



USING LOW CODE TO ACCELERATE PAYMENTS INNOVATION

Unlocking Greater Agility
and Flexibility

CELENT

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Unlocking greater agility and flexibility



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This report was commissioned by Icon Solutions, at whose request Celent developed this research. The analysis, conclusions, and opinions are Celent's alone. Icon Solutions had no editorial control over the report contents.

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EXECUTIVE SUMMARY

Low code is not a new concept, but it is emerging as a very important topic in the banking industry. The need for payments modernisation and product enhancements is well understood, but capacity limitations in the technology function can frequently mean that improvements are de-scoped, cancelled, or don't even make the roadmap. Alongside this, buying off-the-shelf is not often attractive to large banks. In response to these challenges, interest is growing in low code tooling and techniques to deliver greater agility and cross-functional collaboration, while still retaining control of the process. Several banks are already making use of low code in some areas within non-card payments, and momentum is building for wider adoption.

IS THERE AN OPPORTUNITY FOR LOW CODE IN PAYMENTS?

More so than ever before, banks face challenges in recruiting and retaining the best software engineering talent. Yet it is becoming increasingly important that they can move with agility in response to changing market needs and opportunities. Finding a way to square this circle is therefore essential.

While the impact of low code tooling and platforms has been largely restricted to enterprise applications or workflow improvement projects, several banks are exploring the opportunities to bring this into payment processing.

The potential is certainly clear. For large banks with a preference for internal development in areas like payments, this can become a particularly important way to work around resource limitations and gaps in the necessary collaboration between product and technology groups.

To explore this issue in more detail, Celent has conducted a significant program of primary research among Tier 1 banks in Europe and North America. Through June and July 2023, we surveyed 74 senior executives from banks across these regions to understand how each views the potential opportunities for low code, and to understand the pinch points and frictions in the development of their payment applications.

DEFINING LOW CODE

Low code tools and application platforms commonly provide a visual, sometimes “drag and drop”, interface to enable software development without the need for significant amounts of manual coding.

In practice this typically takes the form of an abstraction layer in which standardised and prebuilt blocks or components can be brought together to create new code or make changes to existing software.

One of the main benefits is an increase in developer efficiency, as software can be produced and changed more quickly than through traditional approaches. The other advantage is that non-technical employees with a sufficiently deep knowledge of the required business functionality can use low code tooling to play a direct role in generating executable code.

THE PAYMENTS MODERNISATION CHALLENGE

Making money from payment processing has always relied on volume offsetting relatively slim margins, but the economics of this area has become consistently challenging in the face of regulatory changes and competitive pressure.

This is a theme explored in Celent's Low Code in Payment Processing survey, in which 61% of Tier 1 banks in Europe and North America say that their margins are becoming more challenging to maintain. This is despite historically high interest rates across both regions, and only serves to highlight the stress on the current model. Indeed, despite expectations that interest rates will remain high into 2024, it's notable that 55% expect margins to be more challenging next year.

The combination of pressures facing the payments industry creates a problem. Talk to anyone in the payment product or strategy groups at a large bank and they're more than aware of the importance of improving their services to support higher retention rates and revenues. However, this is far from straightforward in practice and more urgent priorities (such as regulatory compliance) take precedence, in turn consuming the resources that could be deployed to support product enhancements.

THE OPPORTUNITY COST OF DEVELOPER CAPACITY AND TECHNOLOGY LIMITATIONS

Developer capacity constraints are an important factor that limits the ability of many banks to deliver product improvements.

OPPORTUNITY COST

On average over the last two years, a Tier 1 bank in Europe and/or North America has missed out on 3.75 opportunities to bring potentially revenue-generating enhancements to their payment proposition

This is demonstrated by the views of our panel of senior executives. Overall, 45% report developer constraints as one of the three factors inhibiting innovation at their institution. Almost equally important are limitations in the bank's current technology stack. This was highlighted as a barrier to innovation by 45% of banks and is the biggest factor as far as technology teams are concerned.

What impact does this have on the business? Among the Tier 1 banks we surveyed, 66% of those in product-facing roles said that developer resource limitations prevented potential enhancements from being added to their technology roadmap. The same proportion reported that they'd seen approved projects cancelled due to developer constraints. In total, the product teams at 89% of Tier 1 banks reported experiencing at least one of these two outcomes in the past two years, in turn meaning that their institution had missed out on potentially revenue-generating enhancements.

Based on our survey, on average a Tier 1 bank in Europe and/or North America has missed out on 3.75 opportunities to bring potentially revenue-generating enhancements to their payment proposition over the past two years. The natural question this leads to is “how much does this cost banks?”. While it’s impossible to quantify the scale of potential revenue loss caused by missed product enhancement opportunities (not all deliver their expected benefits, after all), it’s nevertheless interesting to understand the sentiment in the industry.

5.3%

On average, banks believe the product enhancements they could not deliver in the past two years due to resource constraints would have supported a 5.3% growth in payments revenues

Our panel of senior executives were asked to indicate what impact these missed opportunities have on their payment revenues. Respondents were most likely to suggest that the opportunity cost caused by developer resource constraints was 6-9% of their annual revenues from payments. Factoring in the responses from the rest of the panel, the average figure comes to 5.3%.

While this figure is likely to be an overstatement of the actual, if the figure of 5.3% is even close to being accurate, these resource challenges mean banks are leaving a considerable amount of revenue on the table. This ultimately about winning and retaining client business of course. Unless you are processing payments for a customer, the opportunities to generate interest income from account balances disappear.

THE OPPORTUNITY FOR LOW CODE IN PAYMENTS

The way that banks approach software development has evolved over time. A historic preference for entirely proprietary applications has given way to a hybrid model involving externally sourced components and services.

While this is the case, most Tier 1 banks continue to prioritise internal development for sensitive areas of their payment processing software. When asked about the starting point for a significant new technology project, 53% of Tier 1 banks would look to develop this themselves, while only 8% report that the first thing they would do is to look for off-the-shelf options.

But what lies behind this preference for internal development? At a high level at least, there are three themes:

- **Maintaining control** over what is a strategically important part of the corporate banking product offering.
- Retaining the ability to deliver **competitive differentiation**.
- The **lack of credible options available off-the-shelf**. Around 72% of banks believe it is more effective to develop in-house than to integrate a vendor application.

The need to balance these priorities has begun to drive interest in low code tools and techniques in the payment space. Among Tier 1 banks in Europe and North America, 36% report that they are currently using low code to support software development to some degree in non-card payments, while the same proportion are currently experimenting or evaluating their options.

EXAMPLES OF THE ADOPTION OF LOW CODE IN PAYMENTS

THREE WAYS LOW CODE IS USED TODAY

1. Market entry

Accelerating the process of making changes to a payment engine to support offering services in a new market.

2. Product customisation

Creating the capabilities for business users to configure customer-specific preferences and offerings.

3. Payments modernisation

Using standardized components in a common framework to accelerate the development of greenfield payment applications.

As with any technology in the early stages of adoption, there are differences in the way banks see both low code and its opportunities. Based on recent conversations with Celent clients and other contacts in the industry, some important themes are emerging.

The number of proof points and use cases under consideration is building. Underpinning this is a broad agreement that the benefits of low code are both real and realizable. The potential to reduce the developer time needed to make relatively straightforward software changes is an obvious use case, with a clear return on investment from creating the necessary interface/s. Accordingly, low code is something that several banks are either using today or are planning to enable.

