WHITE PAPER

Ctrl+Alt+Pay: Imperatives for payments modernization in European banking

A strategic response to regulation, competition and complexity

May 2026

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In a world of slick and sophisticated payments solutions, European banks are falling behind their competitors. Five key levers can help them change the equation.

European bank payments businesses are under threat like never before. Big techs, fintechs, payments services providers (PSPs), and even retailers are among sectors taking market share from incumbents, often cheered on by regulators. But intense competition is not the only reason that banks are being squeezed. Many have also been slow to switch to the modern technology platforms that would provide their customers with faster, smarter services. Without swift action to replace legacy systems, banks face the risk of further disintermediation and a significant hit to the bottom line.

Why is payments tech modernization so vital? First because there is a compelling business opportunity. The Global payments market is already worth $1,9 trillion a year in 2024 and we estimate it could grow to $2.4 trillion by 2029. Meanwhile, innovations such as real-time payments and embedded finance are see growing demand – we estimate the embedded finance market alone will be worth more than $320 billion globally by the end of the decade.[1] Furthermore, payments are an anchor for client relationships, a source of stable fee income, and a catalyst for innovation, as well as a reliable source of valuable data.

Alongside economic imperatives for modernization, there are powerful regulatory drivers. Under Europe's upcoming PSD3 and FiDA regulation, for example, banks will be required to ramp up fraud protection, facilitate open banking, and widen access to data, all of which will require modern technology platforms. Meanwhile, customer expectations are rising, with companies demanding more tailored and sophisticated treasury services, while retail customers want smart, mobile solutions and, increasingly, value-adds such as financial planning. Finally, new forms of Digital Money, such as Stablecoins, Tokenized Deposits and Central Bank Digital Currencies are expanding options how consumers and business may pay. These instruments are growing in relevance (with Stablecoin global market capitalization extending $300 bn in 2025) or are under development with expected market introduction in the next five years (like the Digital Euro).

To assess the current state of play in European banking payments, BCG has undertaken a survey and in-depth interviews with 12 institutions. The results of our study paint a sobering picture. A full 90% of respondents say they have an "urgent need" to modernize their payments architectures, with priorities including upgrading core infrastructure, enhancing channels to meet regulatory and customer needs, and improving cash and liquidity systems. Moreover, many banks tell us their modernization programs are making slow progress, amid fragmented legacy systems, regulatory complexity, skills gaps in the workforce, and pressure on funding. The majority of survey respondents say they allocate less than 10% of their annual change budgets to the payments business, and even then, about half is reserved for regulatory and market infrastructure needs.

Across the industry, there is little argument that technology modernization is the key to competing effectively. The imperative for bank decision makers, therefore, is to turn intention into operational reality. In this article, we highlight the strategies favored by payments leaders and show how five key levers can accelerate the process and create competitive advantage.

1. Sources: BCG Global Payments Report 2025, BCG Global FinTech Report 2024.

Our Methodology

BCG in 2025 interviewed and surveyed 12 European retail and wholesale banks, made of a mix of large (balance sheet of more than €600 billion), mid-sized (€350 billion - €600 billion), and regional institutions (less than €350 billion). Our interviews focused primarily on bank payments architectures, while the survey addressed topics such as ongoing projects, annual IT spend for payments, data analytics use cases, and skills requirements. All participating banks rated the importance of the payments business as high or very high, reflecting its role in revenue generation, customer engagement, and digital transformation.

