overall	CRL	USA	EU	ANZ	CPG	Retail	Logistics
Base	844	175	92	58	25	53	68	54
Implement the solution completely in-house	36	42	41	43	44	34	49	43
Third party	39	32	29	34	36	30	29	37
Expect the product firm to take complete ownership of the implementation	25	26	29	22	20	36	22	20

Source: Infosys Knowledge Institute, 2019

With high degrees of complexity prevalent in logistics supply chains and the difficulty connecting the different elements of the logistics ecosystem, firms seem to be looking at in-house talent in order to digitally transform. However, an argument can be made that as CRL incumbents get further along on their cloud apps journey, they will be more willing to let partners take the helm. After all, as we have written in the report titled

Infosys Digital Radar 2019: Enabling Transformation through Salesforce, a good partner infuses thought leadership within the enterprise and helps with capabilities such as DevOps to bring products and processes to market faster, better and cheaper. Infosys can help here: it is rated highly in value delivery, market adoption, vision and strategy, and innovation.

Preparing for the cloud challenge

CRL firms in this study cited operational and technology issues as the major challenges (Figure 10).

Figure 10. Operational and technology challenges were most prevalent at CRL firms

Challenges (% Top2 box)	Overall	CRL	USA	EU	ANZ	CPG	Retail	Logistics
Base	840	176	94	58	25	55	67	55
Tracking and monitoring systems and processes on cloud	51	53	57	50	48	55	58	46
Accurate estimation of time and financial costs involved	51	53	54	55	43	51	61	44
Deciding on choice of tools and technologies to pick from	48	50	51	53	40	50	52	47
Pace of execution and implementation of the initiative	48	49	49	50	46	46	51	49
Aligning existing legacy systems and architectures and technology environments	49	47	53	44	28	40	55	42
Application refactoring and tweaking to suit cloud architectures	46	45	47	45	33	44	48	40
Collaboration and integration with external service providers and stakeholders	47	42	44	39	42	41	49	35
Promoting a culture change within the organization	48	42	46	33	48	45	48	31
Absence of an internal dedicated cloud team to drive the initiative	45	41	45	36	40	41	45	36
Lack of high levels of clarity in the execution road map	45	40	41	42	35	36	45	39

Source: Infosys Knowledge Institute, 2019

Actually tracking and monitoring systems and processes in the cloud (53%) was the top cited pain point, providing perhaps a further reason why adoption has been slower in the CRL industry. A good deal of strategic, operational and technical acumen is needed to understand the under-the-hood aspects of enterprise cloud applications.

At the same time, estimation of costs (53%) and actually deciding on the right tools and technologies to go for (50%) figured highly.

The business-focused cluster was even more vocal about tracking and monitoring systems and processes (70%) and choosing the right technologies (69%). Overall, this group reflected the main concerns that CRL firms are grappling with. Retail is a dynamic ecosystem of players that are looking to augment the complete customer journey through enhanced experiences and innovative capabilities. It is only natural, then, that business-focused retail firms are worrying about actually tracking the processes that are put in place and leveraging the right technologies to complement the cloud.

Conclusion

Customers demand that global logistics, retail and consumer giants add to their digital tool set. Always-on, instant-gratification and omnichannel experiences are driving a self-service ethos with the need for highly secure customer journeys. A supply chain that is industry 4.0-enabled is also top of mind for logistics CXOs. It is no wonder, then, that the greatest challenge our respondents face in their cloud apps journey is the ability to track and monitor processes in the cloud.

To do this, firms must consolidate cloud instances, gaining visibility into what processes are running, and where. Once that has been taken care of, CRL firms will have more bargaining power with service providers, will benefit from increased security and will see lower levels of business risk.

