

# Learning from leaders in cloud-infrastructure adoption

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A crucial benefit of cloud adoption is a decrease in time to market for new applications, which in turn can drive down costs and quickly improve product quality.

**Companies that have taken the initiative** to adopt cloud infrastructure rather than rely on server technologies have found that the advantages are well worth the investment of resources. In this episode of the *McKinsey Podcast*, McKinsey partner Irina Starikova speaks with McKinsey Publishing's Roberta Fusaro about what laggards in the enterprise cloud-infrastructure space can learn from leaders finding business uses for cloud technologies.

## Podcast transcript

Hi, I'm Roberta Fusaro, an editor with Digital McKinsey. On today's *McKinsey Podcast*, we're talking about the cloud: the distributed servers that play host to our personal and business information.

Irina Starikova, a McKinsey partner, has been doing research on the cloud for many years now. She has examined business uses for cloud technologies, patterns of adoption by some of the largest players in the industry, and shifting attitudes toward the cloud.

Earlier this year, she and her co-authors published an article on leaders and laggards in enterprise cloud-infrastructure adoption. Irina is speaking with me today about some research findings and to offer some much-needed perspective to those companies that are experimenting with cloud technologies. Irina, thanks for joining us.

**Irina Starikova:** Thanks, Roberta.

**Roberta Fusaro:** Let's start this discussion on the ground. What is the cloud and what are some examples that we might run across in our day-to-day lives?

**Irina Starikova:** Put very simply, the cloud is a network of distributed servers that are hosted on the Internet, and those servers are managed in a highly automated way. They're also shared by many applications at the same time, and that results in three kinds of outcomes.

First, you have much lower cost of hosting applications and data. Second, you have much faster speed of putting new applications on that infrastructure. Lastly, you have much better reliability and security for your applications. Those servers can be either internal for your enterprise—and we call this private cloud—or they can be owned or managed by a third party. In that case, you would call them public cloud or managed private cloud. We use applications and data that are hosted on cloud technology every single day. In our personal lives, there are very few things that you do when you're turning on an application on your phone or you're sharing data with someone that would work without cloud technology in the back end.

The examples run the gamut of everything you do in your daily life. You can be shopping on Amazon. You could be watching Netflix, sharing pictures with your family, getting an Uber, ordering food on DoorDash. Or you could be booking your SoulCycle session.

That all involves some sort of cloud technology in the back end to make it work. Similarly, when you think about our clients, most large companies today use cloud technology quite extensively. That could be a private cloud that they're managing in their own data center or they could be using services by public cloud providers such as Amazon Web Services, Google Compute Platform, Azure, or IBM.

**Roberta Fusaro:** How have cloud technologies and the market for cloud solutions evolved over the past three to five years?

**Irina Starikova:** The overall market for those services has really taken off. If you look at the latest reports by all leading market analysts, everyone is putting it well above \$200 billion.

There's hardly any debate about this being a huge thing happening. Secondly, when you look at enterprise adoption of cloud, that also started to change dramatically, and it's shifted a lot from private cloud to public cloud.

To give you some numbers, through our surveys, we found out that more than half of all enterprises of any size plan to shift at least some applications completely to the public cloud in the next two to three years. That's the change that we started to see happening in the last two years.

Those things have a huge impact on the overall enterprise-technology ecosystem. If you think about several years back, enterprises were direct buyers of 35 to 40 percent of all server and storage technology. Now some analysts expect that that share will shrink to less than 20 percent, and that will happen as soon as the next two years. That has huge implications, obviously, on all providers of server-storage networking technology as well as service providers that exist in the ecosystem around that.

**Roberta Fusaro:** How have companies' discussions about the cloud changed over the past three to five years?

**Irina Starikova:** In addition to this shift of enterprises to use public cloud services a lot more, we also see that there's a shift in conversation to the scale of adoption. People are talking about what it's like to be using the cloud for a majority of applications in their portfolios. Another big

set of conversations that has changed significantly is related to the security and compliance requirements of the public cloud. Let me take those one by one. On scale of adoption, companies are no longer happy to be using the cloud for just a small share of their overall data-center footprint or a small share of their application portfolio. There's a lot of focus on what it would take to really adopt the cloud at scale and what it would take to adopt public cloud services at scale.

On the security and compliance side, we've gone away from talking about how that is the hugest barrier to using public-cloud services. Now you have a lot more advanced conversation on what the right controls and what are the right standards to protect information in the public cloud.

