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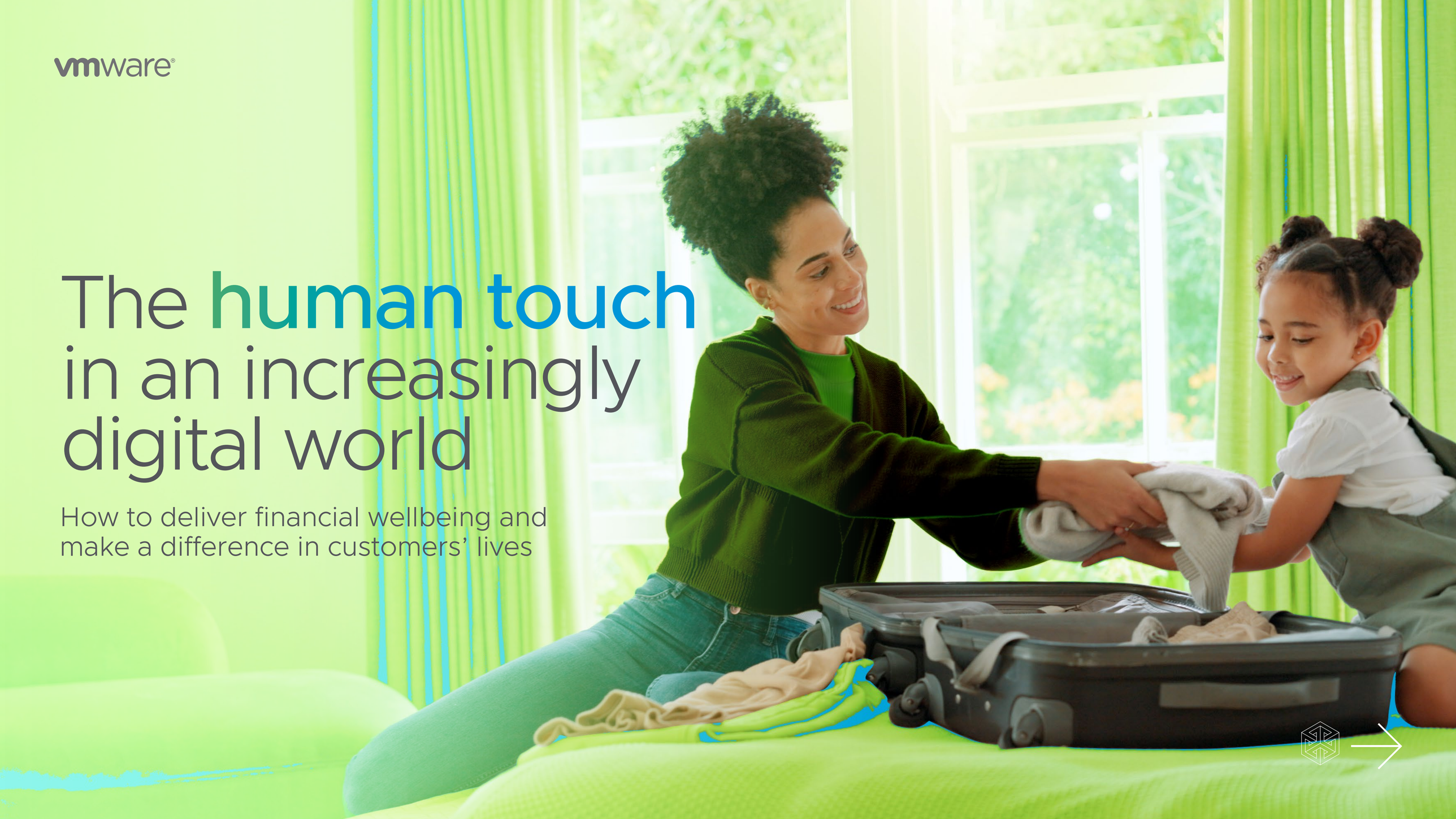
The human touch in an increasingly digital world

How to deliver financial wellbeing and make a difference in customers' lives



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Riding the **waves of change**

As Greek philosopher Heraclitus said: “The only constant in life is change”. And this has been especially true for retail banking recently where we’ve seen a polar shift to digital.

For example, banks don’t keep paper ledgers in branch offices anymore. Central ledgers are now stored in online databases, with banks moving toward using distributed ledgers in the cloud.

