

Instant Payments: Insights from early adopters



Researched and written by

Lipis Advisors

TABLE OF CONTENTS

Executive summary.....	3
Introduction.....	4
Methodology.....	4
Two strategies and four approaches to implementation.....	5
Technical considerations for instant payments.....	5
Challenges when implementing instant payments.....	6
Understanding the cost structure of instant payment solutions.....	6
Modeling cumulative costs across project size.....	7
Three cost scenarios.....	7
Avoiding unexpected costs.....	9
Integration with legacy systems and time to market.....	9
Exceeding project timeline and budget.....	10
Scheme changes present a major hurdle.....	10
Conclusion.....	10

EXECUTIVE SUMMARY

BACKGROUND

The ability to offer instant payments has become a necessity for banks around the world to keep up with customer expectations and to set themselves up strategically for the future. As the development of instant payment infrastructures spreads around the world and existing systems mature, the number of banks connecting to these systems is growing rapidly. These smaller banks – and large banks in secondary markets – have different needs when it comes to choosing an instant payments solution that fits their budget, timescale, and maintenance needs. Banks of all sizes avoid costly and extended “rip-and-replace” approaches. Implementing a full-blown payments hub can easily cost many millions. This research focuses on considerations related to the cost and process of extending legacy systems to handle instant payments.

METHODOLOGY

We interviewed 15 executives from both large and small banks, as well as from technology providers and payment processors. We also examined 6 bank and processor case studies on budget and cost issues. Our findings are presented in this report, which illuminates the challenges and key lessons for institutions making the move to instant payments today.

KEY QUANTITATIVE INSIGHTS:

- System integration is a primary driver of implementation costs, not the volume of transactions
- Initial investment costs are typically split:
 - 40% on hardware and software licensing costs
 - 35% on system integration, configuration and customization
 - 25% for system testing
- On average, solutions providers charge an annual maintenance fee equaling 20% of the base price, covering software updates, license fees and minor system enhancements. As a result, maintenance accounts for over 50% of cumulative costs by year 5 in some scenarios. Hardware and implementation costs are largely year 1 costs and therefore decline when assessing costs over 5 years.

KEY QUALITATIVE INSIGHTS:

- Despite market pressures, creating a business case for implementing instant payment solutions presented a major challenge for many organizations.
- To manage costs, solutions need to be capable of scaling quickly as transaction volumes grow.
- Delays and overspends were widely attributed to the complexities of integration with legacy systems.
- Post-implementation scheme changes were reported as the largest driver of hidden costs and banks reported a lack of budget to deal with them.
- Future-proofing system configuration to enable the introduction of new products and services was viewed as essential.
- Small and medium-sized banks unanimously reported adopting modular, configurable solutions instead of custom development.
- A vendor's expertise with end-to-end instant payment processes and ability to support the organization were key considerations. Smaller banks with limited resources reported needing more support and assistance from their chosen partner.
- Larger, established solution providers typically charge higher licensing and maintenance fees than smaller competitors.
- The effects that instant payment solutions have on liquidity management, channel development and interfaces with back-office systems are often revealed only during project planning.

INTRODUCTION

Instant payments have already become the new normal for banking. The biggest driver comes from regulators, who see instant payments as helping meet goals such as operational stability, consumer protection, increased competition, and innovation. But instant payments are also driven by market demands. Consumers increasingly expect convenience, 24/7 availability, and money that moves as fast as email. Instant payments also benefit businesses by increasing the speed of commerce, providing new opportunities to pay suppliers and employees quickly, and helping to reduce some of the complexity of treasury management. Competition from non-bank payment providers offering instant payment solutions also spurs the move to instant payments.

As instant payment systems mature, access to instant payment infrastructures is expanding beyond large financial institutions in their home markets. While expanded access certainly presents opportunities to meet customer expectations and increase revenue for smaller banks and large banks in secondary markets, the implementation of instant payment functionality presents special challenges for these institutions. With smaller budgets and fewer IT resources than large banks, smaller banks require targeted, cost-effective solutions. The implementation and testing process also needs to minimize costs and realize the benefits of investment.

This paper explores how small and medium-sized banks approach the implementation of instant payments with practical insights from bankers and technology experts that have successfully made the move to instant payments. The outcome is an unprecedented view into the challenges that small and medium-sized banks can expect to face when developing instant payments and the approaches they use to overcome them.