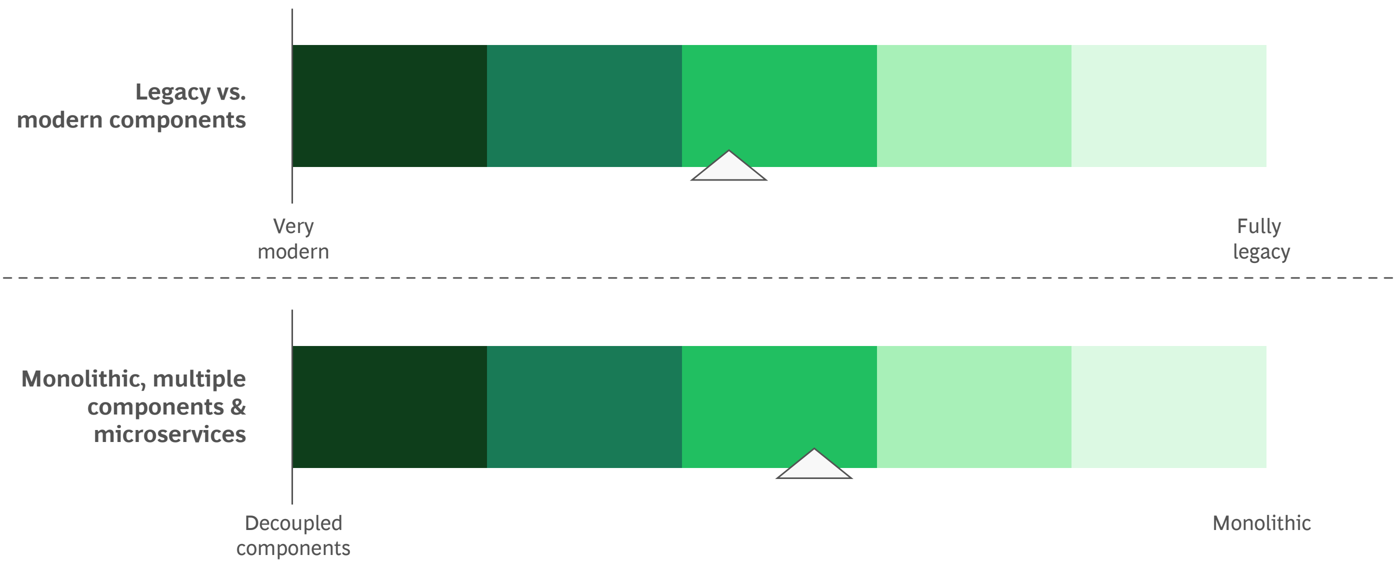
Many Projects Fail to Meet Expectations

Among the banks we surveyed, some common themes arise. Many institutions, for example, have undertaken projects such as upgrading core banking modules, launching open banking and embedded finance, and making improvements in payments engines. Equally, there is a common commitment to replacing or reworking legacy architecture. But, despite those efforts, the majority admit to facing significant challenges.

A common theme among our survey group is that many projects lead to disappointing financial outcomes. In our review, only eight projects were seen as financially successful, while six delivered partial results and three failed to meet expectations altogether. About 20% of banks have stopped or abandoned at least one modernization project, underscoring the risk and complexity of transformation initiatives. Other reasons for project abandonment include vendor performance issues, misalignment between market solutions and bank requirements, budget constraints, and the impacts of regulation.

EXHIBIT 1

How banks assess their payments infrastructure



Internal and External Barriers to Modernization

Bank responses to our survey suggest modernization progress is generally slow. Indeed, none of the banks we surveyed say they have completed the journey to state-of-the-art payments architecture, amid both internal and external constraints:

Complicating external forces

External constraints range from new regulation to intensifying competition and talent shortages:

- **A shifting regulatory playing field**
  From sanctions and embargo screening to the requirements of open finance, data management, and instant payments, regulation across Europe requires banks to embrace modernization. But the regulatory agenda is also a vector for challenges. One such is the need to constantly manage short-term obligations, amid frequent amendments and local variations, as well as overlapping mandates. In addition, banks are often called on to shift gears mid-project, as was seen during the Eurosystem initiative to combine technical and functional aspects of the TARGET2 (T2) and TARGET2-Securities (T2S) payment systems.