Branches aren’t full-service processing centers anymore, where you go to get cheques manually processed or build that ever-important relationship with your bank manager to raise your chances of getting a loan. Branches are now sales outlets powered by self-service automation which eliminates the need to interact with staff and replaces the branch manager’s judgement with a sophisticated rules engine. In short, as our lives become more virtualized, so are our high street banks, with most traditional branch functions now integrated in an app.

The events of recent years have dramatically increased the momentum of technological change, with advances that would have taken years to implement now taking days or weeks.

The global economic climate may have slowed things down, but technological innovation and advancement continue at an ever-increasing pace.

Whether this is the way artificial intelligence is now delivering everyday capabilities we can see and touch, or the impending revolution coming from quantum computing, we are here to help you lead this change. While we recognize the importance of offering customers the best digital capabilities, physical experiences will be just as critical. You need the balance of advanced technology and a personal, human touch. But I know this is difficult to get right.

That’s why we have created this document to explore some solutions and start the conversation on how you can best prepare for the future of digital banking.

I hope you find it insightful. Do get in touch to talk further.

Brian Hayes
Senior Director
Financial Services Industry Solutions
VMware

Be the bank customers want

Being the bank customers want – and will need in the future – comes with a unique set of challenges that organizations in financial services should embrace now.

While businesses today aim to attract and retain customers with new products and services, the pace of innovation has largely been driven by the fintechs. At the same time, traditional players are often thwarted because of their inability to change and risk breaching management constraints.

To compound this dilemma, the traditional banking model is increasingly out of sync with the expectations of today's customer. New experiences and real-time services are becoming the benchmark that traditional financial institutions must meet to retain parity, or risk losing market share to the fintechs and neobanks.

> "Good products, good service, and good ethics are good business."

Customers today want more than a secure place to save money or take out a mortgage. They want to be offered services and products that show the bank understands them and therefore can serve them even better. They want relevance to them, not convenience for the bank. They want anytime, anywhere accessibility. They want services that empower their lives effortlessly, from companies that align to their values.

At VMware, we are partnering with our banking customers to deliver new and different services. We are helping to throw off the shackles of legacy technology, successfully innovate at speed, and meet ever-changing demands of customers and regulators while protecting privacy and security and operating sustainability.

Complex as it is for traditional banks to adjust to the digital world, the need for continuous innovation and self-disruption is vital to thrive in the future. These are the drivers that spark fresh interest, awaken new demand, and establish brand values that are more aligned to the wants and needs of today's customer.

They are the catalyst for a new kind of financial system: one that's more accessible to everyone, regardless of standards of living, income, or geographic location.

The need to innovate, to deliver better customer experiences and to do the right thing are not just nice-to-haves for banks today. Good products, good service, and good ethics are good business.

How VMware can help you reshape your bank

Be known for your customer experience.

The service you offer is defined by the speed, security, and quality of the customer experiences you provide. The better the experience that you deliver – be it a banking app or mortgage calculator – the more likely customers will want to return, share more data, and further enrich your services.

Learn from the experiences of others.

Over the years, VMware and financial services organizations across the globe have teamed up to simplify IT complexity and unleash the next generation of customer engagement. We're ready to share these valuable learnings and help you break new ground.

Be free to embrace innovation.

Modernizing banking apps requires a delicate balance. You need to be able to deliver innovative data-driven services and new products while also addressing privacy, risk management, compliance, and new regulations. At the same time, you need to be sure you're not contributing to a future of increased technical debt, unmaintainable systems and even stranded costs. VMware will ensure you get the balance right.

Be liked for the products and services you provide.

Providing great products is not enough anymore. Today's online consumer wants every app and every website to be effortless. In the battle for consumer wallet, banks that provide their developers with the opportunity to build better online experiences are those that come out on top. VMware helps your developers get there. We bring the digital foundation as well as the tools, knowledge, and experience needed to help your team deliver great apps faster. We make it easy to modernize apps over any cloud, with built-in security, so you can focus on developing and delivering the experiences that attract customers and accelerate success.

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Building digital banking **for people**

When we talk about great customer experience (CX), what do we mean? It's about delivering consistent value and convenience to your customers, via any channel at any time. Journeys that are personalized, based on previous interactions, and delight anybody that engages with them.