Among the available approaches to implementing instant payment functionality, all banks and payment processors interviewed indicated that they sought targeted, modular solutions. Solution providers pointed out that this is true for nearly all of their clients. The targeted approach allows the integration of new, preconfigured applications that extend legacy systems by adding functionality without the high cost of full-scale solutions or custom development.

METHODOLOGY

As a groundbreaking investigation into the challenges and costs of instant payments for banks, Lipis Advisors relied on interviews, case studies, and desk research based on our experience of global projects.

EXECUTIVE INTERVIEWS

The research included 15 executive interviews conducted with senior representatives from both large and small banks, as well as from technology providers and payment processors. The bank representatives interviewed were deeply involved in projects to introduce instant payments, typically as head of payments, head of IT, or lead payments architect. Interviewees from solution providers were at the VP or SVP level, with many leading their companies' instant payment initiatives and regularly receiving input from senior-level bankers from around the world. Ten markets in various stages of instant payments implementation were covered in the interviews: **Austria, Brazil, Denmark, Germany, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.**

CASE STUDIES

We examined 6 case studies from banks that have made the move to instant payments. The case studies were compiled from our own experience with instant payment implementation projects. Projects were selected to highlight the approach at smaller banks and in secondary markets for large banks. The case studies include

- A review of the project budget
- Insight into the typical cost items and the budget ranges a similarly sized bank may encounter
- Project budgets were used to create models to illustrate the cumulative costs over 5 years
- These models were then verified with experts at both banks and solution providers to ensure their accuracy.

DESK RESEARCH

Lipis Advisors supplemented the interviews and case studies with desk research based on our extensive experience with instant payment systems, which includes data from twenty markets that currently have live instant payment infrastructures, as well as at least six other markets that are in the process of developing instant payment systems.

The outcome is the first analysis into the actual experiences, costs, and challenges encountered by a variety of organizations and individuals directly involved in the implementation of instant payment solutions.

TWO STRATEGIES AND FOUR APPROACHES TO IMPLEMENTATION

Interview subjects reported pursuing one of two strategies to implement instant payment capabilities.

- The first strategy involves upgrading existing legacy systems through a targeted approach that adds an instant payment module that works alongside legacy systems. This approach preserves the legacy architecture and enhances it through the addition of new functionality (e.g. instant payments).
- The second strategy is to pursue broader system modernization, which requires the consolidation of interfaces with legacy systems, or even their replacement, with a new central platform or payments hub. This can help to modernize the bank's IT infrastructure and prepare the bank for future digital banking expansion. While this strategy is more expensive in terms of time and resources, it does offer

the potential benefit of helping break down internal siloes that have built up as legacy systems have been extended and expanded over years or decades.

The strategy of modernizing the entire internal payment processing systems inevitably leads to a costly and extended "rip-and-replace" approach. Implementing a full-blown payments hub can easily cost many millions. Most banks choose a lighter approach to implementing instant payments and focus on extending legacy systems. Accordingly, we are focusing the remainder of this paper on considerations important to extending legacy systems.

- A bank can choose to implement an "off the shelf" solution (either a modular solution that helps extend legacy systems or a full-scale payment hub solution aimed at broader system modernization).
- It can build a custom solution from scratch.