Extending this into other areas, particularly where non-technical employees can become involved in the process, is another important step. Others are already more advanced in their thinking and looking at ways to apply these ways of working to support longer term payment modernisation initiatives.

ALL BANKS SHOULD EVALUATE THEIR LOW CODE OPPORTUNITIES

Several Tier 1 banks in Europe and North America report they are either working with low code tooling and techniques or report that they are planning to implement this in 2023/24. In this context, any large bank that has not already begun to explore this issue should take the time to evaluate the potential gains.

It may be that the opportunities are seen as too narrow, or that the engineering investment needed to build the necessary abstraction layer/s may be too great. The examples highlighted above suggest otherwise but giving due consideration to the opportunities is essential given the momentum in this area.

Banks should also consider whether the growth in adoption of low code is an opportunity to re-think their broader approach to software development. With Agile now broadly commonplace across the industry, low code tools and frameworks offer ways to further accelerate the pace of payments modernisation. Practitioners making use of these tools certainly report positive outcomes in terms of delivery as well as TCO and control.

In banks that plan to embrace low code, there will be a shift in the profile of the employee needed in the technology function. If the ability to code in the traditional sense becomes slightly less important, it will be replaced by the need for a greater understanding of the business process and customer need. This will require a shift in the training and hiring model for a bank, as well as new thinking about how to best drive effective collaboration across the organisation.

INTRODUCTION

Payment processing is the very definition of a mission-critical activity, but typically falls behind other areas when it comes to product innovation. A preference for developing payments software in-house can leave product teams exposed to capacity issues in the technology function. On the other side of the equation, buying an off-the-shelf solution can bring its own limitations and challenges. In response, several banks are actively exploring low code tools and techniques as a potential solution. Enabling product specialists to play a bigger role in the development process can support more — and more rapid — product changes and enhancements while still enabling the bank to retain control of the process.

WHAT DO WE MEAN BY LOW CODE?

While the concept of low code is relatively new when it comes to payments, it is well understood in other areas of software development.

In simple terms, low code tools and application platforms commonly provide a visual, almost “drag and drop” interface, to enable software development without the need for manual coding. In other words, low code platforms or frameworks act as an abstraction layer in which standardized and prebuilt blocks or components can be brought together to create new code, or to make changes to existing software. The most important aspect is that this is achieved without the need for traditional computer programming. Key to these approaches is the ability to use, or re-use, standardized workflows or components, which can be combined or configured in new ways to deliver new value for the organisation.

DEFINING LOW CODE

A development methodology that leverages standardised and prebuilt “blocks” of code, which enable developers and some business users to develop, integrate, and make rapid changes to applications.

Low code tools emerged to address a common problem facing many large organisations: the demand for new applications and software changes is growing faster than the supply of skilled developers that can be hired to deliver against these needs. Low code approaches can be used in two ways to address some of these challenges.

The first is that the efficiency of an existing team can be increased. A given pool of software developers can make changes and deliver new code far more quickly than through traditional approaches. Crucially, this can be done without necessarily having experience in multiple coding languages. This accelerates the pace of development while also freeing capacity for other priorities.

Secondly, and perhaps more transformational is that non-technical staff can more directly contribute to the development process. Modern low code platforms are designed to enable employees without the technical skills to code, but with a sufficiently deep knowledge of the required business functionality, to use this tooling to play a direct role in generating executable code. In turn, this can support or accelerate the process of collaboration to move beyond current Agile/scrum approaches and help to bring the best possible outcome for the business.

It's worth noting that low code is distinct from ‘no code’ interfaces. While the differences can blur at the edges, low code typically requires some technical understanding and is therefore more applicable for highly complex applications and product areas. No code is generally used to enable non-technical staff to make relatively simple changes and is more commonly used in areas such as marketing automation.

Is there an opportunity for low code in payments?

While the impact of low code tooling and platforms has been largely restricted to enterprise applications or workflow improvement projects, some large banks are now exploring the opportunities to bring this into payment processing.

More so than ever before, banks face challenges in recruiting and retaining the best software engineering talent. Yet it is becoming increasingly important that they can move with agility in response to changing market needs and opportunities. Finding a way to square this circle is therefore imperative.

The potential for low code to bring value is certainly clear. For large banks with a bias toward internally developed applications, this can become a particularly important way to work around resource limitations and gaps in the necessary collaboration between product and technology groups.

CELENT'S LOW CODE IN PAYMENT PROCESSING SURVEY

To explore this issue in more detail, Celent has conducted a significant program of primary research among Tier 1 banks in Europe and North America. Through June and July, we surveyed 74 senior executives from banks across these regions to understand how each views the potential opportunities for low code, and to identify the pinch points and frictions in the development of their payment applications.

Central to this research is capturing the perspectives of the two stakeholder groups involved in any large internal development project. Each has a different set of priorities and needs with respect to any large development project, and so we have captured a separate sample from each:

- **Executives with a focus on payment products.** These individuals are close to the bank's end customer and therefore play a leading role in shaping overall project requirements. We surveyed 38 individuals with direct responsibility for and/or oversight into the product strategy around non-card payments at their institution. This group was asked a range of questions about topics including their investment priorities for 2023-24, customer needs, and their perspectives on low code.
- **Executives with a focus on technology.** These people typically lead or manage the development process for internal software development projects. Here we looked to capture the views of those with direct responsibility or oversight for the technology platform supporting payment processing at their institution. We surveyed 36 individuals in this segment of the research and asked the group a range of questions relating to the strategy of their organisation toward low-code, alignment with the product teams around payment innovation, resourcing challenges, and the cultural perspectives in their bank towards internal software development.

More detail on the sample and approach can be found in the Appendix.

THE PAYMENTS MODERNISATION CHALLENGE

Payments are an essential component of the banking offering, but are a product area under strain. Revenues are being squeezed by competitive challenges, while there is cost pressure from keeping pace with growing customer expectations and regulatory changes. Delivering on these priorities consumes the limited resources available for product enhancements, which in turn means that many banks miss opportunities to deliver revenue-generating improvements and product innovation.

PAYMENTS IS A BUSINESS LINE UNDER PRESSURE

Payments are an essential component of the banking offering, and ultimately underpin a large proportion of the corporate/commercial banking revenue base for the industry. Yet this is an area under strain.

At the high level, the issue is one of margin pressure. Making money from payment processing has always relied on volume offsetting relatively slim margins, but the economics of this area has become consistently challenging in the face of regulatory and competitive pressure.

This is a theme explored in Celent's Low Code in Payment Processing survey, in which 61% of Tier 1 banks in Europe and North America say that their margins are becoming challenging to maintain. While this is lower than the 82% reporting this as a challenge a year ago, the background is considerably more favourable. Historically high interest rates have been a considerable revenue boost for many banks, and the fact that three in five banks continue to face challenges only serves to highlight the degree of stress on the current model.

Indeed, despite expectations that interest rates will remain high into 2024, it's notable that 55% see that margins will become more challenging next year.

In the 2022 Celent report *The Payments Processing Opportunity for Banks*¹, we highlighted the four factors responsible for much of this situation. While there has been some change in each of these areas in the past year, they remain the most common issues that continue to place revenues and margins under stress.

