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Banks:
6 priorities for
cloud directors
by 2025

This report presents a summary of the attention
points that count most today for organizations such
as Société Générale, BNP Paribas, BPCE, and Crédit
Agricole, as well as specialized players such as the
public investment bank Bpifrance.

The Cloud(s),
innovation drivers in the finance sector

Even though the banking sector is highly regulated, major changes have taken place over the past five years. Indeed, the shape of banking information systems is experiencing a profound evolution. And this is just the start. How will the transformation impact this sector, which is striving to reinvent itself, between now and 2025?

We asked this question to a group of the top cloud managers in France's largest banks, who came together exceptionally to participate in a think-tank workshop created with the media agency Alliancy. Organized in partnership with VMware, this exchange enabled us to jointly create a summary of the attention points that count most today for organizations such as Société Générale, BNP Paribas, BPCE, and Crédit Agricole, as well as specialized players such as the public investment bank Bpifrance. We were also able to observe that all these banks are focusing on several high level concerns.

We invite you now to discover the key teachings by cloud directors in the banking sector for this critical 2022-2025 period.

DORIAN MARCELLIN
Deputy Editor in Chief, Alliancy

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Going beyond the "cloud first" approach already being implemented for new services

The "cloud first" strategy has gradually become an integral component in strategic planning. Timid when it first began around 2012, the word has become extremely common since the end of the last decade. "Cloud strategy is driven by senior management," admitted one of the bank cloud managers participating in the workshop as we got started. Despite that fact, the road ahead is still long, having mainly focused on "new IT" until now, creating new applications. For a bank's entire information system, the transition is therefore slow. The gathered specialists felt that two topics will make it possible to continue reinforcing the relevance of a "cloud first" approach until 2025.

First of all, "the goal is to go beyond new IT and start tackling the installed base. That's the hardest part. How can we transform existing assets consistently?" summarizes the cloud manager for another major bank. Even if the "assets" comprising our legacy are significant, there is unfortunately no ROI to be gained from containerizing them entirely [to switch to the cloud]," explains another cloud director.

Organizations have long understood that "shift & lift" is far from being the ideal solution, but that does not necessarily mean that banks won't have to massively accelerate their transformation away from the existing base within the coming three years. Especially since they are progressing from a basic "cloud first" approach to the more advanced notion of "Kub-first" – in reference to Kubernetes, the open source automation system for deploying and managing containerized applications.
Today, this latter topic is considered as a priority in its own right.

The expert's opinion

"Beyond leveraging a cloud-first approach for new applications, it is essential to transform legacy applications to remain competitive in the constantly changing bank industry. The challenge is to successfully optimize IT performance overall in order to reduce operational costs without compromising either security or innovation capacity. Rebuilding our development factories and implementing a hybrid cloud strategy could help us meet this challenge, as that would combine the benefits of public and private clouds to offer maximum flexibility along with heightened security."

PIERRE-MARIE NEVEU
Global VMware Solution Consultant
for BPCE

" The goal is to go beyond new IT and start tackling the installed base.
That's the hardest part.
How can we transform existing assets consistently?"

PRIORITY 2

The "Kub-first" change

With Kubernetes recognized as the standard for container management starting in 2017, it has taken banks several years to decide to make it a pivotal focus in their strategy. Since that time, the direction has become clear for at least the next three years. "It is now firmly anchored in plans and architecture reviews." We asked the question directly: can you explain why you are not implementing your public cloud project using KaaS (Kubernetes as a Service) and PaaS (Platform as a Service)? "That changes the mindset and expectations with respect to the cloud, particularly in terms of cost," explains one of our contributors. However, beyond the technology itself, the related business models need to be changed, points out another bank cloud transformation manager, notably referring to the DevOps model and even NoOps: "It's true that containers are great. But, generally speaking, ROI can be achieved when the link is made via continuous integration/continuous development (CI/CD)."