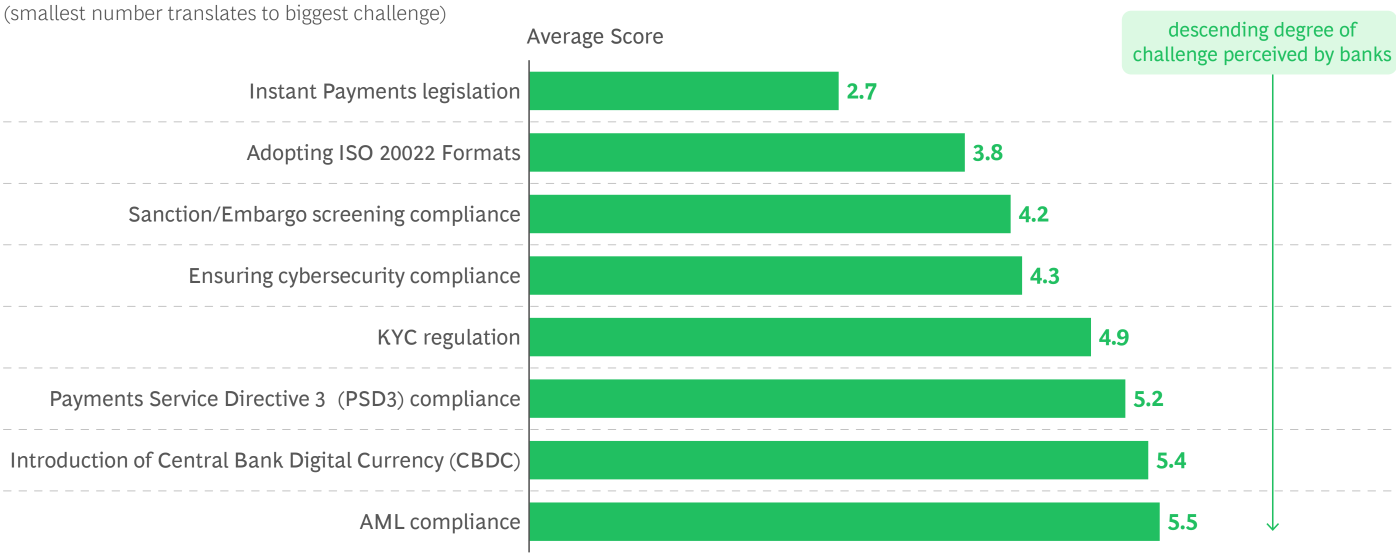
- **Competitive pressure limits bandwidth**
  Increasing competition and pricing compression in core payment services are putting pressure on banks to innovate while keeping legal and compliance costs under control.

- **Skill shortages and talent gaps slow execution**
  Finding and retaining employees with the right technical and regulatory expertise remains a significant challenge. Banks particularly struggle to recruit talent with knowledge of country-specific regulatory requirements, modern IT architecture, and systems integration. At the same time, an aging workforce with knowledge of legacy systems is retiring, leaving a growing skills gap.