Exhibit 1: Payment revenues and margins are under pressure from four fronts

Competitive pressures

New entrants, often targeting higher margin product areas, are putting stress on renewals and pricing in some areas

Customer expectations

Customers continue to push for product and service enhancements, making product investments a necessary part of the renewal cycle



Regulatory and scheme changes

Maintaining compliance and keeping pace with scheme changes requires investment to simply stand still

Internal perceptions

Payments are often seen as a cost centre within the bank, which reduces the scope for making the case for further investment

Source: Celent

¹ Celent. *The Payments Processing Opportunity for Banks: Moving Account-Based Payments from Cost Centre to Revenue Stream*, October 2022

Competitive pressures remain a challenge

While large parts of the payment processing business are relatively low margin, there are several areas of the product set and wider corporate banking relationship that remain comparatively lucrative. Incumbent banks face competitive threats across these parts of the value chain from smaller banks and fintechs looking to target higher margin business flows such as FX, financing, and cross-border payments.

As a result, the competitive threat faced by many large institutions is growing. Across Europe and North America, 71% of Tier 1 banks say that it is more difficult to win and/or retain customers than a year ago. This rises to 75% among banks in North America and was cited by all the banks we surveyed in Canada, Germany, and Spain.

Customer needs and expectations continue to increase

A further complication is that customer expectations have continued to grow. This in turn this creates an ongoing need for product innovation and enhancement simply to stand still in the market. Celent's 2021 report *Expectation Versus Reality for Payments Data Monetisation*² highlighted several examples of service improvements that large corporate clients are potentially prepared to change bank partners to access.

As a result, renewal discussions have become increasingly difficult for some banks, with the need to commit to product/service improvements now a hygiene factor for some of these conversations. Downward pressure on pricing is also a common challenge, as payments are widely seen as a commodity product. This leaves little room for fee growth in these conversations.

Investment is needed to keep pace with regulatory and scheme changes

Considerable investment is needed each year to meet changing regulatory and payment scheme requirements. While these changes, such as ISO 20022 migration or DORA for example, are undoubtedly important to the continued enhancement and functioning of the ecosystem, this does remove the opportunity for banks to invest in activities that can drive product enhancement and differentiation.

This isn't always a zero-sum game though. ISO migration is an excellent example of the way that banks can take advantage of a scheme change to bring about commercial benefits. However, keeping pace with mandatory changes does undoubtedly consume time and resources that could be applied elsewhere.

As a Payments Leader at a Top Tier bank in North America put it: *"You always have industry or regulatory changes like ISO to deliver, but there are also new things we want to do to create a better client experience and differentiate. It's always a balancing act"*.

² Celent. *Expectation Versus Reality for Payments Data Monetisation: Identifying the Data Led Services Corporates Want*, June 2021

You always have industry or regulatory changes like ISO to deliver, but there are also new things we want to do to create a better client experience and differentiate. It's always a balancing act.

Payments Leader at a Tier 1 bank in North America

Internal perceptions remain challenging

Despite the importance of payments to the corporate banking offering, payment processing is still seen as a cost centre in most banks. On average 66% of banks reported that this is the view in their organisation; a level that is roughly even between Europe and North America. This partly reflects the continuous need for regulatory-driven investment as well as the reality that payments are sold as part of a wider banking service offering. The effect is to make it more difficult to position business cases for enhancements.

It's interesting to see that the response to this question has changed quite considerably in a year. Back in 2022, 84% of Tier 1 banks in Europe and North America held this view, which points to a clear shift in perceptions. While this is likely to be driven by a combination of factors, ISO migration and the potential this offers to support payments data-led service enhancements for corporate clients is no doubt an important element.

PRODUCT ENHANCEMENTS TYPICALLY FALL BEHIND OTHER PRIORITIES

The combination of pressures facing the payments industry creates a problem. Talk to anyone in the payment product or strategy groups at a large bank and they are very clear about the areas they would like to invest in. They're more than aware of the importance of improving their services to support higher retention rates and revenues. However, this is far from straightforward in practice and more urgent priorities (such as regulatory compliance) take precedence.

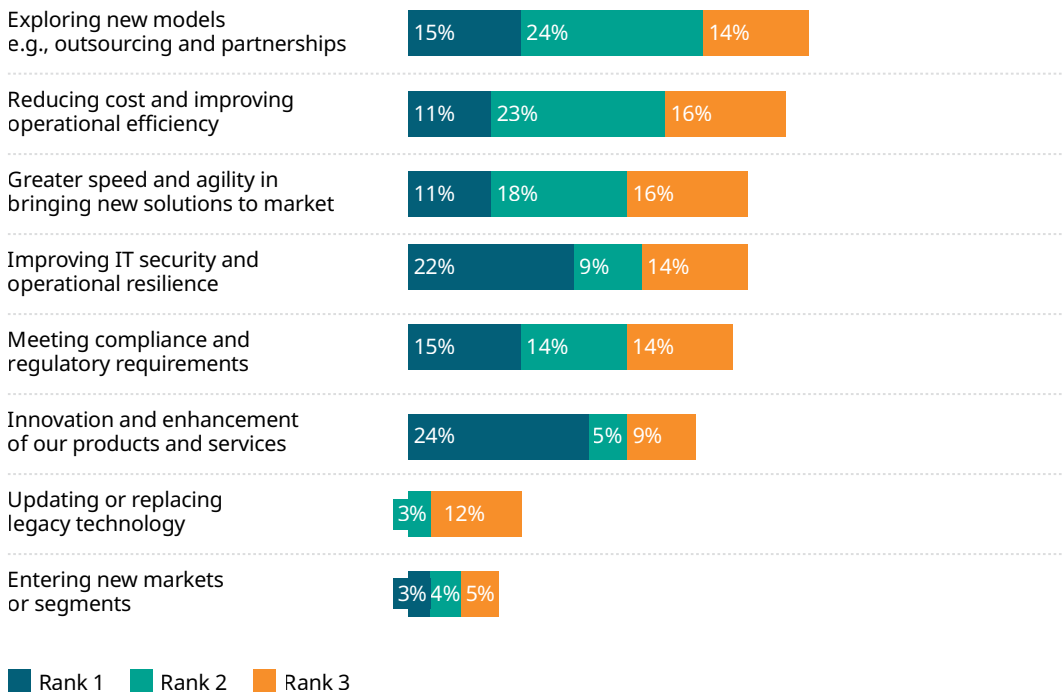
This tension can be clearly seen in exhibit 2, which highlights the most important technology investment priorities for non-card payments in Europe and North America.

Some interesting themes emerge from this. Perhaps the most surprising is that exploring new operating models, including outsourcing and partnerships, was cited by 53% as one of their three priorities for the year. This topic has gained momentum over the past 12 months, and many banks are looking to grow revenues and better support customers through a range of partnership activities, including BaaS models, and finding other ways of distributing bank products or data.

Exhibit 2: Exploring new models and operational efficiency are the leading investment priorities for the industry

Question: "What are the priorities driving your technology-related projects for non-card payments this year?"

Top three responses



Source: Celent Low Code in Payment Processing Survey 2023

Despite the focus some are placing on these new models, the emphasis on internal projects and operational improvements is inescapable. Across Europe and North America, 50% of Tier 1 banks see reducing costs and improving efficiency as an investment focus this year, including 11% that see this as their single most urgent priority. At the same time, 45% of banks are investing to bring greater agility into their operations, particularly to allow them to respond to new market opportunities more quickly.