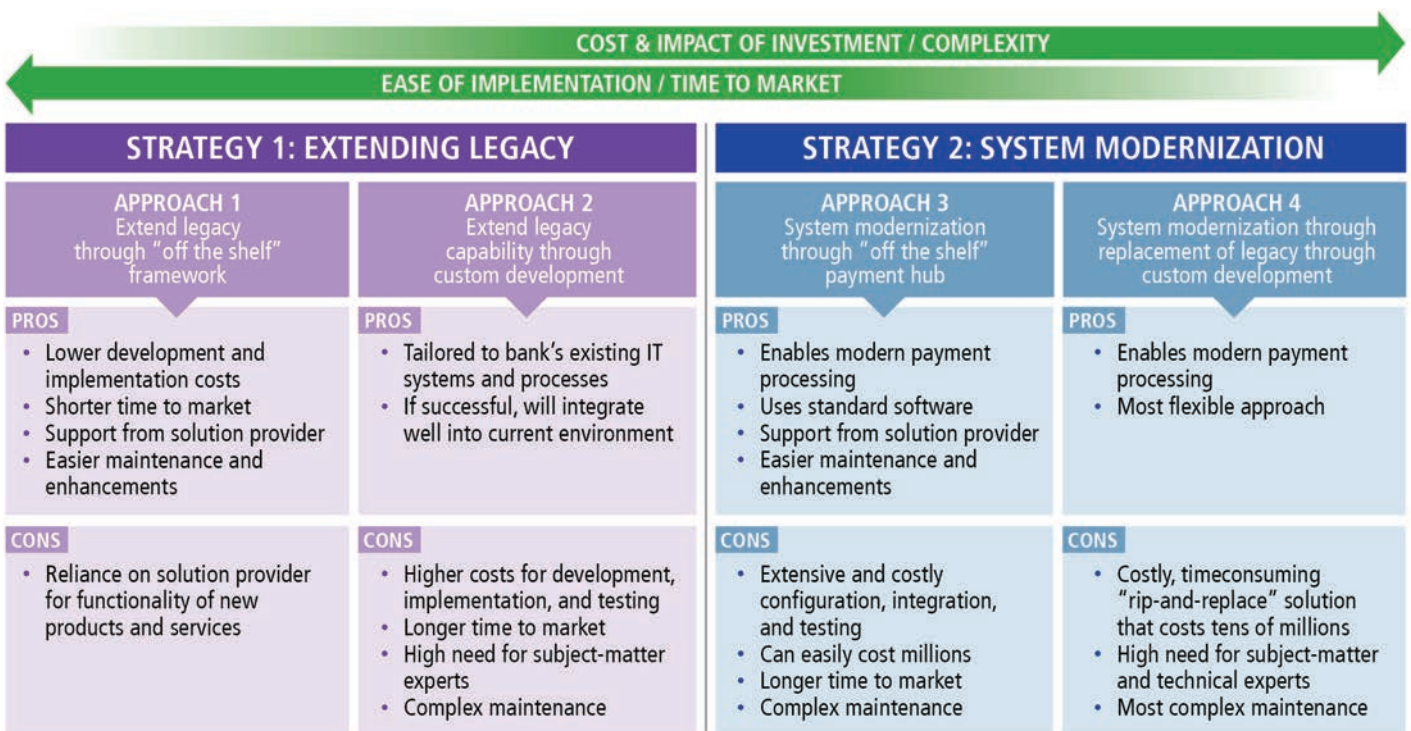


Figure 1 Implementation strategy continuum and approaches to instant payments

Source: Lipis Advisors

Decisions regarding which strategy to pursue, and how to implement the solution, are in part determined by the current state of the bank's IT systems as well as the bank's overall business goals and broader market context. An overview of the advantages and disadvantages of each solution can be found in Figure 1.

TECHNICAL CONSIDERATIONS FOR IMPLEMENTING INSTANT PAYMENTS

Most banks need to upgrade their IT capabilities to offer instant payments. The move to 24/7 processing entails a fundamental shift compared to legacy systems and processes, which tend to serve customers only during banking business hours.

This requires a bank to make a number of important changes, including:

- Enhancing internal IT systems to be able to operate on a 24/7/365 basis
- Developing processes to support all stakeholders around the clock
- Preparing back-end systems designed for batch-based files to ensure they support message-based payment processing. Systems affected include core banking, fraud prevention, and sanction screening systems
- Developing front-end applications and channels that utilize instant payments capability (e.g. online banking, mobile channels, P2P apps)

CHALLENGES WHEN IMPLEMENTING INSTANT PAYMENTS

Small and medium-sized banks unanimously report the adoption of a targeted instant payment solution as the preferred strategy. This approach allows the bank to integrate a module that contains pre-programmed functionality such as core banking extensions, templates, and scheme rules that add the instant payment capability alongside legacy systems. The chief aim is for this new functionality to work in harmony with legacy systems and require as little development as possible.