EXHIBIT 2

Average ranking of regulatory challenges

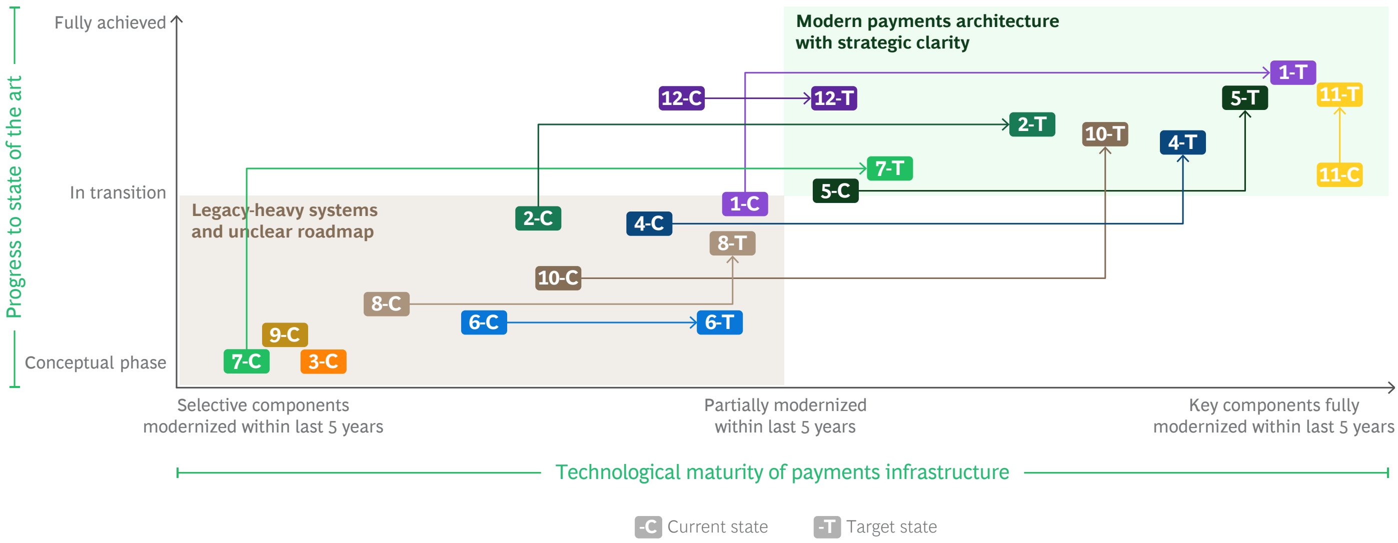
(smallest number translates to biggest challenge)



Note: 1 = biggest challenge, 8 = smallest challenge.

EXHIBIT 3

Comparison of current and target state of IT payments architecture of each bank



Internal constraints limit banks' ability to execute effectively

Alongside external factors, banks face internal limitations. Some of the most common challenges include:

- **A lack of clear business case**
  There is often no clearly articulated business case for modernization. Without that, projects struggle to win executive buy-in and sustained funding - particularly when weighed against short-term business or compliance priorities. In addition, there is a wide range of strategies at play. For example, only a proportion of institutions aim for full cloud adoption or end-to-end transformation. More pervasive ambitions include complying with regulation, replacing high-cost legacy systems, increasing efficiency through payment volume consolidation, and unlocking new business opportunities through a stronger IT foundation.

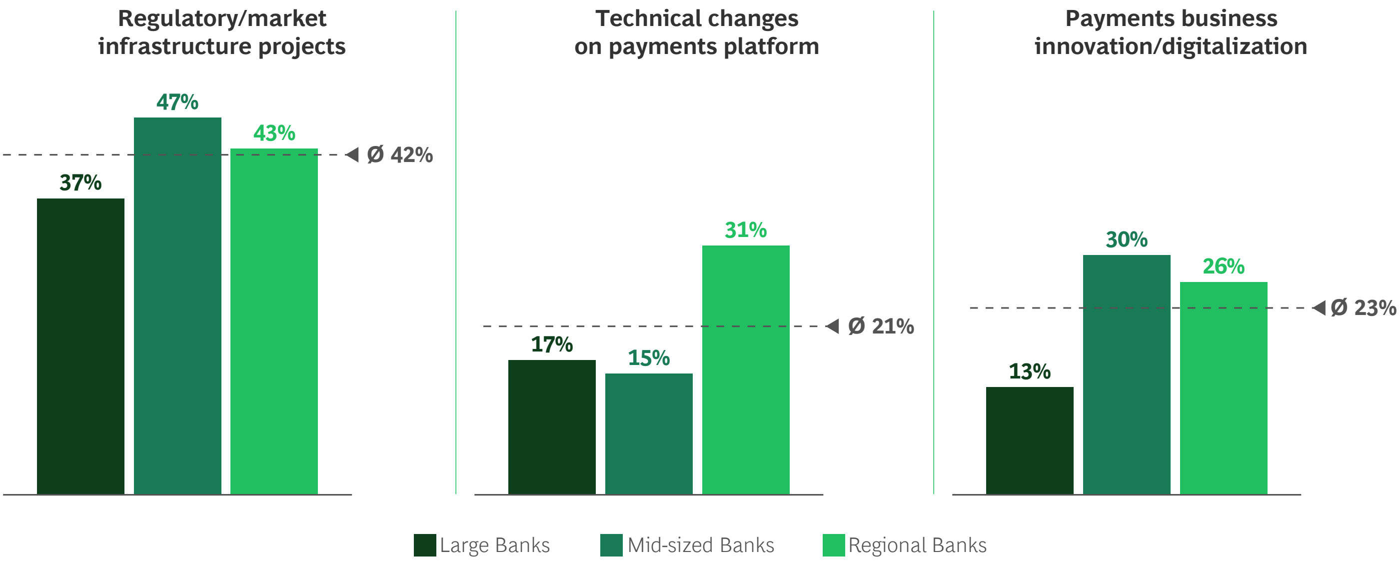
- **Vendor and technology complexity**
  Many banks are concerned over vendor performance and misalignment between commercial solutions and internal requirements. They say that complex and fragmented technology environments lead to longer project timelines, higher costs, and difficulties maintaining system reliability.