39%
of large banks see payment product innovation as a top three priority in the coming year. These banks are twice as likely than the rest of the market to report the average age of their payment applications to be 10 years or less

While investments in agility will often support future product enhancements, the proportion of banks focusing directly on innovation this year is smaller. Overall, 39% see this as a top three priority area for 2023. It's likely that this will include those institutions planning to raise the bar by taking advantage of industry changes such as ISO migration.

It's notable that the institutions prioritising innovation also report that the average age of the software running their payment processing is lower than the rest of the industry. As such, these banks look to be reaping the benefits of past investments made in their payment infrastructure.

Among those banks focusing on product innovation, 50% report that the average age of the applications running their processing is 10 years or less, compared to 25% for the rest of the industry. This difference neatly demonstrates the benefits to banks from investing in their payment infrastructure, as well as the risks to those moving more slowly of being left behind.

In all the cases highlighted above, investments in cloud technologies will underpin much of this activity. Indeed, Celent's 2023 Technology Insight and Strategy Survey³ found that 61% of banks plan to move more of their business-critical workloads to the public cloud in the coming 18 months. This is a slightly broader view than payments alone, but nevertheless highlights the growing emphasis on public cloud technologies for even sensitive applications.

DEVELOPER CAPACITY AND TECHNOLOGY LIMITATIONS ARE COMMON BARRIERS TO PRODUCT INNOVATION

Given the margin pressures faced by the industry, it makes sense to further explore the reasons why product innovation ends up being a relatively low priority for so many banks.

Our panel of senior executives is certainly clear in its opinions. The biggest barrier to product innovation is a shortage of developer capacity. Overall, 45% of banks report this as one of the three factors inhibiting innovation at their institution. While there is a large difference between those in product teams (67% of whom see this as a challenge) and technology (31%) this is nevertheless a major obstacle. It's worth noting that this is as much about recruitment and retention of staff in the technology function as about overall planned capacity. Despite the benefits of working in the sector, banking can be seen as less attractive a sector to work in than some others, which adds to the challenges facing the industry.

Almost equally important are limitations in the bank's current technology stack. This was highlighted as a barrier to innovation by 45% of banks and is the biggest factor as far as technology teams are concerned. Among this group, 67% cited this as a factor compared to 53% among product teams.

45%

of banks see a shortage of developer capacity as a barrier to product innovation. This includes 67% of those in product or strategy teams.

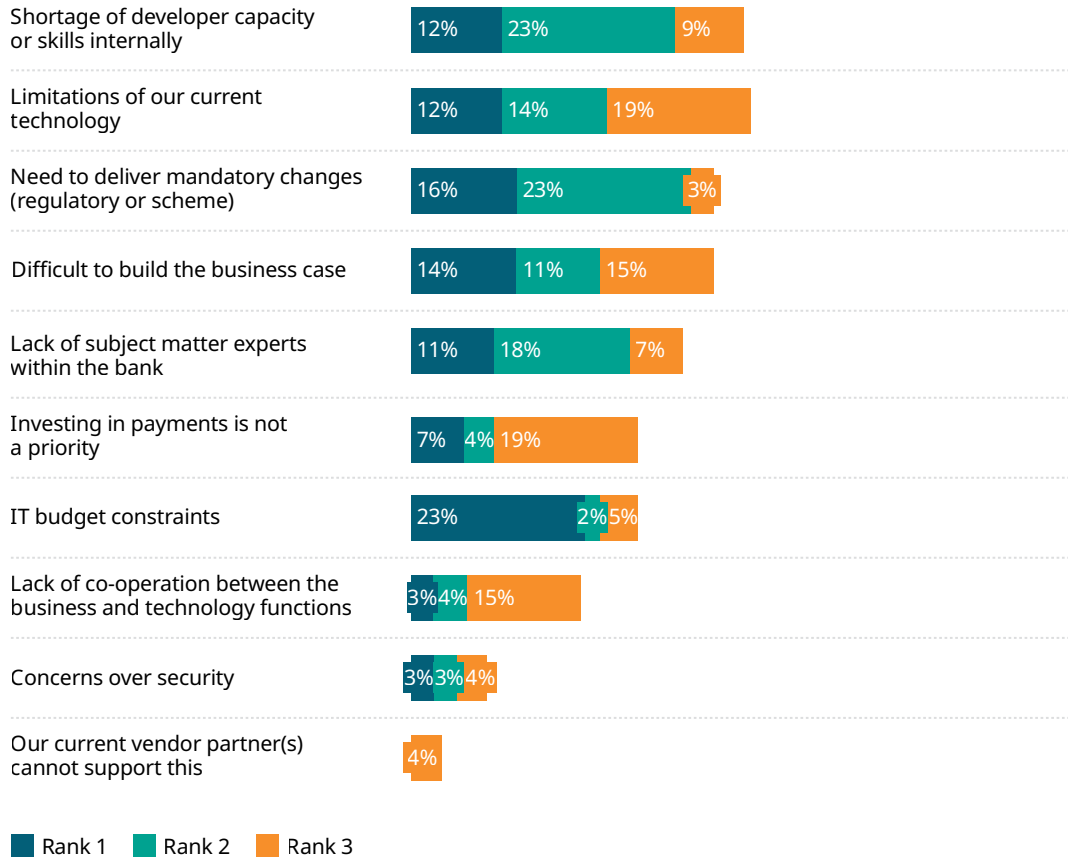
These are not the only two factors at play. Budget constraints are the single biggest barrier to product development for 23% of the market, which aligns closely with the broader theme around resource limitations. As discussed earlier, the need to prioritise mandatory changes and projects is also an important brake on the ability to innovate. This was highlighted by 42% of Tier 1 banks in Europe and North America, including 16% who see it as the single biggest issue.

³ Celent. *Corporate Banking Global IT Priorities and Strategy in 2023: Customer First Strategies to Survive and Thrive*, July 2023

Exhibit 3: A lack of developer capacity and technology limitations are the two biggest inhibitors to product innovation in payments

Question: "Which of the following are the biggest barriers to you doing more in terms of product innovation and enhancement around non-card payments?"

Top three responses



Source: Celent Low Code in Payment Processing Survey 2023

THE NEED TO MAINTAIN CONTROL ALSO LIMITS THE ABILITY OF MANY BANKS TO INNOVATE

Control is another important factor to consider when we look at the challenges to product enhancement. One of the reasons that capacity limitations and technology constraints are such an important issue is that many top tier banks have either directly developed, or used internal resources to adapt and develop around, a large proportion of the applications that drive their payment processing activities.

One important implication of all this is that making changes, such as to support product enhancements, can be a complicated and developer-intensive process. In turn this helps reinforce the challenges over resource limitations.

THE OPPORTUNITY COST OF RESOURCE LIMITATIONS

Ask any senior executive involved with payments at a large bank about product improvements, and they could give a long list of the enhancements they would like to deliver. Equally, those same executives will be able to point to past business cases that were not approved, or other projects that were de-scoped or cancelled. While there can be many reasons this happens, resource constraints are one of the most widely cited challenges.

Each represents a missed opportunity to better support customers and grow revenues. As one executive interviewed for this report views the situation: *"If you look back over a period with the benefit of hindsight, there's always going to be missed opportunities. There are a multitude of reasons [for projects being delayed or cancelled] but capacity is always the big challenge".*

If you look back over a period with the benefit of hindsight, there's always going to be missed opportunities. There are a multitude of reasons [for projects being delayed or cancelled] but capacity is always the big challenge.