Despite taking a lean approach, small and medium-sized banks report a number of unique challenges when implementing solutions for instant payments:

- Sensitivity to up-front and maintenance costs because these unavoidable costs may consume a significant percentage of

available budgets

- Integrating vendor solutions with existing back office systems
- Need for quick time to market to accelerate return on investment
- Developing a business case in an environment where lower transaction volumes are expected and having the ability to quickly scale as transaction volumes grow
- Compliance with future scheme changes
- Maintaining flexibility to develop future products and services
- Scarcity of qualified experts, especially payments specialists
- Unexpected delays caused by external timelines, such as testing and onboarding processes defined by the scheme

These challenges are categorized in Figure 2 into three overlapping types: cost, effort, and time to market.

By categorizing these challenges by type, we observed that the majority are related to costs. So we investigated these costs more thoroughly.

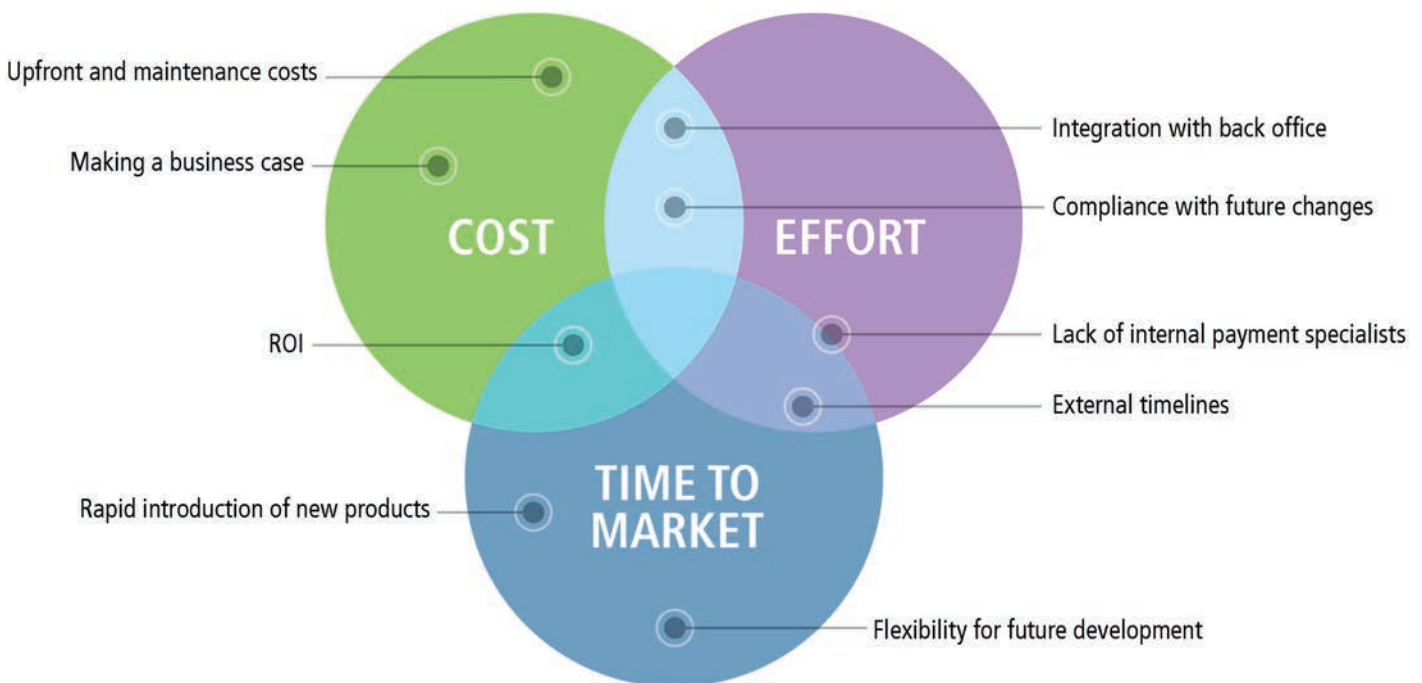


Figure 2 Challenges reported by smaller banks

UNDERSTANDING THE COST STRUCTURE OF INSTANT PAYMENT SOLUTIONS

With fewer resources to commit to instant payment projects, cost is one of the biggest issues faced by small and medium-sized banks. To understand the initial cost structure of immediate payment solutions, we reviewed 6 case studies and analyzed the cost structure including major categories of cost and their proportions. Four cost categories emerged as standard:

- **Hardware**, which includes all costs associated with acquiring the hardware to operate the solution
- **Licensing**, which includes costs paid to the vendor for an

initial license. Costs for software-as-a-service (SaaS) or per transaction fees are considered license fees.