If the required adaptation is going to be demanding in the coming years, changes that have already been implemented mark an important milestone, as explained by Yannick Gloaguen, Senior Manager, Global Solution Consultants in France for VMware, who has been responsible for IT and innovation in major French banks: "This workshop is the first time that we see the Kub-first principle as being a strategic target in its own right. That indicates a category change: originally, cloud strategies were largely based on IaaS (Infrastructure as a Service). Conversely, Kub brings a perspective that is much more focused on the idea of a platform, linked with code and applications. This is therefore a very rapid evolution that has taken place within banks in just a few years."

The expert's opinion

"We have seen our clients adopt the cloud for new digital applications. It is hard for them to achieve ROI by modernizing existing applications. Their main challenge today is to establish communication between these two worlds. Migrating to a K8s foundation is a first level of transformation that brings them many benefits, such as standardization, automation, and the ability to develop innovative new services much faster."

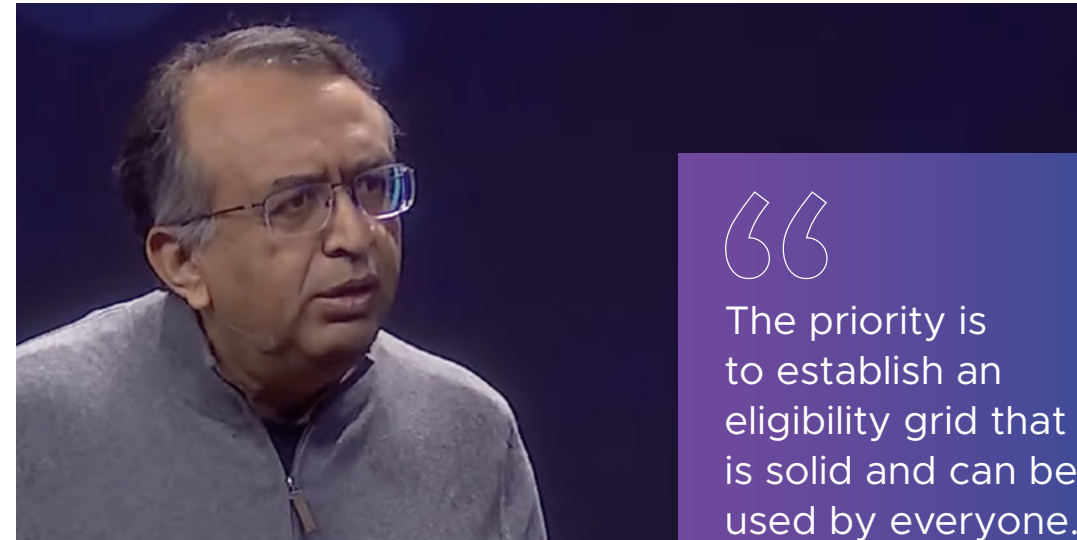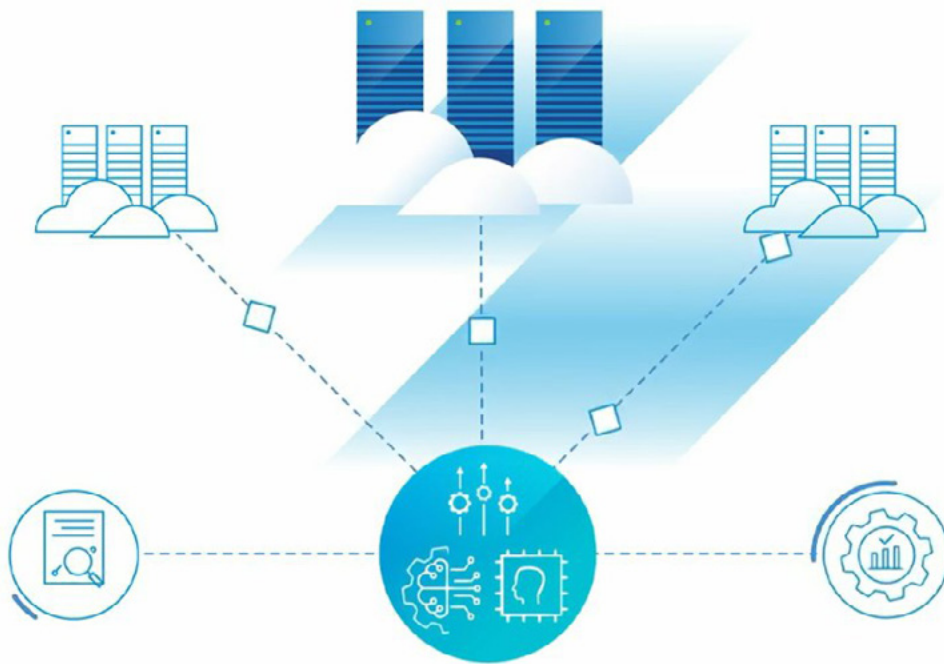THIERRY HARENG
Global VMware Client Strategist
for BNPPARIBAS