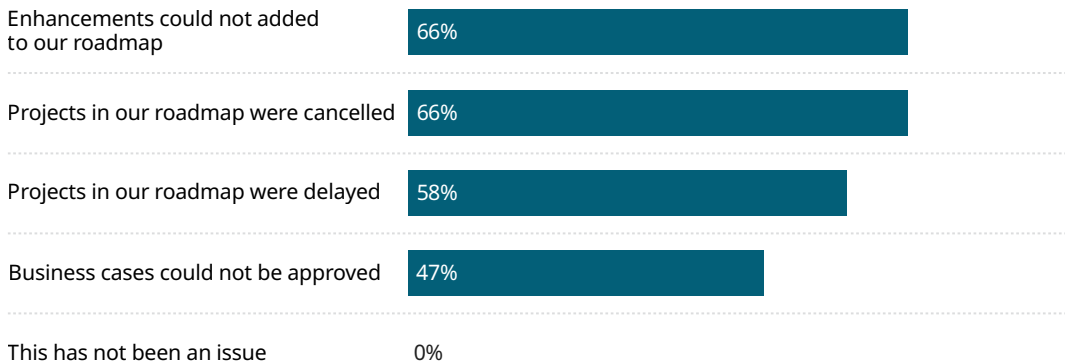
Payment Product executive at a Tier 1 bank

Among the Tier 1 banks we surveyed in Europe and North America, 66% of those in product-facing roles said that developer resource limitations prevented potential enhancements from being added to their technology roadmap. The same proportion reported that they'd experienced cases where approved projects had to be cancelled, again due to developer constraints. In total, the product teams at 89% of Tier 1 banks reported experiencing at least one of these two outcomes in the past two years, in turn meaning that their institution had missed out on potentially revenue generating enhancements.

As exhibit 4 demonstrates, developer resource constraints are also a common cause of projects being delayed or being a barrier to a business case being approved in the first place. To a degree, this is a natural part of the ebb and flow of software development and resource allocation, particularly in a large organisation. However, the challenge of resource constraints is a common theme when it comes to these lost opportunities. Each of the 38 Product or Strategy executives in our bank panel reported that this had been an issue at their organisation in the past 24 months.

Exhibit 4: A lack of developer resources contributes to missed product enhancement opportunities

Question: *"Thinking about your experience in the past two years, has a lack of developer resources meant that any potentially revenue-generating or cost-saving enhancements have been delayed or cancelled?"*



Source: Celent Low Code in Payment Processing Survey 2023

This is an issue that is worthy of further exploration. There is near universal agreement that not delivering potentially revenue-enhancing product improvements comes at a cost to the bank. But what is the scale of the revenue gap? While this is impossible to quantify with any kind of accuracy, it is nevertheless interesting to understand how this is viewed in the industry.

OPPORTUNITY COST

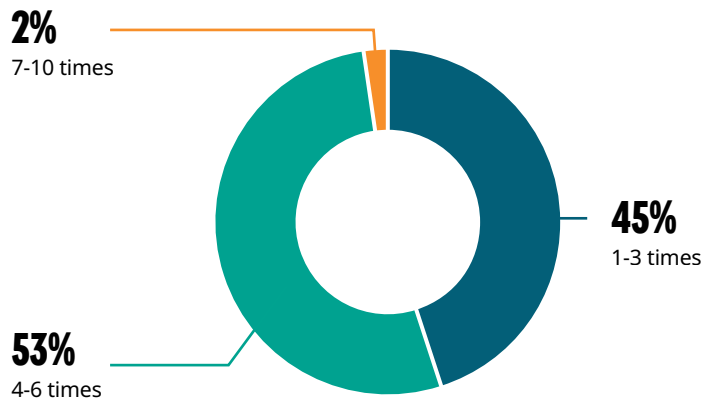
On average over the last two years, a Tier 1 bank in Europe and/or North America has missed out on 3.75 opportunities to bring potentially revenue-generating enhancements to their payment proposition

Our survey results at least are clear. On average over the last two years, a Tier 1 bank in Europe and/or North America has missed out on 3.75 opportunities to bring potentially revenue-generating enhancements to their payment proposition. Therefore, each bank is missing out on almost two opportunities per year on average.

As exhibit 5 demonstrates, this affects some banks more heavily than others. Just over half the banks in our panel reported that this had happened 4-6 times in the past two years, while 3% said this had been an issue 7-10 times.

Exhibit 5: Over half of top tier banks report losing out on 4-6 payment product enhancements due to a lack of developer resources

Question: "Thinking about your experience in the past two years, has a lack of developer resources meant that any potentially revenue-generating or cost-saving enhancements have been delayed or cancelled? How many times did this happen?"



Source: Celent Low Code in Payment Processing Survey 2023

QUANTIFYING THE POTENTIAL REVENUE GAP

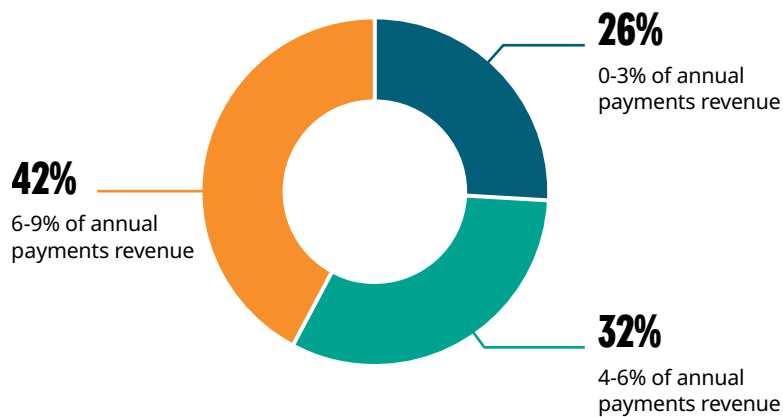
The natural question this leads to is ‘how much does this cost banks?’. While it’s impossible to quantify the scale of potential revenue loss caused by missed product enhancement opportunities (not all deliver their expected benefits, after all), it’s nevertheless interesting to understand the sentiment in the industry.

Our panel of senior executives were asked to indicate what impact these missed opportunities have on their payment revenues. Respondents were most likely to suggest that the opportunity cost caused by developer resource constraints was 6-9% of their annual revenues from payments, with a further 32% of our panel suggesting the figure was in the range of 4-6%. Factoring in the rest of the responses we gathered, the average figure comes out at 5.3%.

While this figure is likely to be an overstatement of the actual, it’s nevertheless important to note that it isn’t zero either. If the figure of 5.3% is even close to being accurate, it suggests that banks are leaving a considerable amount of revenue on the table as a result of resource challenges in their technology function.

Exhibit 6: Banks believe that they are missing out on the equivalent of 5.3% of their annual payment revenues through missed opportunities to innovate

Question: “Has a lack of developer resources meant that any potentially revenue-generating or cost-saving enhancements have been delayed or cancelled in the past two years? What was the collective opportunity cost, relative to your annual payments revenue?”



Source: Celent Low Code in Payment Processing Survey 2023

THE OPPORTUNITY FOR LOW CODE IN PAYMENTS

Many banks are already using low code tools and platforms. The most common use cases are in enterprise applications or to improve inefficient workflows, but a growing number of banks are looking closely at the potential benefits low code can bring to delivering greater operational agility by accelerating the pace of their software development in non-card payment processing. The proof points are building, and this is something that all large banks should at least evaluate as part of their technology roadmap.