- **Integration, configuration, and customization**, which includes the costs of taking a standard software product and aligning it with the functional and non-functional requirements
- **Maintenance fees**, includes all costs resulting from software updates and minor enhancements, including incremental software upgrades, scheme rule changes, configuration changes, and the like.

These case studies, combined with discussions with experts, allowed Lipis Advisors to determine the approximate percentage of project costs as displayed in Figure 3. For bespoke

development projects, costs shift from licensing to development.

In addition to the initial costs of bringing the system online, solutions require ongoing maintenance and enhancements.

- Banks indicated that they pay around 20% per annum in maintenance fees on the base price of their solution.
- For custom-developed solutions, an organization must budget for ongoing support using either their own IT resources or through external consultants.
- The cost of supporting a custom solution is unique to each organization and is difficult to estimate.

Using the generic example below, we can see that a solution's cumulative cost can double every 5 years, even without significant further development. In other words, software maintenance and minor enhancements can account for more than 50% of cost over the first five years.

MODELING COSTS ACROSS PROJECT SIZE

We developed the following cost models following 15 interviews and 6 studies (see page 8 for samples) with experts that have implemented solutions for instant payments. Budget items are consistent with the cost categories and definitions above on page 6. In addition, we have added initial testing costs, which increase as the solution becomes larger and more customized.

The main drivers of cost are:

- The size and complexity of the bank's legacy environment
- The license and maintenance terms
- The market position of the solution provider. Larger, more established providers with a stronger market position typically charge a higher licensing and maintenance fee than smaller providers.

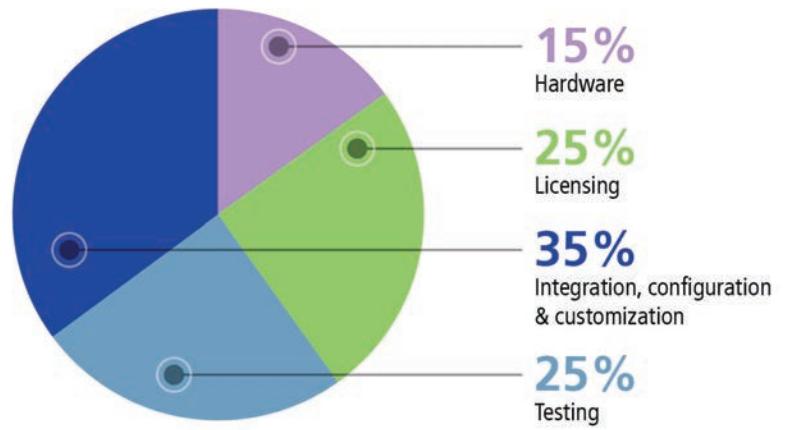


Figure 3 Cost of initial investment

Source: Lipis Advisors

THREE COST SCENARIOS

To illustrate the typical budgets for a range of implementations, we have modeled three scenarios and have not assumed any additional system enhancements during the first five years of system ownership.

All of these scenarios apply to small and medium-sized banks and large banks in secondary markets; large financial institutions in their major markets are outside the scope of this modeling exercise.

Based on these cost models as well as the interviews conducted, we can make several observations about the cost structure of instant payment solutions.

- Hardware fees are not a substantial cost in any of the solutions modelled.
- License fees and integration costs are a large percentage of cumulative cost in years 0 and 1, but their importance diminishes over time as maintenance costs gain prominence.
- Maintenance costs are a key driver of cost after the initial implementation period is completed. This is especially true in the medium and high scenarios, in which maintenance costs comprise up to 50% of cumulative costs by the end of year 5. New maintenance costs are accrued each year.
- The low scenario is most sensitive to license fees and integration costs, because these comprise the two largest costs in this scenario.