"This workshop is the first time that we see the Kub-first principle as being a strategic target in its own right."

YANNICK GLOAGUEN,
Senior Manager Global Solution
Consultants for VMware

PRIORITY 2

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Giving yourself the means to make the right decisions in the cloud "jungle"

> **The priority is to establish an eligibility grid that is solid and can be used by everyone.**
>
> RAGHU RAGHURAM
> CEO, VMware

PRIORITY **3**

Sure, cloud everywhere, filled with opportunities... But, for the participating cloud managers, that leads to an important organizational topic concerning transformation. One of them summarizes: "We are reaching a phase where we don't have much choice.
We all offer private cloud platforms that are starting to be quite advanced. For some well-controlled use cases, it is becoming easier for us to move towards private cloud solutions rather than the public cloud. However, we are already "tied" to the three main cloud providers, in addition to having a container and openshift offering internally, among other things. We are beginning to see a wide range of options when starting projects."

These options will impact project viability, related skills and, more generally, the project's operating model. One background requirement in particular is becoming increasingly essential: "The priority is to establish an eligibility grid that is solid and can be used by everyone. Though it sounds good, not everything is going to go onto Kubernetes simply because we claim to be focusing on a "Kub-first" approach. We need to identify the most well adapted architecture designs on a case by case basis. We need to at least determine the main orientations and recommendations for each platform," he continues.

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Following the platform "as code" movement and changing team culture

"Everything is becoming "as code" with the idea that this will enable us to more quickly produce innovation and new features. We are on the same path as "Kubernetes first": gaining speed and flexibility. Today, we can even go as far as network micro-segmentation, with as-code segmentation!" exclaims one of our workshop's participants, before elaborating: "In the background, the question of automation – and therefore agility – is definitely relevant. All these changes only have meaning if our teams can benefit from real DevSecOps and agile operation."

Afterwards, traditional roles will be bound to change. "If we summarize, today's cultural challenge is to have infrastructure and IT production teams creating code. While they are clearly not developers today, they will be tomorrow. It will be a huge step forward for banks when all our applications are produced directly by good coders. We therefore need to assess the various maturity levels. But, when we talk about CI/CD – continuous integration, continuous delivery and deployment – for the Kubernetes part to some people, we realize that it will be a giant step to take," recognizes another director. "Our production teams spend one week a month training to adapt to the "as code" approach. It's a real change for them," adds an IT director.

The question runs the other way for certain profiles, as other players remind us: "How can we transform the installed application base? Beyond just technology, the challenge is to convince developers that it is their direct responsibility. They are not just there to create new things. It goes even further than that: tomorrow, in the event of a new Log4j-type vulnerability, they will have to "rebuild" the affected applications themselves and not wait for a patch from infrastructure teams. There is some culture shock when we explain it to them."