CONTROL AND DIFFERENTIATION REMAIN THE PRIORITIES WHEN IT COMES TO PAYMENT APPLICATIONS

The way that banks approach software development has changed in recent years. Go back even a relatively short period and most banks would be developing their own payment applications to run on their own mainframes. As discussed in the previous chapter, this was partly a function of there being few (if any) options on the market suitable for a large bank, but also the view that a bank 'should' own the IP that drives its payment processing.

This has evolved over time, and today's landscape is very much a hybrid model, albeit one in which most organisations are looking for ways to move away from their legacy processing infrastructure. Banks today are more open than ever before to consider external providers to support in some areas of their payment processing technology stack. Indeed, 68% of Tier 1 banks have considered taking a Payment-as-a-Service offering from a vendor to support some of their needs, while 66% are open to sourcing these services from other banks.

While this is the case, most banks continue to focus on controlling the development of the potentially differentiating aspects of their processing software. There are different ways this plays out in the field, including everything from purchasing relatively commoditised components and innovating around those, to building new payment systems from the ground-up. According to our panel, around 52% of the applications running payment processing in top tier banks has been either directly developed internally or are custom builds. While still relatively high, this figure should only be treated as directional, as it reflects the number of applications in production rather than their relative importance. In practice, while many large banks make use of a range of off-the-shelf applications, the most sensitive activities are typically supported by internally developed software.

But what lies behind this preference for internal development? At a high level at least, there are three themes:

- **Maintaining control** over what is a strategically important part of the corporate banking product offering.
- Retaining the ability to deliver **competitive differentiation**.
- The **lack of credible options available off-the-shelf**.

Maintaining control

Arguably the most important driver of internal development is the strategic importance of payments to the corporate banking offering. A bank that gets that wrong will have serious and long-lasting commercial challenges, and the traditional view is that the risks of working with third party software are greater than internal builds.

Indeed, 55% of Tier 1 banks in Europe and North America reported that they prefer to develop their own payment processing software so they can maintain control of the project

8%

of Tier 1 banks in Europe and North America reported that buying an off-the-shelf vendor solution would be their default approach to a new payment development project. At the same time, 55% would prefer to develop their own payment processing software.

and the outcome. It's worth noting that 53% of banks see internal development (including building software using a third-party framework or platform) as their default approach to new software development in payments, with a further 14% likely to bring in a consultancy or integrator to develop a custom solution. Only 8% reported that they would look to buy an off-the-shelf solution.

Competitive differentiation

The second important theme is the need for differentiation and competitive advantage. While the core payment product is widely seen as a commodity, there is scope for banks to

compete based on their ability to serve particular business flows, which can be important in winning and retaining large deals. As one executive interviewed for this report put it: *"Buying a product which is the same as your competitors has little advantage, as you can only scale to the same size as your competitors. Likewise, you can only offer the same products. So there's a need for a degree of control over your core technology products if you want to go over and above the other banks"*.

Lack of off-the-shelf options

The third aspect to the bias towards internal development is the perception that there is a lack of truly appropriate off-the-shelf options in the market for the very largest banks. One executive interviewed for this research commented that: *"Not many of the vendor products available are really geared to the very big banks. If you've a product for the top 4-5 banks, you're only selling to 4-5 banks and that's why there isn't product out there geared to that part of the market. Most products are geared to smaller and mid-sized banks"*.

There is some merit to this argument. While a bank could certainly go to a vendor for an end-to-end solution for a particular market or payment rail (especially to move quickly to target a tactical opportunity), there is an operational advantage to retaining a consistent approach at a global level. While there are ways to standardise the user experience on top of fragmentation in the back office though, this isn't the preferred option for many banks.

72%

of Tier 1 banks believe it is more effective to develop new software in-house (including using consultants) than to integrate a vendor application.

It's worth noting that there are several consultants and software vendors that would take a different view. Nevertheless, the perception among many large banks that only they can build what they need is a long-standing one. Across Europe and North America, 72% of banks believe it is more effective to develop in-house than worry about integrating a vendor application. This rises to 80% in North America.

However, there are signs that this is changing. Interest in using standalone components or third-party services, particularly for more commoditised parts of the value chain is growing. Indeed, among those banks that do use external developers or off-the-shelf software, 71% do so because it allows them to focus on product differentiation. This is a perspective that may well grow over time. Another executive interviewed for this research observed: “When we wanted to go cloud native, we didn’t have an external option, so we decided to build this ourselves. This isn’t the case now and there are credible products out there that are configurable and cloud native”.

Buying a product which is the same as your competitors has little advantage, as you can only scale to the same size as your competitors... so there’s a need for a degree of control over your core technology products if you want to go over and above.

Payments CTO at a Tier 1 European bank

LOW CODE SUPPORTS GREATER AGILITY, AND MANY BANKS ARE ADOPTING THESE TECHNIQUES

As noted earlier, low code tools and techniques have become relatively well established in areas such as enterprise applications and workflow improvements. As exhibit 7 demonstrates, around 44% of Tier 1 banks in Europe and North America already take advantage of low code in areas such as customer onboarding or loan origination, while a further 33% are currently testing or evaluating low code for the same purposes.

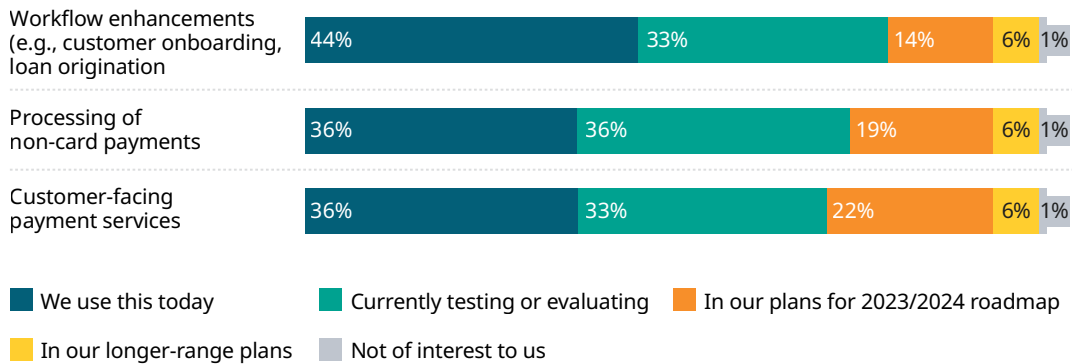
The thinking and momentum behind low code is building. Indeed, 38% of corporate banks see low code as one of the three technologies that will have the biggest impact on the market in five years⁴. Accordingly, there is a growing interest in the potential to bring low code techniques and platforms into the process of developing or making changes to payment processing applications.

⁴ Celent Technology Insight and Strategy Survey 2023. Sample: 218 banks

Among Tier 1 banks in Europe and North America, 36% report that they are currently using low code to support software development in at least some aspect of their non-card payment processing, while the same proportion are currently experimenting or evaluating their options. A further 19% report that this is in their thinking for next year’s roadmap, meaning that over 90% of Tier 1 banks are live or otherwise planning to implement low code in some form in support of their non-card payment processing software in the very near term.