CRL enterprises are made up of very diverse and often-conflicting technological drivers – with security and cost benefits figuring highly

Perhaps the greatest takeaway from this report is that CRL enterprises are made up of very diverse and often-conflicting technological drivers. They want to use the cloud for increased security and as scaffolding from which to build further digital capabilities. At the same time, they want it to be cheap and relatively easy. This is understandable. Logistics, for one, is grappling with razor-thin margins and is very new to the cloud game. Retail has to cope with disruptive effects from digital giants such as Amazon and Netflix, and the consumer segment needs to instill very effective change management if they want to get the most out of cloud applications and innovate legacy systems that are mired in political baggage.

In a complementary report,² it was found that 45% of executives in the consumer space cited insufficient budget as the main barrier to digital transformation in 2018. In this research, we found that post-migration challenges with respect to cost and maintenance were a very severe headwind that CRL enterprises are facing.

To deal with these challenges, CRL incumbents must have a clear strategy and road map in place before even thinking about migrating applications to the cloud. This will help save costs further down the line. Worryingly, we found that almost a quarter of respondents said their firm was unclear about which cloud approach to take.

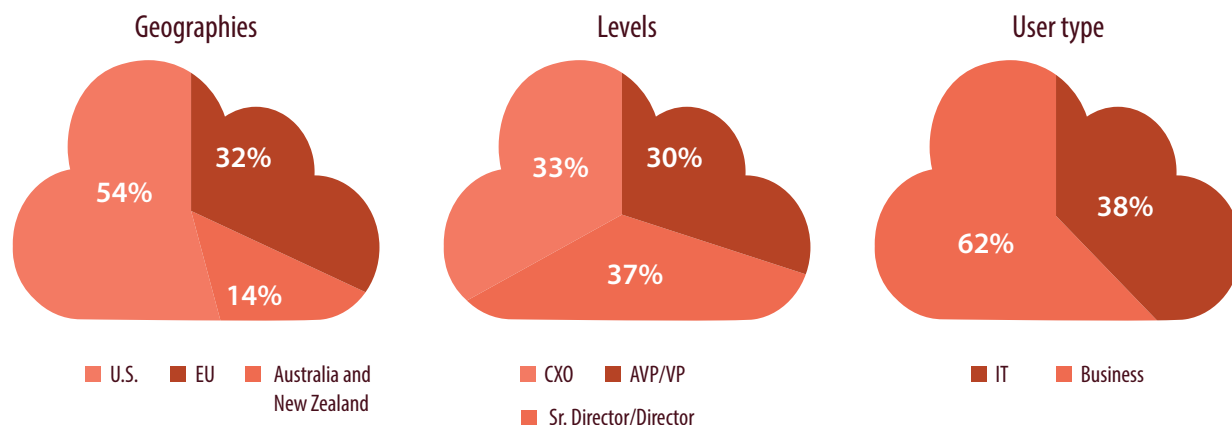
We also found that incumbent CRL firms were less keen on letting a partner take the helm and help with the cloud journey. This is not good news. A trusted partner can massively improve idea sharing, promote culture change, and instill a DevOps way of working to bring products and services to market faster, better and cheaper.

Partnering can also help CRL firms demonstrate quick successes by helping with the procurement of the right tools and technologies. Vendors such as Salesforce and SAP are a good option here, providing incumbents with XaaS models of engagement. Srikanth Sripathi, a cloud expert at Infosys, advocates choosing those functionalities in the cloud that are not currently present in the on-premises application while lifting and shifting cloud-capable applications to free up valuable hardware and infrastructure.

Irrespective of the stage an enterprise is on its cloud transformation journey, it will face many challenges that impede progress. But as it proceeds, it will gain confidence, giving it the know-how to remain business-focused, agile and technologically sophisticated all at once. An able partner can go a long way in helping firms navigate these choppy waters, even as incumbent firms emerge a winner in the cloud space.

Survey methodology

A total of 181 CRL senior executives and leaders involved in digital and cloud initiatives responded to this research, which took place in the first quarter of this calendar year. To understand the pulse of the market moving forward, the survey was further validated by qualitative interviews with senior executives in September and October. Only companies with revenues exceeding \$1 billion were invited to participate. Respondents hailed from the United States, Europe, Australia and New Zealand.



Source: Infosys Knowledge Institute, 2019

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