Security is still very important and compliance is still a nonnegotiable thing for many of our clients. But what is happening now is that instead of saying, "OK, we're just not even going to discuss cloud because of those constraints." People are saying, "OK, well, those constraints are there. Let's talk about specifically how they're going to be addressed when we use public-cloud services." And frankly, even for clients that are coming from highly regulated industries that have to worry about highly sensitive patient information or customer information that is considered highly personal. We already see many examples of those companies moving to adopt public-cloud services at scale for a pretty large variety of different applications.

**Roberta Fusaro:** McKinsey's enterprise cloud infrastructure survey sheds light on what's really going on with cloud adoption. When was it conducted? And who participated?

**Irina Starikova:** We started the survey in 2014. Over time, we've collected information from more than 50 large enterprises that are based either in North America or in Europe. We wanted to understand what cloud technology they were adopting, how they were adopting it, and at what pace.

For a good majority of those enterprises, we have multiple observations across this time period, so we can see how they have evolved over time. We were able to include companies here from a variety of different industries. So we have just as many companies from nonregulated as well as regulated spaces as well as company sizes and different levels of cloud adoption and sophistication.

Companies are still investing in pretty complex private-cloud platforms. And those companies we believe first went down this path because they thought that the public cloud was not secure enough or not meeting compliance requirements they have. Some of them chose more sophisticated platforms to build something that can meet the needs of many different applications in their portfolio. They did that over choosing a more practical and simpler approach that is going more aggressively after broader adoption, and frankly, better impact from using simpler solutions, while some companies are continuing to build those complex private-cloud platforms. We sometimes talk about that as a big, hairy science project. There is clearly a group of companies that are emerging as leaders in cloud adoption, and we are calling them cloud savvy. They have achieved a lot higher adoption of cloud.

We measure that as a share of their overall hosting environments that are based on cloud technology. The difference between leaders and laggards here is pretty stark. We're talking in some cases about a gap of 40 to 50 percent. Some leaders in the same market and in the same industry would have over 40 or 50 percent share of their environments on cloud, whereas the laggards would have single-digit percentage share. What leaders have done differently in those cases is that they focused a lot more on building organizational capabilities rather than overinvesting on technology engineering.

They were not striving to create a perfect technology solution but were first of all focused on getting meaningful results. So they tested and learned and adjusted their strategies along so that they focused a lot more on getting results rather than science projects.

**Roberta Fusaro:** Clearly your research found leaders and laggards—a lot of companies that have a way to go with their cloud programs. What lessons can the laggards take from the leaders?

**Irina Starikova:** The benefits are quite significant and there were multiple types. The number-one benefit that many leaders saw from adopting cloud was in time to market. What that means is that they were able to deploy new applications using cloud services a lot faster than they were able before. Sometimes we were talking about the difference between weeks cut down to a few hours and sometimes less than one hour.

The importance of that time to market is that the business of those organizations was able to deploy changes to their products a lot faster than they were ever able before or they could change some of their internal processes that they were transforming a lot faster.

What comes clearly in the second and third place in terms of benefits is cost reductions and quality improvements. What that means simply is that the total cost of operating your hosting infrastructure has gone down quite significantly because of the cloud. Similarly, the quality, the reliability of that service has improved a lot in the same time.

**Roberta Fusaro:** I noticed that one of the major themes that emerged from the research was this notion around openness to the public cloud. This point has been cited in a lot of external media. Can you talk a little bit more about this point?

**Irina Starikova:** In part this has been happening because of some of the cloud-service vendors have become a lot more aggressive. They have invested a lot in their enterprise sales forces and have been beating on the doors of a lot of them.

In parallel, the economics of public-cloud services have changed a lot in the last three years and have become comparable to what some of the most efficient private-cloud environments were able to achieve.

So it has become a lot easier for our enterprise clients to be able to see that they can save quite a bit by moving to the public cloud. Of course, it also happened because the security standards started to emerge for the public cloud. As we already said, the conversation around security and compliance has shifted from that being the major barrier to it no longer being a

major barrier. But instead being something that needs careful understanding and analysis and engineering before any applications can be shifted to the public cloud.

**Roberta Fusaro:** There've been wide reports of a number of security breaches both in government agencies and companies and so forth. I'm wondering if any of that has had any impact or could have any impact on the data points that you cited.