- **Transformation scale exceeds organizational readiness**
  Banks often lack external benchmarks or clarity on what best in class looks like. Modernization is perceived as a "mammoth task", encompassing extensive stakeholder management, lengthy conceptual design and testing phases, and a need for close coordination across business and IT units.

- **Budgets more focused on run the bank**
  Effective modernization typically requires more than low to middle double-digit € million investment programs and multi-year journeys. These need to encompass cross-functional set-ups and often multiple vendors from software providers to system integrators. Very few banks are achieving that level of commitment. Indeed, across all bank types, a significant portion of IT budget for payments continues to be allocated to "run-the-bank" operations. As a result, only a limited proportion is available for change-related initiatives. And an even smaller share is allocated to payments. On average, large banks dedicate just 9%, regional banks 4%, and mid-sized banks 9%.

EXHIBIT 4

Allocation of IT change budget to focus topic buckets[1] (in %)



Source: BCG analysis.
[1]Remaining share is invested in other topics.

Data Architecture and Use of Transaction Data Still Trailing

While payments data offers strategic and value-creation potential, most banks are still far from making the most of its possibilities. Fragmented architectures, regulatory constraints, and limited capabilities in data management are to blame:

- **Uncertain data architecture maturity**
  Most banks are neither positive nor negative on the maturity of their data architectures. But many still lack basic building blocks such as a centralized, (near) real-time accessible repository for customer and transaction data. Fragmented system landscapes and the coexistence of legacy and modern platforms prevent effective data integration. In addition, limited processing capabilities and insufficient automation in data governance create headwinds.

- **Limited use of transaction data beyond core operations**
  Banks use transaction data for activities such as sanctions screening, transaction monitoring, and increasingly for analysis of customer and spending insights. But beyond these applications, broader usage remains limited. There is significant untapped potential in areas such as personalization of product offerings, monetization of data, product development, and channel optimization.

- **Integration complexity due to fragmented system landscapes**
  A common challenge lies in consolidating data from fragmented environments, amid differing data formats, inconsistent protocols, and a lack of standardized interfaces. These, in turn, hinder real-time accessibility, interoperability, and use of advanced analytics.

- **Technical limitations in data processing and governance**
  Managing large volumes of data and ensuring real-time availability are seen as major challenges across the industry. Banks require more robust data processing capabilities and greater automation of data governance to support innovation and operational efficiency.

- **Regulatory constraints add complexity**
  Regulatory frameworks such as the EU's General Data Protection Regulation (GDPR) impose strict requirements on how transaction data can be processed, stored, and used—particularly when it comes to external sharing or commercial use.

- **AI remains underutilized**
  While AI offers significant opportunities - particularly in areas such as fraud detection, payment categorization, and personalized services - its practical use for payments data applications remains limited. This is largely due to the twin impacts of poor quality data and legacy system constraints. In addition, many organizations lack in-house capabilities in data analytics and AI.