The expert's opinion

"Whether you're talking about automating processes, reducing costs, and improving security as well as flexibility (such as for supporting multiple clouds), the benefits of "as-code" are widely accepted today. Still, before being able to benefit from that, it is essential for team skills and even culture to evolve. It is not that easy to reach a sufficient level of Dev expertise for Ops (and vice versa). The same applies for adopting a native cloud culture. Progress in artificial intelligence is nonetheless helping to reduce part of the gap between these profiles and consider "as-code" deployment from a different angle. For example, ChatGPT (OpenAI/GPT3) is now capable of creating Terraform code. AI is therefore in a position to fill in part of the gap between the development skills required for Ops. Effort still needs to be made concerning cultural changes (native cloud). The impact of AI will not be limited to producing code, but it will also make it possible to optimize the entire infrastructure production chain, including scalability, resilience, security, and more."

BENJAMIN DREUX
Global VMware Solution Consultant
for Société Générale

> How can we transform the installed application base? Beyond just technology, the challenge is to convince developers that it is their direct responsibility.

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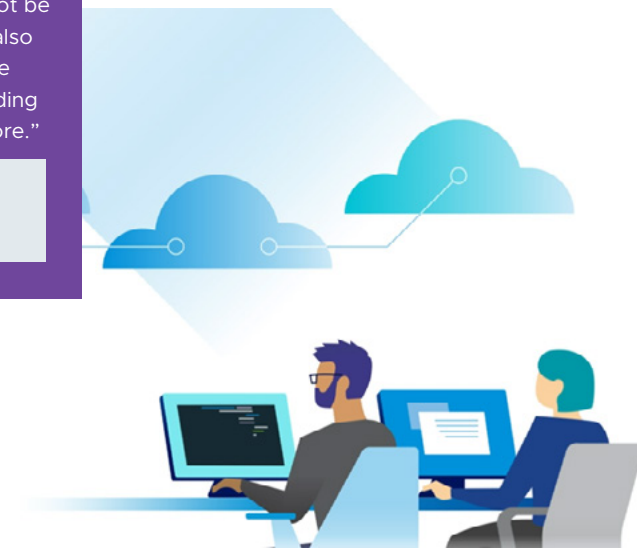
Rapidly reaching
green IT maturity in
the cloud era

CIOs in all types of organizations are under increasing pressure to measure the impact of their corporate IT, particularly with respect to the environment. The culture within teams is gradually changing and basic reflexes are starting to catch on, such as "turning off" development environments in the evening or on weekends to avoid unnecessary power consumption, for example. However, the issue is broader, as described by one of the executives participating in our workshop: "I'm now being asked about my carbon footprint. The information is much easier to obtain in a cloud environment than anywhere else, provided you have a consistent FinOps approach."

Another cloud manager describes the change that is taking place: "When we started our transformation, we counted in percentages, in the number of virtual machines and containers, before realizing that it wasn't truly representative. Now, we primarily evaluate the power used. It's a more realistic indicator when you want to know how much digital technology consumes. The cloud makes it easy for us to collect all these metrics, even enabling us to set quotas, internal pricing, and more. These are all ways to implement a "nutriscore" type of assessment practice and introduce a sort of gamification dimension, which is highly motivating for teams.

This is due to the fact that once measurement tools are in place, it is possible to focus on the commitment of the banks' IT teams more directly. "Our teams have objectives that are in line with the COP21 to reduce their carbon impact by 10% per year, which is not an easy thing to do! This makes us aware that it is important for us to clean up, decommission, and stop services. The cloud helps, but it is not automatic. We must change our habits," observes one participant.

For Yannick Gloaguen at VMware: "The collective mindset's shift on these issues is obvious. If we had addressed all these issues four or five years ago, our comments would have been much more reserved than they have been during today's discussion."

The expert's opinion

GREEN IT: LET'S GET MOVING

The challenge now is to scale up programmatically in two main areas:

1. Fighting waste
We are implementing actions that seek to eliminate unnecessary consumption while maximizing hardware consolidation – computers, storage, and networks – by shutting down environments and hardware that go unused for some length of time and by extending hardware lifespan when possible (limiting Scope 3 emissions).

**2. Taking green IT into account starting in the design phase**
We are working far upstream to integrate green efficiency with the same level of importance as performance and security. Substantial gains are thus achieved through the optimization of development algorithms, choice of software architectures, and portability in multi-cloud environments.