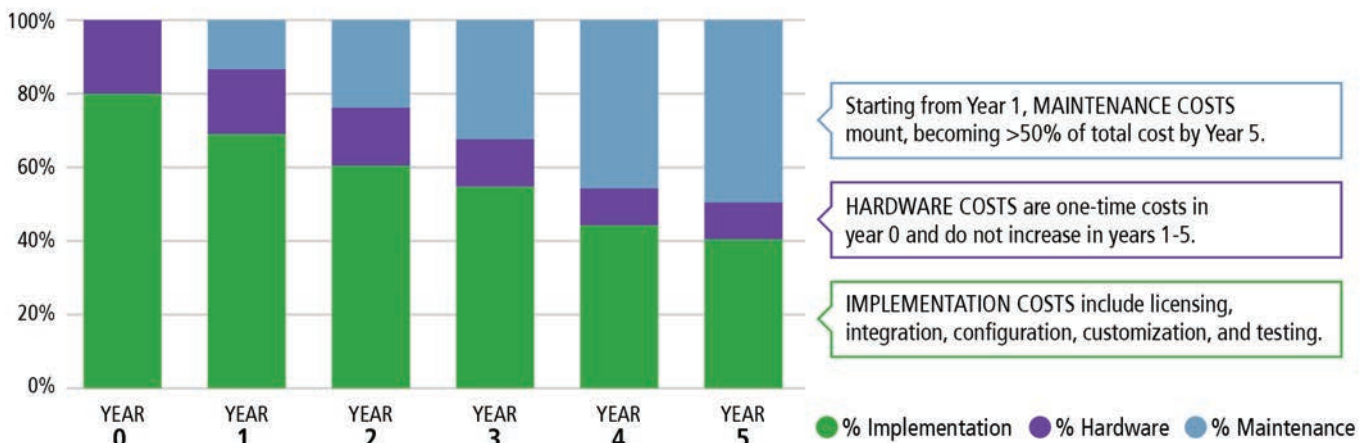


Figure 4 Percentage of cumulative cost by type of cost

Source: Lipis Advisors

CASE STUDY 1

WHAT:

Subsidiary of a large foreign bank

WHERE:

Singapore

APPROXIMATE 5-YEAR

CUMULATIVE COST:

Confidential

BRIEF DESCRIPTION:

- Complex legacy environment as a result of successive mergers required integration with multiple systems.
- The first solution could not meet instant payment service level agreements with the payment scheme. A second solution was required.
- The unexpected additional effort needed caused significant time and budget overruns.

CASE STUDY 2

WHAT:

Small, retail-focused bank

WHERE:

UK

APPROXIMATE 5-YEAR

CUMULATIVE COST:

1 million Euros

BRIEF DESCRIPTION:

- Estimated transaction volumes of <10 million per year.
- A small, retail-focused bank had insufficient resources to undertake bespoke system developments, so opted for an off-the-shelf solution.
- When choosing a solution provider, the bank emphasized their need for a partner who could work closely with them and offer a significant level of support to a smaller organization, as well as provide attractive financial terms.

CASE STUDY 3

WHAT:

Large domestic payment processor

WHERE:

EU

APPROXIMATE 5-YEAR

CUMULATIVE COST:

2.4 million Euros

BRIEF DESCRIPTION:

- Estimated volume is expected to grow rapidly into the tens of millions of transactions per year.
- This payment processor decided to extend its legacy system to accommodate instant payments.
- They chose to extend their existing relationship with a solution provider preferring familiarity and product knowledge. In-house expertise with the product will minimize implementation costs.
- Price was a secondary criterion.

COST	DESCRIPTION	HARDWARE	LICENSE	INTEGRATION	TESTING	MAINTENANCE
LOW	<ul style="list-style-type: none"> • Typical for small bank with standard IT environment • Low hardware investment • Integration only with industry-standard software 	€50,000	€80,000	€110,000	€80,000	20% of license per year
MEDIUM	<ul style="list-style-type: none"> • Typical for small bank with common legacy IT. Also for large banks in secondary markets. • More expensive hardware needed • Integration with multiple, heterogeneous systems 	€165,000	€275,000	€375,000	€250,000	20% of license per year
HIGH	<ul style="list-style-type: none"> • Typical of 2nd tier banks that need premium solution • Most costly hardware • Complex integration into legacy IT 	€350,000	€600,000	€850,000	€600,000	20% of license and integration per year
SURVEY RANGE		€50,000 - €350,000	€80,000 - €700,000	€150,000 - €1,500,000 for both		Average 20%