Banks in Transition on Technology Foundations

Most banks continue to transition away from fragmented system landscapes. At the same time, many are adopting hybrid sourcing models, selective cloud adoption, and modern architecture principles. Here are a few key focus areas:

- **Centralization of payments platforms**
  Financial institutions are consolidating multiple payment engines into fewer, unified systems, aiming to reduce operational complexity, increase transparency, and streamline maintenance. However, on average, banks are only midway through the process, amid heavy legacy dependencies and regional processing needs. Many banks still operate separate systems for different payments tasks.

- **Hybrid sourcing models dominate modernization strategies**
  Most banks rely on a mix of commercial solutions and in-house technologies. Commercial solutions are widely used in the execution layer to meet compliance and performance needs, while orchestration layers - such as routing, monitoring, and exception handling – are often custom-built to preserve flexibility and control.

- **Selective cloud adoption based on domain requirements**
  While core payment processing is typically kept on-premise or in private cloud environments, banks are increasingly adopting cloud-native and SaaS-based solutions for specific domains. These include compliance applications or applications for reporting, integration, and monitoring—areas in which scalability, fast deployment cycles, and lower maintenance costs bring clear advantages.

- **Adoption of modern architecture principles**
  Despite challenges, many banks are making progress on transitioning to modern architectures. Here are a few of the most common focus areas:

  – **Core processing, including payment orchestration and execution, and account management**
    Modern setups use event-driven payment hubs for real-time routing, service level agreement (SLA) control, and in-line checks across schemes. Execution engines support 24/7 clearing and settlement via ISO 20022-native, modular cores. Account management is handled through cloud-native, API-based platforms, with centralized customer data and support for real-time KYC and consent management.

- **Integration and data platforms**
  Integration is increasingly API-first and event-driven, using technologies such as Kafka and containerized middleware for flexibility. Data platforms rely on cloud-based lakes or lakehouses with real-time ingestion.

- **Channels and external connectivity**
  Digital and multibank channels are often built on decoupled MACH architecture and standardized APIs, enabling omnichannel experiences and centralized access. Proprietary channels are increasingly API-based and ISO 20022-aligned, but many banks still rely on host-to-host links or proprietary setups. The shift towards connectivity-as-a-service is gaining traction, helping unify interfaces and reduce onboarding and integration complexity.