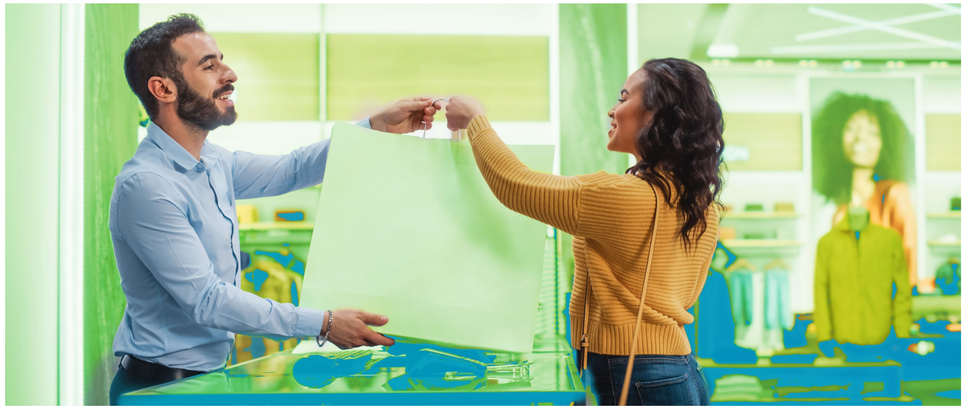
For financial services firms to offer this level of CX, they need digital banking that's built on modern applications powered by relevant data through agile systems and teams. Banks know it's critical to get this right, but they face several unique challenges.

Regulation, for example, is a major slowdown for innovation because everything banks do must factor compliance and security risks, which are key to business continuity. Silos are another big innovation blocker. From a technical perspective, silos stop banks from extracting the full value of their IT assets and information systems. The lack of standardization makes it tougher to leverage customer data and insights to deliver the tailored customer journeys they expect. These silos also impact culture, with teams often having different mindsets, working methods, and long-term visions.

But we believe there's another way to deliver digital innovation faster to your customers. An approach where you accelerate developer velocity and, in so doing, increase your agility and ability to meet ever-changing customer needs. You can achieve all this by being platform-driven.

This approach is about breaking down barriers between business and technology teams, enabling them to operate consistently toward common goals. A united vision – powered by a single standardized platform – is key to overcoming fragmentation and providing both employees and customers with a seamless experience.

> "A shared vision across the business is critical to delivering the digital banking your customers expect."



Other features of a platform-driven approach include:

- **Complete automation** of production, using standardized building blocks, security measures and testing processes
- **Friction-free multi cloud experience**, where you operate multiple clouds and platforms in one place and run applications based on business requirements
- **Reusable inventory of assets** to eliminate effort duplication, speed up software delivery and simplify lifecycle management
- **Measurable and transparent delivery**, with metrics and business objectives attached to every step
- **Agile and evergreen operations**, so you can iterate fast through shorter software release cycles
- **Elimination of waste and optimization of resources**, to reduce security attack surface, simplify the estate, and improve both operational efficiency and sustainability

Financial services firms must orchestrate a digital and cultural transformation to provide smarter, more personalized, and more seamless banking services to their customer communities.

Success story

DBS Bank accelerates journey to becoming digital-first

DBS Bank is one of the leading financial institutions in Asia, providing a comprehensive range of consumer and corporate banking services. To compete better with technology companies entering the financial space, it decided to reimagine banking by making it seamless, simple, and invisible. For that reason, the bank embarked on a digital transformation journey to become platform-based and, therefore, capable of achieving its customer experience goals.

The bank started with recruitment – acquiring technical talent able to create advanced capabilities in house. Then it re-architected its infrastructure and applications to remove silos between teams, enable faster, more agile development, and optimize user experience. VMware was chosen because of its software-defined solutions, including VMware Tanzu which sped up time-to-market and made major releases 10 times more frequent.

VMware also helped DBS Bank accelerate developer recruiting. Our Hack2Hire initiative resulted in 180 hires, leading to incidents being resolved 67% faster than before. Now, the bank's customers enjoy a secure, intuitive, and friction-free digital experience.