Figure 5 Assumptions in developing cost scenarios for instant payments solutions

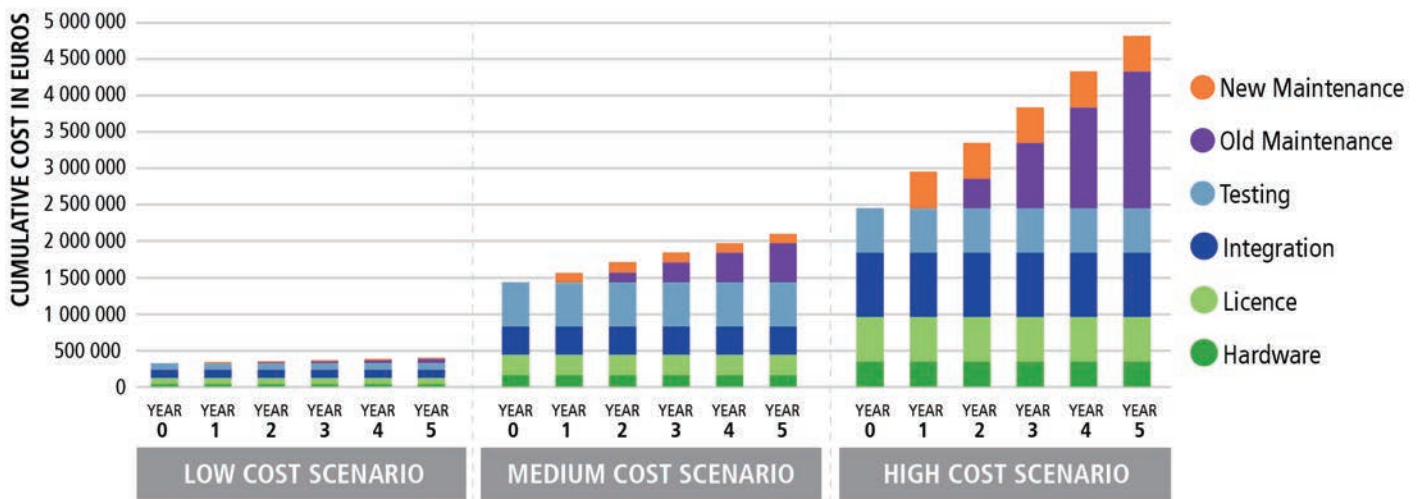


Figure 6 Three scenarios for cumulative cost of instant payment solutions
 Note: All costs except for maintenance costs are cumulative.

AVOIDING UNEXPECTED COSTS

Arriving at an accurate cost estimate requires a bank to have a good understanding of existing legacy systems, as well as a solution provider with an understanding of the end-to-end instant payments process. During the course of project planning, banks typically discover the effects instant payments can have on liquidity management practices, channel development, and interfaces with back-office systems. Interview subjects also reported that a number of costs only become clear during the planning process.

INTEGRATION WITH LEGACY SYSTEMS AND TIME TO MARKET

Banks often have multiple legacy systems working in concert to deliver key banking services. The complexity of these systems vary depending on the age and unique history of each bank, and several banks interviewed rely on configurable solutions to decrease implementation time by minimizing development time and therefore cost.

By using a standardized module, much of the implementation efforts are centered around configuration (instead of development) and testing.

Some solutions, especially those aimed at smaller organizations, provide tools and automated services that allow rapid integration and testing. These features were viewed as a major advantage.

A small UK bank stated that their choice to go with an off-the-shelf solution was driven by their own lack of IT resources, and the provider's offer to integrate with their current IT environment at a low cost.

"Smaller organizations cannot justify a major IT overhaul to support the volume of immediate payments expected. A framework approach makes the most sense."

Global IT sales executive

Interviewees also noted that the process of implementing, testing, and maintaining more comprehensive solutions (such as full-scale payment hubs) is time-consuming. Modular solutions allow smaller banks to be able to realize the benefits of instant payments faster because they can be tested more quickly to comply with scheme requirements and decrease the time to market.

When the Singapore subsidiary of a large foreign bank purchased another Singaporean bank in 2010, they needed to integrate the core banking systems of the two banks. The two systems remained separate and were not able to communicate directly.

During the subsequent project to connect to the Singaporean real-time payment system, FAST, a middleware layer was needed to interface between the FAST gateway and the various legacy systems. The bank discovered during testing that the older legacy platform became a bottleneck, slowing processing times to the point they could not meet the required service level agreements. This required additional integration efforts to find work arounds to improve the throughput of the older system.