We have observed decreases greater than 50% in energy consumption by combining these two approaches.

FABRICE MAZARS
Business Solution Strategist Director
for VMware

> "
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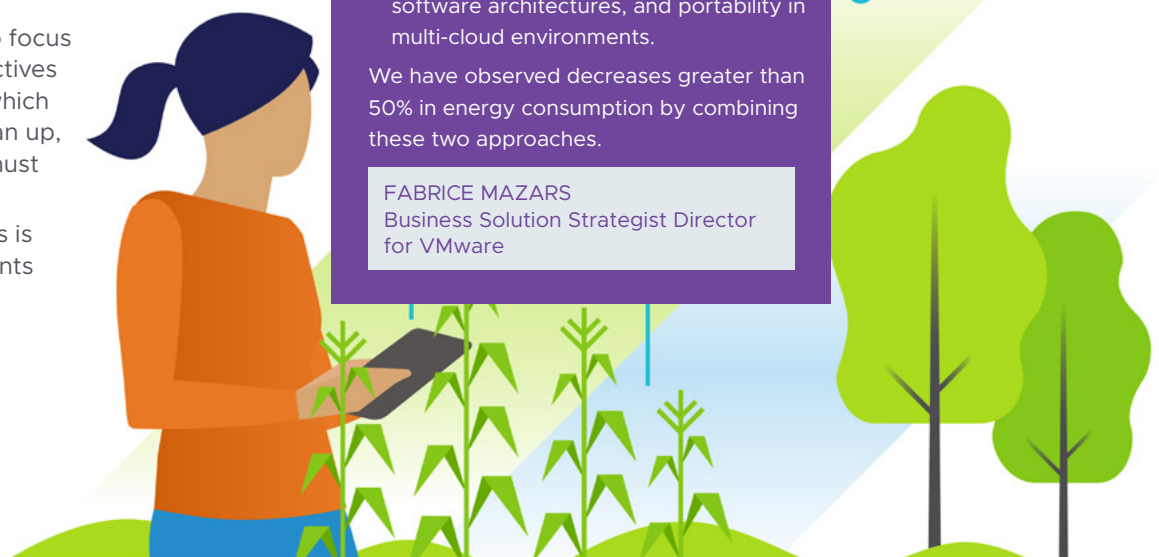
Bring "compliance as a service" to the market alongside cloud security

These major mindset changes regarding cloud practices do not change the fact that banks remain highly regulated. "If we want to go further than the 10% of applications that are relatively easy to move to the cloud, we'll have to work to find ways to make it easier to transition the rest. Here, I am clearly referring to the most sensitive applications," adds one participant. For these applications, the preoccupation regarding regulatory compliance is far more critical than other cloud-related issues such as flexibility, resilience, and cost. Market expectations are quite high on that topic.

"I used the term "Compliance as a Service" in our discussion in order to highlight the need for suppliers to successfully implement compliance by design and provide the tools and services that enable us to apply the rules governing our activity much more simply than current options," comments one cloud manager at a French banking group. He continues: "In our wildest dreams, that would mean having management tools for infrastructure as a code" allowing us to apply sets of compliance rules from the very start, for all types of applications or data based on their sensitivity, with a level of freedom of choice."

Another director highlights the challenges of this process: "Compliance takes on many forms, even if it's just with respect to different geographical regions around the world. For years, we have spent time developing our own engines, some of which are open source, with many rules. It's hard to design solutions when everything is fluid. The example of reversibility requirements is very revealing here: with all the ambiguity, the range of possibilities is so vast that it makes our lives very complicated."

Standardization with respect to regulations is therefore a key vector in banks' path to the cloud by 2025. While all the ongoing work on standardization can be considered interesting, such as Gaia-X, very little of it has produced any results that could emerge in concrete terms.

This latter priority also addresses a more global concern for security. "The question of securing the cloud is a major issue that is often overlooked when you start looking at the finer details," says a cloud director. He adds: "We are in a zero-trust mode with the public cloud, but there are few tools that enable us to implement anonymized operation in a simple manner. However, this is exactly what would help us the most to secure flows so that cloud owners cannot read the data."