> "[VMware Tanzu Labs] has been one of the key partners for us to transform how we write software to introduce test-driven development, pair programming, and how we do work."
>
> **Siew Choo Soh, Managing Director Group Head of Consumer Banking and Big Data/AI Technology DBS Bank Singapore**

How to be a cloud-smart bank

The promise of the cloud is clear. It can boost performance, increase efficiency and improve a bank's ability to keep up with the ever-changing digital demands of its customers. But as cloud adoption has increased, so has its complexity – stopping banks from fulfilling the technology's full potential.

This cloud complexity comes in different forms. The first relates to cost, and how well firms are balancing what they spend against what they consume. Some banks are being hit by unforeseen costs because cloud usage is unpredictably high. Others have the opposite problem where they've committed to – and paid for – a certain level of consumption which they aren't reaching, leading to regretted investment. For this reason, banks need a robust FinOps strategy to optimize their cloud utilization and ensure usage is understood, efficient, and finely tuned to business needs.

Banks must also consider workload placement and portability. How flexible is your architecture? Can you easily shift workloads between clouds? If the answer is no, banks might rely too heavily on a single cloud provider. And that only puts the organization at risk, and also contributes to a systemic threat where the entire industry would be impacted if, for example, a cloud provider were to go offline for any reason.

To alleviate these risks, banks should ask themselves if they have a multi-cloud infrastructure or a multiple cloud infrastructure? A multi-cloud infrastructure is where services can run on any cloud, ensuring they always operate even in the event of an outage. Yet, in a multiple cloud infrastructure, workloads run in silos. This means if a cloud provider goes offline, so does the service. That's why it's critical to have seamless multi-cloud portability for critical workloads.

> "Control over costs and workload placement is central to a bank's success with the cloud."

Another complexity for banks is cloud sovereignty. One aspect of this issue is data protection and confidentiality. By storing customer data in a provider's cloud, which may be hosted in another country, how well does it comply with local data regulations? Furthermore, how much administrative control do you hand over to third parties? It's all about making sure banks have the self-reliance to protect citizen data and the entire industry from events otherwise out of their control.

Because of these challenges and choices, banks need to be more cloud smart. They need a cloud platform that puts them in control, that can be managed independently, while enabling seamless workload portability between clouds, so they can run services where they choose. It's also critical to simplify cloud operations by unifying multi-cloud management into one solution, resulting in teams being able to manage multiple clouds in a Cloud Smart way. Sometimes this may mean making use of advanced or specialized capabilities a particular cloud provider for a specific workload, and this beneficial decision can be recorded along with any potential operational risk considerations. Overall, more simplicity means more predictability and consistency – both key to keeping costs under control and, ultimately, maximizing value from the cloud.

Success story

Achieving cloud sovereignty and service flexibility

Cellulant is a leading Pan-African payments company that serves merchants across 33 regions. While moving its services to a public cloud, the company hit a major obstacle. Customers in multiple countries had different data residency, regulatory, and sovereignty concerns that halted Cellulant's migration.

The company had to reconsider who it could partner with, and which technology it could use, to overcome these challenges. Cellulant chose VMware because our cloud allows them to deliver the same quality and functionality to all its clients, while maintaining full ownership and visibility.

The Cellulant development team is now far more responsive to the business needs and can innovate and scale-out applications in different territories as needed. Furthermore, it has made massive cost savings from the OpEx licensing model and the ability to scale operations incrementally.

> "Our platform allows us to scale and roll things out much faster, making it easier for me to get services up and running without having to wait for the typical annual budget cycles."

John Mburu
Head of Platform Engineering
Cellulant

The importance of resilience, reliability, and recovery

Today, banks must be prepared for volatility. Their processes and systems must be hardened against disruption. If not, the consequences could be felt across the entire organization – whether from the legal ramifications of non-compliance, loss of public trust, or the costs of a data breach.

For banks to ensure that doesn't happen, they should focus on the three Rs:

1. **Reliability:** the level of quality and consistency in your banking systems. Banks must ensure customers can depend on a service that's always available and transactions that are always accurate.
2. **Resilience:** how well a bank can handle disruption like cyberattacks, unexpected global events, or even new regulations. This has become critically important after the events of recent years.
3. **Recovery:** otherwise known as recoverability, this is how accurately a bank can recover its systems, data, and transactions in the event of a cyberattack, denial of service, or other incident.

It's critical to optimize these three areas to give confidence to customers, regulators, and the rest of the financial services industry. Banks must prove their systems can run stably, securely and effectively, no matter what.