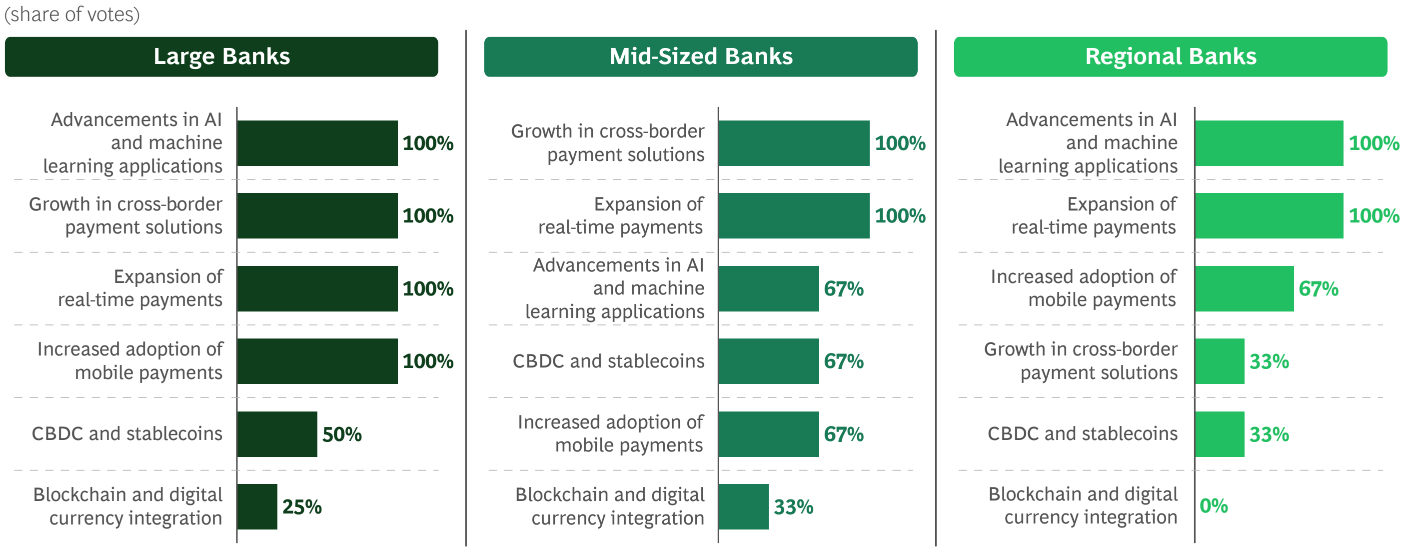
Strategic Initiatives and Next Steps

When asked about their priorities in the payments space, banks of all sizes highlight three key areas of activity: implementing advancements in AI and machine learning, growing cross-border payments, and real-time payments. Across all three, larger banks are generally ahead of their mid-sized and regional peers, our survey shows. In addition, fintech are seen as increasingly vital partners, particularly for mid-sized and large banks.

Among larger institutions, mobile payment adoption is a critical priority, with 100% of large banks saying it is a focus area, compared with 67% of mid-sized and regional banks respectively. Institutions in those groups remain more focused on foundational digital improvements and operational efficiency.

EXHIBIT 5

Evolutionary focus topics in payment technologies over 5 years



A Potential Path Forward: Five Key Levers for Payments Transformation

The message from our study is clear: To modernize effectively, banks need to become masters of multi-tasking, combining a clear architectural vision with pragmatic approaches to transformation, and seeing regulatory momentum as a strategic enabler rather than a constraint. Leading banks prioritize five key levers for change:

- **Plan and secure sustainable investment**
  Modernization at scale – particularly the renewal of core architecture and integration of new capabilities – requires a clear multi-year resource and financial commitment. Leading banks integrate payments investments into strategic planning cycles, link them to tangible business outcomes, and treat modernization as a recurring enabler of readiness and innovation.

- **Define a clear target architecture and modernization path**
  Legacy complexity can be combatted through definition of a clear target state. The first step is to conduct a thorough "stock take" of existing capabilities across channels, payment execution mechanisms, and account management. Banks must weigh in-house solutions against outsourcing and choose a modernization model that reflects their size and strategy. A future-proofed architecture should be modular, cloud-enabled, and API-first.

- **Tackle transformation as a cross-functional change journey**
  Successful modernization requires more than technology. It is also contingent on strategic alignment across businesses, payment operations, and IT. End-to-end product ownership involving all relevant functions will foster operational resilience. Leading banks often embrace a joint governance model to get to where they need to be and establish strong business-IT in steering the transformation.

- **Structure vendor and partner selection for long-term fit**
  The right external partners are critical for modernization success. Leading banks select both technology providers (SaaS/BPO) and integration partners based on clear criteria. A use case–driven evaluation is a good option for making choices. Non-functional factors such as technology fit, stability, and implementation reliability are just as important as business features.

- **Use regulation as a transformation driver**
  Rather than viewing regulatory compliance as a constraint, leading banks see it as a catalyst for modernization. Aligning regulatory initiatives with broader modernization and transformation goals can unlock strategic differentiation, accelerate innovation, and future-proof payments capabilities.

European banks are at a payments crossroads. While most leaders understand the criticality of modernization, the complexity and scale of the task often inhibits effective execution, our study shows. With budgets under pressure, a tipping point is approaching. Banking leaders must now either seize the moment and commit fully, or risk watching market share continue to flow toward more agile peers.

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