As discussed in the next section, most of these use cases are focused on adapting or changing existing applications rather than building new software from the ground-up. However, the interest in exploring and making use of low code is clearly building.

Exhibit 7: Bank use of low code tools or application frameworks falls into one of three groups



Source: Celent Low Code in Payment Processing Survey 2023

Looking at the rationale for considering low code tools and techniques, the view back from bank technology groups is clear. When asked about the perceived benefits of low code, 75% cited the potential to reduce their dependence or spending on vendor applications, which aligns well with the ambition to retain control of software development. In addition, 58% see benefits in supporting more effective collaboration between the technology and business groups, while the same proportion highlighted the opportunity to improve the efficiency of developers.

CURRENT EXAMPLES OF THE ADOPTION OF LOW CODE IN PAYMENTS

As with any technology in the early stages of adoption, there are differences in the way banks see the opportunities of low code. Based on the recent conversations Celent has had with clients and other contacts in the industry though, there are some important themes emerging.

The takeaway here is that is the number of proof points and use cases under consideration is building. Underpinning this is a broad agreement that the benefits of low code are both real and realizable. The potential to reduce the developer time needed to make relatively straightforward software changes is an obvious use case, with a clear return on investment from creating the necessary interface. Accordingly, low code is something that several banks are either using today or are planning to enable in the near future.

75%

of executives in the technology group see the ability to reduce the bank's dependence or spending on vendor applications as a potential benefit of low code.

Extending this into other areas, particularly where non-technical employees can become involved in the process is another important step. Others are already more advanced in their thinking and looking at ways to apply these ways of working to support longer term payment modernization initiatives.

The three examples that follow are real, but the list is not designed to be exhaustive. What this does provide is clear evidence of the steps being made by Tier 1 banks in using of low code techniques and tools in non-card payments.



Example #1 SUPPORTING MARKET ENTRY

One approach highlighted in our research is the way low code can support entry into a new market or region. The costs of connecting to a new payment scheme, or moving into a new territory can be high, particularly in cases where a bank has a mature payment engine that would require potentially extensive changes. While low code isn't a complete answer, it can be used to accelerate the process. For example, through having a set of rules or a low code solution to enable relatively minor changes to features such as formatting or data fields. Removing the need to adjust the underlying code for these tasks brings efficiencies to both this process and the downstream testing requirement.

While it may still be the technology function in the bank that leads these initiatives, the ability to move with greater agility brings important benefits. As one executive interviewed for this research noted: *"What it means is we can have end to end delivery teams that can jump into new markets quicker through a bit of lightweight coding to set these new flows up quickly"*.

 **Example #2**
PRODUCT CUSTOMIZATION

Another area where low code could prove useful is to create the capabilities for product teams and business users to better support customers without the need for developer involvement. Putting what would in effect be a series of advanced configuration options into the hands of client operations or sales teams can allow for customer-specific preferences for things such as intelligent payment routing (balancing value and costs in line with their needs) to be created quickly and with a limited marginal cost.

This approach can introduce risk, and therefore requires clear controls, guardrails, and testing, but is nevertheless a potentially important benefit in terms of customer acquisition and retention. On this subject, one executive commented: *“We’ve all talked about this idea of allowing for customisation to be more sales and product driven rather than technical, but we haven’t seen it fully come to fruition. There’s always that challenge of how we test to make sure changes don’t affect everything else”.*

 **Example #3**
SUPPORTING PAYMENTS MODERNISATION

At the more advanced end of the spectrum, some banks are looking at low code tools, platforms, or application frameworks as the foundation for longer-term payment transformation initiatives. While this is still quite a niche activity today, the opportunity to streamline the development of new payment applications by using a series of standardised components in a common framework is one that is growing in interest. Indeed, the current direction of travel around low code makes it likely that more banks will give serious consideration to these approaches.

The benefits for greenfield projects are certainly clear, as the bank can still maintain full control of the process and outcome while also moving with far greater agility than through traditional approaches. As one executive interviewed for this research noted: *“Ultimately the achievement of this is to stand up new capabilities very quickly, and then layer on top”.*

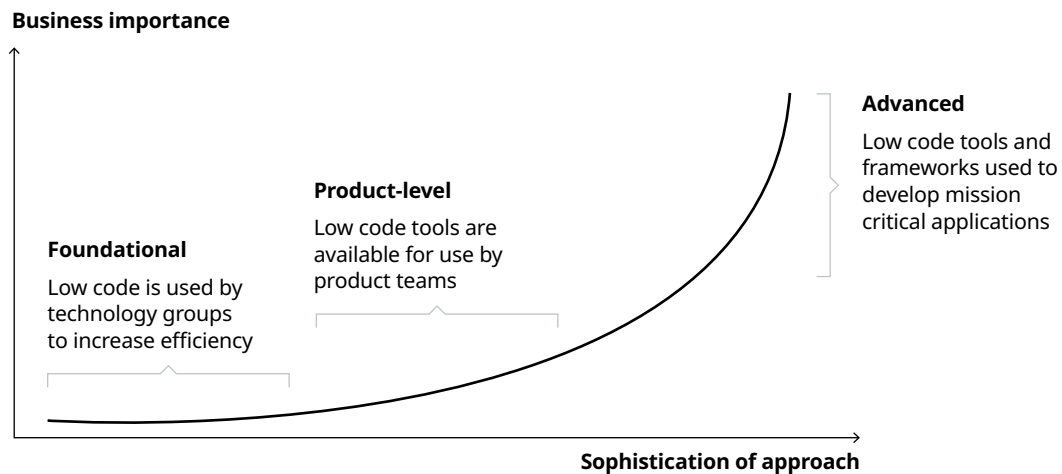
TODAY’S LOW CODE USE CASES CAN BE PUT INTO ONE OF THREE GROUPS

The examples highlighted above all relate to a different type of use case, or group of use cases for low code. These differences can be seen as part of an adoption path, with the overall impact on the business and the sophistication of the approach growing with each stage.

That said, each of the three different approaches can be adopted independent of the others, so this need not be seen as a step-by-step process. Indeed, some banks will put their efforts into firstly unlocking the gains in their technology group before making any low code tools or interfaces available to product or operations teams. The three groupings are as follows:

- **Foundational:** In which low code tooling is used by technology groups to increase the efficiency with which they can make changes to payment processing applications. The benefits to a bank are to move with greater agility and to unlock developer capacity to add value in other areas.
- **Product-level:** Use cases here would empower members of payment operations or product teams to make changes in support of specific client needs. While this area can unlock potential value for the bank, care must be taken to put in place appropriate guardrails, controls, and testing to ensure that any changes introduced for a single client do not cause unintended problems elsewhere.
- **Advanced:** Interest is growing in how low code and related approaches can be used to develop greenfield payment applications. The idea of using a 'toolkit' of components to build the software and payment journeys the bank wants to offer its customers is proving attractive to some banks.

Exhibit 8: An emerging adoption path for low code



Source: Celent

PATH FORWARD

The path forward with respect to low code seems clear, at least at a high level. A large portion of the market is investigating the opportunities, while several large banks are already making active use of these tools and techniques. However, there's no single or 'correct' approach to follow and each institution will see different opportunities to bring value to their products, services, and operations through low code.

ALL BANKS SHOULD EVALUATE THE USE CASES FOR LOW CODE

Many Tier 1 banks in Europe and North America report they are either working with low code tooling and techniques or report that they are planning to implement this in 2023/24. In this context, any large bank that has not already begun to explore this issue should take the time to evaluate the potential gains for their organisation.