> "Understanding and overcoming complexity is key to building a hardened financial institution."

But this is getting tougher for several reasons. For one, rules are changing faster and faster – with regulators taking a more proactive approach and responding more quickly to global events. If something happens in one geography, regulators are quick to ask banks to prove it won't happen in their territories. There's also the added complexity of the cloud, with uncertainty around how to recover data if there's a failure.

Complexity brought by digital transformation is another significant issue. Many firms have not only digitized the front-end, but also back-end systems like payments, settlements and trading, underwriting, and more. So, with everything more connected, there are more environments and interdependencies to think about.

For example, how can you be sure you're not creating additional weaknesses when you extend your infrastructure? How can you test the knock-on effect of a particular action? This gets even tricker when you consider third-party providers and networks. How does this increase your attack surface and exposure?

These are the questions banks should be asking. We know this is challenging. That's why banks need a partner that understands the complexity and how to best navigate it – together with reliable technology that enables banks to manage the three Rs across multiple environments more easily.

The result? A hardened financial institution that always delivers, inspiring trust in customers and regulators.

Success story

Creating a solid, future-proof infrastructure for payments

AsiaPay is one of the leading payment service providers in Asia, dedicated to providing advanced, integrated, and cost-effective digital payment process solutions. The company's rapid growth created tremendous challenges for its legacy IT, making it difficult to support modern applications and increasing workloads. As a bank-grade digital payment service, AsiaPay also had to ensure systems were secure and reliable.

The company chose VMware to create a state-of-the-art software-defined data center that strikes the right balance between security and agility. This means supporting the stringent needs of data security and business compliance, while also enabling fast, efficient, and flexible services for AsiaPay's customers.

The company now enjoys continuous lifecycle workload monitoring, automated security policy management, and intrinsic security across its entire infrastructure. The new system allows AsiaPay to drive growth, while keeping its services safe, stable, and compliant.

> "Our VMware infrastructure helps us achieve the unprecedented levels of agility, quality, security, and economics that modern business requires in its IT operations."
>
> **Edward Lo**
> **Associate Director**
> **System Operations**
> **AsiaPay**

Driving security and compliance with technology

Meeting ever-changing security and compliance requirements is not optional but does pose a dilemma

On the one hand, banks are at a disadvantage with respect to fintechs as they consider digital transformation projects with an increased focus on managing a vastly complex range of threats and regulations. These banks are not only expected to have a plan in place, but also demonstrate their effectiveness in securing data and critical banking services across their whole firm.

On the other hand, keeping up with security and compliance is challenging. A bank's sheer size, enormously complex infrastructure, the number of people involved in developing, managing, and supporting the service and number of applications all make it harder to adopt new systems or software without causing disruption. At the same time, banks must think about continuously improving their customer's experience. After all, customers don't want extra difficult steps – they want seamless, friction-free experiences they can trust. Banks are not going to be able to simplify their entire operation overnight, or to eliminate all the technical debt to reduce their attack surface fast enough to manage down these issues. So how can banks strike a balance?

The answer lies in the implementation of next-generation technology and processes. By enabling organizations to manage all security and compliance requirements in one place, technology can offer strategic autonomy – giving banks the ability to move fast and be agile with less risk. But what technologies are we talking about? Here are some areas where they can help.

> "Technology has a significant impact on regulations, both in how they are enforced and how banks comply with them."

Regulatory technology (RegTech)

RegTech refers to use of technology like automation, artificial intelligence, and even blockchain to help financial institutions comply with regulations. It can include automated monitoring of transactions, identification of potential risks, and holistic reporting of compliance.

Data sovereignty

Banks are mandated to protect customer data and privacy, but they must also meet the different rules and regulations of each geography they operate in or risk losing their banking license(s). This is especially challenging for multinational firms. They'll need complex data management strategies, involving either multiple data centers or partnerships with local service providers. Technology-based solutions can help more easily implement and manage such strategies.

Cybersecurity

In recent years, there has been an increase in ransomware attacks and other damaging data breaches, with financial services being one of the most targeted industries. That's why banks need robust cybersecurity measures in place such as encryption, intrusion detection, zero-trust protocols, and more to prevent or limit the impact of cyberthreats.