Everyone agrees on one point: "We are really waiting for the market for anonymization aspects. In the meantime, we have to choose extreme options with respect to encryption across the entire chain. We do not trust cloud providers to handle our keys. If we don't have anonymization, it will be fundamentally difficult for us to scale up transformation," summarizes one of the participants. In terms of security, we are hopeful that topics such as network encryption (SASE) will be fully addressed by 2025 in an integrated manner and with a high level of automation. That progress would solve a lot of problems within banks. Nonetheless, cloud directors are still waiting to see. With one key philosophy in mind: "Cyber is moving fast, we need maximum automation."

The European Union strengthens digital resilience requirements for banks with DORA

The timeframe is tight, but European bodies want to believe in it: the publication of the Digital Operational Resilience Act (DORA) is designed to strengthen the banking sector's ability to withstand major incidents related to their information and communication technologies (ICT) as of 2023.

The intent is to encourage banks to innovate by having them specify and clarify the risks associated with their growing reliance on digital technology, alongside the other systemic risks they already assess. This worldwide regulation is meant to rationalize the fragmentation of rules emerging within Europe and elsewhere. It will encompass five main pillars: ICT risk management; implementation of ICT incident reporting; testing for digital operational resilience; third-party ICT risk management; and information and intelligence sharing rules.

Risk managers by their very nature, bankers have changed their view of the cloud

What changes will we see among the major French banks regarding the cloud by 2025? We asked this question during our meeting organized by Alliancy and VMware with the cloud directors of France's leading banks in 2022. Yannick Gloaguen, Senior Manager Global Solution Consultants for VMware participated in the workshop. He looks back at what made it interesting and the main lessons that can be learned from it.

Why do you feel that it is so important for the cloud directors in French banks talk more about their experience?

People in the banking sector tend to be somewhat reserved when it comes to communication, which is both deliberate and legitimate, as these institutions pay attention not only to the competition, but also to their obligations concerning privacy. However, talking about transformations such as the cloud sometimes involves diving into complex issues such as incidents and technology choices. And yet, when we look back over the past ten years, we can see that stakeholders all experimented with their cloud plans on their own. In particular, regulating bodies had not come up with any precise guidelines. This means that people had to negotiate with their bank's own internal risk department to decide on what was acceptable and what was not. However, the cloud is by definition about pooling resources for core services as well as global intelligence, notably through the variety, quantity, and relevance of services offered to the market. It is not possible to achieve this value just by collecting and sharing each other's needs to bring about a consistent vision.

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> Today, banks establish control frameworks and criteria downstream, enabling them to first make progress by working on use cases, before locking them into large-scale processes.
>
> **YANNICK GLOAGUEN,**
> Senior Manager Global Solution Consultants for VMware

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In this context, bringing the cloud directors from French banks together around the same table in a friendly environment, as we did in 2022, offers an opportunity to generate positive emulation. It was an occasion to identify topics are collective in nature, for which all participants will need a level of excellence regardless of what happens. I would also like to remind you that employees, particularly those in IT, now measure a company's performance based on the relevance of these forward-thinking choices. I remember one employee who explained to me that if her company's cloud initiatives did not reach the top 3 hyperscalers, she would leave the company so that she would not harm her own personal brand by staying in "niche" areas" This is very revealing of an aspect that is very divisive in today's talent war. It is also one of the reasons that this first workshop was a success, and why we should continue to organize similar discussions in the coming months, with a desire to dig deeper into specific topics.

Cloud directors seem to have rethought many issues over the past few years. What change in their discourse and actions stands out the most for you?