It may be that the opportunities are seen as too narrow, or that the engineering investment needed to build the necessary abstraction layer/s may be too great. The examples highlighted in the previous chapter certainly suggest otherwise but, either way, giving due consideration to the opportunities is essential given the degree to which other institutions are beginning to adopt low code.

The evaluation process will require close work between the technology and business groups. Payments seem simple in concept but become very complex in practice and this understanding is necessary to correctly assess the potential value of low code solutions to a bank. Making effective use of low code will also require new thinking about the best way for business users to work with more technical groups and vice versa.

Banks should also consider whether the growth in adoption of low code is an opportunity to re-think their broader approach to software development. With Agile now broadly commonplace across the industry, low code tools and frameworks offer ways to further accelerate the pace of payments modernisation. Practitioners making use of these tools certainly report positive outcomes in terms of delivery as well as TCO and control.

The message here is to be bold when looking at the opportunity for low code. While advanced approaches to what is effectively a form of configuration can be extremely powerful, there are more substantial gains to be unlocked where banks take these approaches further.

Banks that have been through some of this thinking report that the best approach is to start by first considering the art of the possible from an architecture perspective. This must then be followed by a detailed conversation with the business over the benefits that can be delivered. The path forward, which may include consideration of a long-term modernisation plan, comes from this dialogue.

CONSIDER THE IMPLICATIONS FOR STAFFING AND TRAINING

The more a bank uses low code tools and approaches, the greater the impact on the skill set and training needed in its technology and product groups. While there is typically a divide between the functions responsible for product and technology in any organisation, greater collaboration is also needed for low code tooling to be effective.

This is particularly important in the product groups, in which a greater technical understanding is increasingly required as a basic requirement for the function. One of the payment product executives interviewed for this research put it best when observing: “If you don’t have technical capabilities these days, you’re not going to be very useful as a product manager”. The same is true in reverse, and a modern CIO or CTO increasingly needs a strong understanding of product design and management to be effective.

In banks that plan to embrace low code, there will be a shift in the profile of the employee needed in the technology function. If low code means the ability to code in the traditional sense becomes slightly less important, it is replaced by the need for a greater understanding of the business process and customer need. As well as a shift in the training and hiring model for a bank, this will also require new thinking about how to best drive effective collaboration across the organisation.

If you don’t have technical capabilities these days, you’re not going to be very useful as a product manager.

Payments Leader at a Tier 1 bank in North America

BANKS SHOULD LOOK FOR PARTNERS THAT CAN SUPPORT THESE AIMS

The nature of low code is that it requires working with partners that can deliver the abstracted interfaces needed for software development. Banks should consider whether their current partners offer the right tools, or if they need to find others that can give them what they need.

Banks planning a longer-term shift towards low code for more of their application development workflow would be advised to look for partners that offer the requisite frameworks or toolkits.

APPENDIX

Celent a dedicated programme of primary research in preparing this report. Details of the sample and methodology are provided here but, for further information, please contact Kieran Hines (the report author) at khines@celent.com.

CELENT'S LOW CODE IN PAYMENT PROCESSING SURVEY

To explore the opportunities for the use of low code in non-card payments, as well as the current thinking about these techniques in more detail, Celent conducted a significant program of primary research among Tier 1 banks. Through June and July 2023, we surveyed 74 senior executives from banks across Europe and North America to understand how each views the potential opportunities for low code, and the pinch points and frictions in the development of their payment applications. The respondents represent top-tier banks in each of their respective markets.

In large economies, the threshold for inclusion was institutions with a minimum of \$500 billion (or local equivalent) in assets. In slightly smaller markets our fieldwork focused on the largest banks in the domestic market.

Central to this research is capturing the perspectives of the two stakeholder groups involved in any large internal development project. Each has a different set of priorities and needs with respect to any large development project and so we have captured a separate sample from each.

Payment product or strategy executives

These individuals are close to the bank's end customer and therefore play a leading role in shaping overall project requirements. We surveyed 38 individuals with a direct responsibility for and/or oversight into the product strategy around non-card payments at their institution. This group was asked a range of questions, covering topics including:

- Technology investment priorities for 2023-24
- Inhibitors of product innovation and enhancement
- Impact of developer resource limitations on the product roadmap
- Typical approach to software development at their institution
- Understanding of low code and the potential use cases

Executives with a focus on technology

These people typically lead or manage the development process for internal software development projects. Here we looked to capture the views of those with direct responsibility or oversight for the technology platform supporting payment processing at their institution.

We surveyed 36 individuals in this segment of the research and asked the group a range of questions relating to the following areas:

- The strategy of the bank towards low code
- Thoughts on the potential benefits of low code
- Inhibitors of product innovation and enhancement
- Impact of developer resource limitations on the product roadmap
- Cultural aspects of the bank’s strategy around software development

Sample demographics

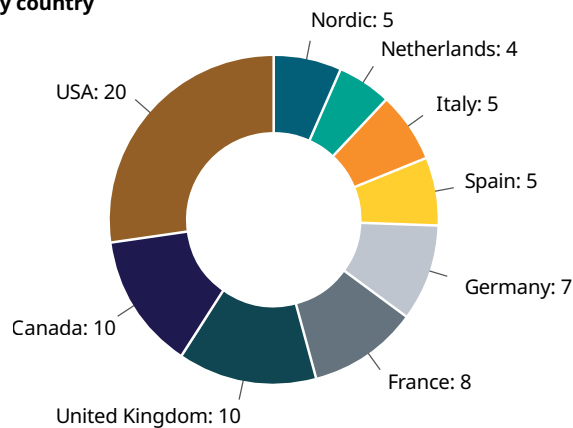
The composition of our primary research sample is shown in exhibit 9.

Exhibit 9: Sample demographics

Survey respondents by role profile



Survey respondents by country



Note: “Nordics” includes Denmark, Finland, Norway, and Sweden.

Source: Celent Low Code in Payment Processing Survey 2023

LEVERAGING CELENT'S EXPERTISE

If you found this report valuable, you might consider engaging with Celent for custom analysis and research. Our collective experience and the knowledge we gained while working on this report can help you streamline the creation, refinement, or execution of your strategies.

SUPPORT FOR FINANCIAL INSTITUTIONS

Typical projects we support include:

- **Vendor short listing and selection.** We perform discovery specific to you and your business to better understand your unique needs. We then create and administer a custom RFI to selected vendors to assist you in making rapid and accurate vendor choices.
- **Business practice evaluations.** We spend time evaluating your business processes and requirements. Based on our knowledge of the market, we identify potential process or technology constraints and provide clear insights that will help you implement industry best practices.
- **IT and business strategy creation.** We collect perspectives from your executive team, your front line business and IT staff, and your customers. We then analyze your current position, institutional capabilities, and technology against your goals. If necessary, we help you reformulate your technology and business plans to address short-term and long-term needs.

SUPPORT FOR VENDORS

We provide services that help you refine your product and service offerings.

Examples include:

- **Product and service strategy evaluation.** We help you assess your market position in terms of functionality, technology, and services. Our strategy workshops will help you target the right customers and map your offerings to their needs.
- **Market messaging and collateral review.** Based on our extensive experience with your potential clients, we assess your marketing and sales materials — including your website and any collateral.

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