These additional efforts resulted in significantly increased project costs due to the need for time, money, and resources devoted to supplemental development and testing.

EXCEEDING PROJECT TIMELINE AND BUDGET

Extended time to delivery emerged through the interviews as one of the primary drivers of additional cost. Medium-sized banks and local subsidiaries of global banks often have legacy core systems that operate on multiple platforms and languages.

Interviewees pointed out that most of the IT budget for instant payments development is spent on integrating with legacy systems, and this project outlay is most likely to run over budget.

"A flexible licensed solution helps me compete with larger banks that have more significant IT resources"

Small bank executive

A key factor in choosing a vendor: "How much is the vendor going to support us during the entire scoping to delivery process?"

Executive at UK challenger bank

"The real resource need is testing. Any complex development requires resource-intensive and costly testing."

Executive at a large UK bank

SCHEME CHANGES PRESENT A MAJOR HURDLE

Another reported source of unforeseen costs comes from scheme changes after instant payments have been implemented. A regional head of payment products at a large UK bank pointed out that banks often lack adequate budgets to deal with these

changes. Since development and testing of new functionality represents a high cost in terms of time and resources, banks of all sizes cited the importance of ensuring that instant payment solutions are flexible enough to meet future needs through configuration instead of costly custom development. Solution providers commonly include support for scheme changes in the maintenance contract, but it is vital that compliance with future scheme changes does not require a lengthy integration process.

Interviewees also cited the risks implied by extensive customization. They noted the risk associated with custom builds especially when it comes to regulators and auditors. Moreover, they may require manual intervention to incorporate scheme changes. The added cost and potential risk of such solutions lead many banks to opt for configurable, modular solutions instead.

"Scheme changes happen each year. We chose to buy a solution from a reliable vendor to ensure they keep their product up to date and we do not have the expense and risk of further development."

Head of IT at a mid-sized Brazilian bank

"A bank cannot differentiate itself through its back-end payments solution. There is no competitive advantage to a custom built gateway, ledger or compliance software."

– Head of IT at a mid-sized Brazilian bank

CONCLUSION

Instant payments represent a major challenge for all banks but are particularly demanding for smaller banks with limited budgets and internal expertise. Creating a business case presented a challenge for many organizations, especially since the volume of transactions drives the revenue but the complexity of the implementation effort drives the cost. Moreover, software updates, license fees and minor system enhancements were found to account for over 50% of total cumulative costs by year 5 in some scenarios. Delays and overspends were widely attributed to integration with legacy systems and post-implementation scheme changes were reported as the largest driver of hidden costs.

To manage these costs and avoid surprises, many small and medium-sized banks choose configurable, flexible solutions capable of scaling quickly as transaction volumes grow and products mature. Implementing "off the shelf," modular solutions that provide targeted immediate payment capabilities is advantageous. This approach enabled these banks to optimize existing IT resources, protect legacy investment, lower cost, remain compliant with scheme changes, develop future products, and compete with larger banks and non-bank payment providers. As instant payments become a reality in markets around the world, many banks without large volumes need to pursue a targeted approach that helps meet regulatory demands and customer expectations without completely overhauling the bank's technology.



ABOUT ICON SOLUTIONS

Icon provides cutting edge IT payment consultancy and technology solutions within the financial services sector. They work closely with clients to bridge the gap between 21st Century technologies and legacy platforms. Icon's expertise in the field of instant payments and API banking underpins their Global Payments Practice.

Clients include leading international institutions such as HSBC, Lloyds Banking Group, Citigroup and Banco Sabadell. Please visit www.iconsolutions.com for more information.



ABOUT LIPIS ADVISORS

Lipis Advisors is a leading strategy consultancy specializing in the payment sector. Lipis Advisors staff are experts on payment systems, services, and strategy, as well as the underlying technologies that support payment infrastructures. Lipis Advisors advises on all forms of payments, including ACH payments, real-time payments, card payments, cheques, mobile payments, online payments, and RTGS/wire payments. To learn more about Lipis Advisors, please visit www.lipisadvisors.com

AUTHORS

Leo Lipis is chief executive and founder of Lipis Advisors.

Nathaniel Scheer is a managing consultant for Lipis Advisors.