Their questioning concerning the speed of innovation. Five years ago, cloud projects all had to take "upstream" validation into account, such as studying the context, execution, guidelines, and more. There was therefore a big time lag for research, which slowed project speed. Today, banks establish control frameworks and criteria downstream, enabling them to first make progress

by working on use cases, before locking them in to large-scale processes. They give themselves a chance to try. This implies that bankers, who are risk averse by nature, have changed the way they look at the cloud. It is no longer a show stopper. By extension, this changes the relationship of IT decision-makers with respect to innovation in these organizations, particularly that associated with the cloud. Here is a concrete example: I know of a bank subsidiary that separated its operations from its parent company's information system in order to move forward in a native cloud mode, from a blank sheet of paper to the greatest extent possible, from the network to the office automation system. Without access to the core banking system, the subsidiary was able to develop relevant applications before subsequently working to reconcile them with the more constrained system of its parent company. They didn't waste any time.

Among the top transformation priorities highlighted by the cloud directors at the meeting was their desire to go further than just "cloud first" in terms of new applications, and to tackle existing – legacy – applications. What results can we expect?

For a long time, companies that had understood the value of the cloud did not want to limit themselves in any way, even going so far as to imagine a cloud-only future But we have seen the degree to which moving to the cloud can vary from one application to another. It is therefore natural that work over the past few years has focused on new IT as the priority, rather than legacy

> The term "Kub-first" is above all a good indicator of the very strong link that has been created around an innovation that is visible to business, even though we are talking about IT infrastructure!

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applications. This is particularly true for banks. There was a basic mathematical calculation about how the cost of rewriting an entire library of existing applications would be high. Also, that it was impossible to carry out such development within the timeframe of a transformation plan over three or even five years.

However, that does not mean that it's not interesting to rewrite those existing application, on the condition that it would be possible to leverage that work to move forward on business opportunities and modernization, such as DevSecOps and CI/CD. Banks know how to evaluate their inventory, something they do quite well for security reasons. The question today is therefore where to place the bar: on what percentage of legacy applications should effort really focus? The desire is there, and that's what is important. Maybe we could reach a 50-50 split over time? Regardless, banks will not abandon their datacenters: their IT represents their core business production tool and whatever work is done on existing assets, they will never be 100% on the cloud.

The banks' cloud directors are now talking about the Kub-first strategy, referring to Kubernetes. Does this surprise you?

I was amazed by their use of the term during our meeting. I don't think I had heard it much before. Nonetheless, it is appropriate. Before 2017, Kubernetes coexisted with other standards. But that year, DockerCon published its opinion that containerization capacity should be expanded on an industrial scale, adopting the model offered by Google. All the major U.S. industries took action within 18 months. That led to the emergence of a real, single standard, with all the associated benefits. Companies conducted many tests from 2017 to 2020 to see whether it wasn't all just

a buzzword despite everything. Customers with tens of thousands of workloads, operating systems, storage spaces, and CPUs were able to observe the reality of the change.

This major simplification enabled the market to position itself efficiently. For example, VMware is today one of the largest contributors to Kubernetes, as our R&D was able to focus on that framework. Above all, the term "Kub-first" is a good indicator of the very strong link that has been created around an innovation that is visible to business, even though we are talking about IT infrastructure! The benefits in terms of structure, performance, security, and cost savings have once again highlighted IT's engineering capacity, with the very tangible promise of autonomy for business teams. Infrastructure as code has concluded the technical landing that CI/CD had begun on processes in terms of the It-business link. Today, banks are aware how important this common universal engine is in creating value for many years into the future. Of course, it's not all going to be 100% Kubernetes in a few months. But something that did not exist at all a few years ago, something entirely new, has now made its way into all serious transformation plans in the banking sector for the next decade.

Isn't the biggest challenge still for banking stakeholders their ability to change their teams' mindset in terms of development as infrastructure?

The importance of changing people's mindsets is indeed central. Several phases have taken place in banks, but IT operations have historically been in somewhat of a silo, with their major responsibilities well segmented. Yet, there was no thought of questioning these principles because changing the organization involved, by extension, changing its approach to risk management. That lengthy

> " Banks have already adopted an "as a service" model for several major parts of their general services.