**Irina Starikova:** Absolutely. There will always be concerns. All of the cybersecurity questions and unfortunate incidents recently have brought it back to the top of mind for everyone. There's a much better understanding of how security in the public cloud works, how it is different than what companies have been able to build internally in their own data centers within their own walls, and understanding where the public cloud could be better, stronger than what folks are able to do today. You start to understand a lot better what the weaknesses are and what are the available tools for you to address those weaknesses. At the same time, what's been interesting to see is what other concerns have become the top barriers on the top of mind of enterprises for adopting public cloud, much more practical question such as what is the cost? What is the complexity to move away from what the enterprises have accumulated in their own data centers?

Another one that often comes up in conversation is related to vendor lock in. Many enterprises are concerned about the concentration that is happening in the provider space. Increasingly the top four players are gaining bigger and bigger market share away from all of the other players.

**Roberta Fusaro:** Looking at those two particular concerns, this notion of moving away from legacy systems and avoiding vendor lock in. Did your research turn up any best practices or any advice for avoiding those traps? Or mitigating those traps?

**Irina Starikova:** A number of companies are starting to ask for better standards or interoperability commitments from the biggest vendors, so that it becomes easier for enterprises to shift between those players and avoid the vendor lock in, avoid being attached to one single one.

**Roberta Fusaro:** Notwithstanding the very legitimate issues that were surfaced in the survey, do you think everything is going to end up in the cloud? Storage, computing, everything?

**Irina Starikova:** I love this question. Let me explain what I mean by that. By year 2020, which is not that far away, I can see that up to 80 percent of enterprise applications can be in the public cloud. Whereas the remaining 20 percent would be in their own data center in the private cloud because of legacy, cost, or security reasons. What I also believe is that that 20 percent might be even a smaller figure for some companies in nonregulated industries. What I am also fascinated by is learning stories about digital-born companies, so those companies that have existed for ten years or less. When you ask about how they're doing their infrastructure and what they're doing with cloud, you almost never hear that they're building their data centers. They have all embraced the public cloud as just the right thing to do.

They frankly are saying, “This is not our competency. Why would we build our own electrical power station? No one does that anymore.” Similarly, we see those companies completely move away from the concept of building infrastructure by themselves. They have clearly stated that they will not own their own data centers.

**Roberta Fusaro:** For the companies that do own their own data centers, what lessons can they take from digital-born companies and other leaders that have kind of gone in another direction?

**Irina Starikova:** The four big lessons that we’ve learned from the leaders in cloud adoption from our survey are all about building organizational capabilities rather than technology. The first one is focus on the migration road map and focus on getting meaningful migration results, basically executing on your plan. The second one is to look for ways to improve the experience for application-development teams, iterating on that as you go because you will never get it right the first time. The third lesson is around being very clear on the business case and understanding as you go with the migration, how that business case is realized and what kind of incremental decisions are changing that business case or helping you to realize the benefits you went after from the get-go.

The final lesson learned is around understanding the operating-model implications of using the cloud services at scale. There are really huge implications on what kind of skill sets are required. How different teams within your IT department would operate with each other and with the business units. The cloud leaders in our research have embraced and have done a lot against all of those four areas.

**Roberta Fusaro:** I had one last question about supporting a cloud operating model. I’m just wondering how hard or how easy is it for companies to make that wholesale change? And what are some key questions that executives need to ask themselves if they’re thinking about making this journey?

**Irina Starikova:** That’s a great question, Roberta. This is frankly one area where we’ve heard from a lot of companies we’ve been working with that operating model is the hardest thing to get done right when migrating to the cloud at scale.

Even companies that anticipated that that would be hard were surprised by how much harder it was than they initially thought. What we are talking about here is that you not only change the skill sets quite fundamentally, you are rescaling a big portion of your infrastructure teams. You’re also changing some of the processes: what those folks are working on day to day and how they interact. As well as how they are working with other teams inside IT.

**Roberta Fusaro:** That’s interesting because you think of the term cloud as being very ethereal, right? But the actual work on the ground, there’s a lot of nuts-and-bolts tactics that executives need to be involved with in order to adopt enterprise cloud and be successful with it.

**Irina Starikova:** Yes. None of those changes happen in a short period of time, either.

**Roberta Fusaro:** Very interesting stuff, but I'm afraid we're out of time. Thanks, Irina, for speaking with us today.

**Irina Starikova:** You're welcome, Roberta.

**Roberta Fusaro:** For more about McKinsey's research on enterprise cloud adoption, read the article at [McKinsey.com](https://www.mckinsey.com). [□](#)

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