Digital identity verification

With the rise of digital banking and online transactions, regulators require financial services firms to verify their customers' identities. That means banks need advanced technology-based solutions, such as biometric authentication and digital document verification, to get to know their customer and then to keep customers' accounts secure.

Above all, technologies can liberate decision-making – freeing your organization to comply more seamlessly and, therefore, confidently devote extra resources to innovation and growth.

Success story

Making security intrinsic

The United States Senate Federal Credit Union (USSFCU) provides banking and financial services to more than 32,000 federal employees. It is committed to keeping personal customer data safe, but it faced the unique challenge of being targeted by hackers all over the world. To combat this threat, the credit union needed to refresh its legacy IT environment to fortify security and simplify security operations.

Instead of investing in expensive physical security appliances that would be time consuming to maintain, the USSFCU opted for a software-defined approach. The credit union chose VMware for its range of flexible solutions, including virtual firewalling, micro-segmentation, advanced encryption, and deep application visibility.

Now the USSFCU has an intrinsically secure environment with strengthened protection against cyberattacks and data breaches. The streamlined security operations and software-only solution has increased flexibility and resulted in a 70% reduction in data-center costs.

"VMware solutions with intrinsic security will allow us to deploy faster, reduce costs, use less space, and better protect our members' personal and financial information."

Mark Fournier
Director of IT Infrastructure
USSFCU

Welcome to a more **sustainable and responsible** bank

Can banks make a positive contribution to society and the good of the planet? In an age of rising costs and regulatory pressure, they have no choice.

Taking ESG seriously not only benefits society and the environment, it's becoming more closely connected to business results. For example, as the energy crisis pushes banks to find new efficiencies, they are looking to reduce utility costs and optimize resources. That is exactly what happens when you cut emissions – saved carbon equals saved money. When you also consider increasing mandates and public expectations, the imperative for banks to accelerate ESG initiatives is clear. But how can they do it?

A key area to address is the scope of emissions that come from assets you control directly like data centers, branches, or offices. But you won't get far without the right measurement and reporting tools. Banks need visibility of carbon emissions across the entire value chain to be able to control them. And that goes beyond knowing the power usage of a single machine: you need the full picture. What's the knock-on effect? What network is this machine part of? How is the cost and consumption impacted by location? There are many elements to consider.

Banks should focus on emerging technology like artificial intelligence and machine learning. These innovations can help you spot inefficiencies and make the best decisions from a sustainability perspective. But they are also computationally intensive – with the unintended consequence of leaving a hefty carbon footprint if you're not careful. For that reason, it's critical to use advanced technologies efficiently and purposefully, otherwise banks risk creating more carbon than they would otherwise save.

> "With banks under pressure to reduce energy costs and increase efficiency, ESG has never been so aligned with business goals."

To be sustainable, banks also need greener data centers. One way to achieve this is by virtualizing your remaining physical machines – or even moving them to a well-managed private cloud. Then they'll be more efficient, produce less carbon and, therefore, cost less money.

Embracing all these different components is challenging, but it's also important.

It won't be long before commercial customers are asking their banks for details of their emissions as part of their own scope 1/2/3 analysis.

Banks that put resilient and responsible banking at the top of their agenda are not only planning for their future; they are building a better and safer society for us all.

VMware takes your responsibilities seriously

Scope of emissions, or the carbon impact of your partners, is also critical. ESG activities are built into everything we do at VMware – from the way we develop software and bring our solutions to market, to the way we build a culture of inclusion. Our customers achieve their low-carbon strategies through greener computing solutions that help them reduce their carbon footprint and costs.

Sustainability is core to VMware's values and future success. As a global corporate citizen, we innovate for a more resilient world by decarbonizing digital infrastructure across our customer ecosystem, supply chain, and operations.

Through our collective efforts to drive net-zero emissions, radical efficiency, carbon-free clouds, and sustainable innovation, VMware helps accelerate a low carbon future.

We see digital transformation as the backbone to building a better world. It not only creates resilient organizations, but also helps us overcome the digital divide and decarbonizes the planet. Building on our long-standing commitment to innovate for a better future, and the impact we have already made, we have created 30 measurable goals to achieve by 2030 that are core to our technology and business operations.

Get in touch, ***stay in touch***

Contact us to know more about how VMware can accelerate and de-risk your Digital Transformation journey.

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