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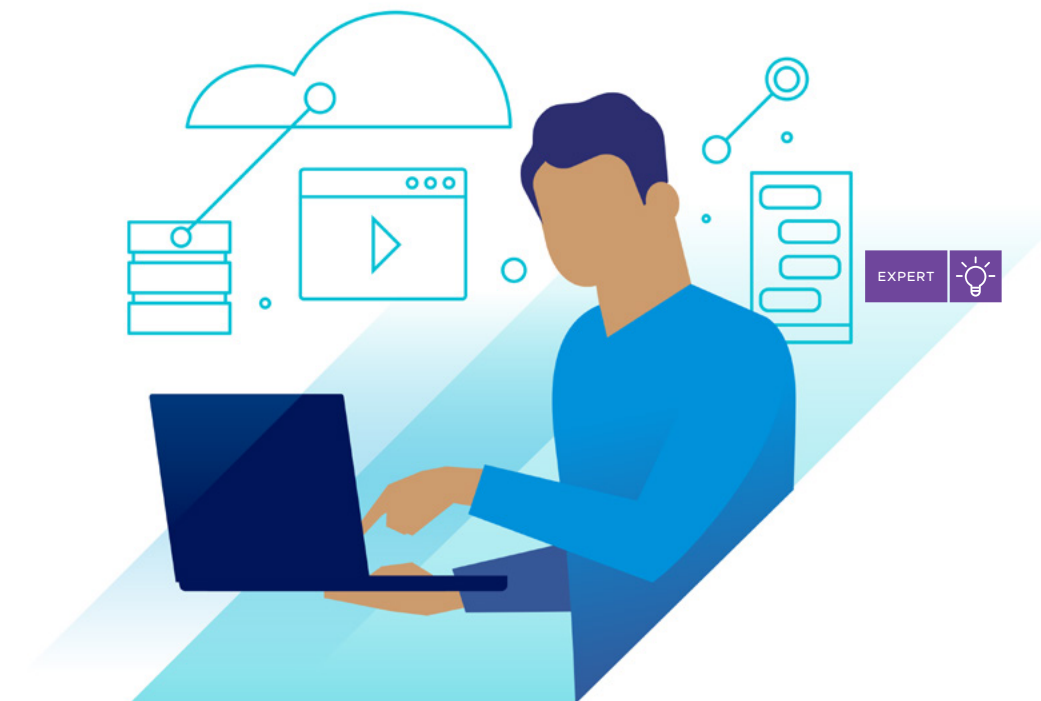
standstill is now prompting the sector to carry out more ambitious transformations.

At the same time, banks have a challenge with their age pyramid. Today, they have finally opened themselves to a new generation of employees, with fresh awareness about technology, joining the company with their "own codes", perspectives regarding work, and IT innovation. There is more than a little bit of culture shock. Fortunately, banks have grown much more attentive to this issue over the past few years. They now have the opportunity to satisfy high expectations while maintaining a level of technological rigor that can be a factor in attracting and retaining staff.

Cloud directors also expressed their expectations with respect to the market, notably in terms of "Compliance as a Service" to make their cloud management easier. Is that realistic in the current situation?

I actually do think that it is a legitimate and realistic expectation. Banks have already adopted an "as a service" model for several major parts of their general services. The bank card economic interest group (EIG) in France is a good example. The banks saw that they shared common points for which competition was less of an issue. Common points are also possible with respect to compliance. The only difficulty in reaching this goal today is that compliance is essentially based on an initial paper document, which systematically must be interpreted and translated in technical terms. Banks are each doing the work on their own, taking on the risk associated with this interpretation and translation. However, if someone in the market were willing to take on this risk by leading the standardization effort – and this will happen – then yes, there is an opportunity to change the game.

Processes are currently quite manual, including a legal and social dimension as well as impact regarding risk

management, which is still seen as a differentiating factor. Nonetheless, we can imagine that the situation will change quickly for some standards, accompanied by automation, for example for embargo list calls, which are the same for everyone anyway. There is no need for each player to keep reinventing the wheel in isolation for this type of issue. We will see compliance as a service taking hold when it enables trusted third parties, which is what banks are, to focus even more strongly on the customer experience and business relationships.

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