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> We have a vision of how electronic payment systems will look in the future with the knowledge, scale and resources to deliver it.
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Replacing legacy payment systems

An industry guide from ACI

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ACI payment systems

Contents

A brief history of payments technology: why the typical payments infrastructure is so complex

The past 30 years have seen billions of dollars spent on payment systems. Innovation in financial institutions' retail, wholesale and card offerings have invariably been accompanied by investment in technology. The goal? Lowered costs, decreased risk and increased revenue.

The necessity of such investments is widely recognized. In the late 1980s and early 1990s, the savings and loans crisis in the U.S. claimed the scalps of more than 700 organizations. The conclusion of the U.S. League of Savings Institutions was that the crisis was caused in part by inadequate technology investment at the savings financial institutions concerned, which had left them unable to compete effectively[1].

Fast forward twenty years, however, and the competitive advantage afforded by simply adding another piece of payment technology can no longer be guaranteed. As payment types as diverse as contactless cards, direct debits, credit transfers, cross-border or SWIFT payments have been added to the product offering over the years, they have been accompanied by their own galaxy of systems, information, processes and people to support them. Individually excellent though these systems are, that brilliance is dimmed by the complex tangle in which they operate.

As a result of this incremental system development, financial institutions that attempt to conduct an inventory of their complete IT estate discover tremendous complexity, duplication and redundancy. It is not uncommon to see a map of between 60 and 100 systems in medium-to-large financial institutions. Of course, the bigger and more established the organization, the more complex its internal systems are likely to be – and institutions in the U.S. and Western Europe are particularly vulnerable. But that doesn't exclude newer or smaller institutions from having similar problems.

There are a number of broad trends that explain this internal sprawl of payments systems.

1. Market demand

In many ways, payment systems are a victim of their own initial success. Rightly regarded as essential for innovation, they have enabled financial institutions to develop products and services that provide greater choice to their customers with regards to non-cash payments. Financial institutions, keen to create clear differentiation between themselves and their competition as quickly as possible, have placed great emphasis on a rapid time-to-market for new products. More often than not, the temptation has been to import and bolt-on a new platform for the new service, rather than build new functionality into existing systems. Once a financial institution succumbs to that temptation, it becomes a vicious circle. The more complex a platform, the more siloed existing functionality becomes and the harder it is to add the necessary new features.

2. Intergenerational technology

Modern architecture, notably that built on object-oriented design principles, is designed to be flexible and to facilitate the addition of new functionality. But the technology that prevails in many financial institutions is a combination of old and new, dating from the 1980s, 1990s and 2000s. Older mainframe-based systems were deployed to manage bulk and batch-based processes and perform these tasks exceptionally well. But there is little room for scalability or agility in older systems, which are not designed for flexibility or the need for real-time processing. Since taking out an old system and its data is never an attractive proposition, these hybrid technologies have remained in place creating a unique, site-specific but imperfectly integrated blend of old and new technologies.

[1] Norman Strunk and Fred Case, *Where deregulation went wrong: a look at the causes behind savings and loan failures in the 1980s*, Chicago: United States League of Savings Institutions (1988)

Existing systems have been developed to handle separate regulatory regimes, cultural expectations and technological standards.

3. Consolidation

The number of independent financial institutions has decreased rapidly over the years, as larger institutions seek growth and expansion through a wave of mergers and acquisitions. But along with new markets, new customers and new revenue opportunities, financial institutions have also acquired additional systems to add to their own infrastructure. The result is another layer of systems, operations, information technology, customer service programs, risk and audit staff for a whole new series of payment products and channels. Redundancy and duplication have become inevitable.

4. Globalization

Facing diminishing returns from domestic markets, established financial institutions in North America, Europe and Australia are looking at Latin America, the Middle East and countries in the Asia-Pacific region, where the prospects are much more attractive. Regional institutions have been acquired, and international footprints expanded. But existing systems have been developed to handle separate regulatory regimes, cultural expectations and technological standards, and are therefore hard to integrate.
As a result, financial institutions find themselves with yet another set of technologies to manage different payment and network systems, to operate in multiple languages and to support a diverse range of currencies.

5. Regulation

The regulatory landscape is changing rapidly, bringing with it new demands for compliance, audit, transparency and control. In Europe, implementation of Single Euro Payments Area (SEPA) regulations require national debit schemes to be broken up. Financial institutions will need to update platforms and processes necessary to issue and manage cards in this new environment. New credit card regulation in North America and the Durbin amendments to the Dodd-Frank Act change the cost base of certain payment systems. Worldwide, greater risk controls and new strict liquidity management and capital adequacy requirements will require further technological capability in addition to the systems already supporting data protection, privacy regulations, anti-money laundering and know your customer (KYC) requirements.

As a result, technology has become all-pervasive: it has multiplied through all aspects of a financial institution's payment operations and replicated across channels, payment types and business divisions. Many financial institutions are, in effect, a series of separate mini organizations that simply operate under a unifying brand, but with a completely independent view of external customers and internal resources.

Costs, revenues and innovation: what problems are facing financial institutions

Many financial institutions are now trying to run a fundamental service on disparate, cobbled-together systems whose complexity and inflexibility make it difficult to respond to new customer needs and market demands. Three decades of ad hoc technology investment has left financial institutions with isolated islands of information, redundant processes and duplicated effort. Not surprisingly, they can't communicate or integrate effectively and the entire edifice is now less than the sum of its parts. Platforms that were formerly competitive enablers have become a source of stagnation.

This presents financial institutions with a critical problem: the status quo is extremely costly and can hold back the innovation needed to develop new revenues.

1. Spiraling costs and stifled revenues

It is estimated that managing and maintaining legacy systems still consumes up to 90 percent of North American and European institutions' IT budgets, leaving a little more than 10 percent for innovation and program development[2]. Even at Asian financial institutions, where legacy infrastructures are typically less complex, maintenance consumes 70 percent of the total IT budget. When compliance management is factored in, the amount remaining for advancing new and original projects can drop even further. In such a highly competitive market, leaving such small sums for innovation and the support of new product development is dangerous.

Where do these costs come from?

- **Redundancy:** When platforms, functions and data are locked away in individual stovepipes, expensive and error-prone duplication is inevitable.
- **Maintenance:** Multiple systems, with multiple vendors and multiple architectures, simply require more time and effort to maintain than rationalized, streamlined IT estates. A larger support team is required and there is no opportunity to secure preferential rates with vendors.
- **Resourcing:** Software developers and system administrators who specialize in non-standard programming languages attract a premium. Applications written in common languages provide organizations with a wider pool of professionals from which to recruit their staff.
- **Upgrades and customizations:** Enhancing business processes authorization, switching and routing decisions can be drawn out and require extensive testing across each payment silo that is affected.
- **Regulation:** Compliance and auditing requirements are becoming more stringent. Financial institutions with archaic legacy systems must implement multiple instances of their compliance processes or face heavy financial penalties for breaches.

2. Innovation inertia

The biggest problem that complexity of the current arrangement presents to financial institutions is the detrimental effect it has on the innovation required to raise revenues. Operational staff are fighting to stand still. Neither budget nor resources are available to do much more than maintain the status quo.

Innovation in the payments field is an interesting area. Financial institutions can only innovate within the constraints that are imposed by regulation, the needs of the customer and the structure of the market. This is a highly regulated area of a highly regulated industry. Thus a payment remains a fairly straightforward banking utility that operates in the same way regardless of the type or channel: simply establish who is owed what, when and by whom, and then ensure a mechanism is in place to execute that transaction.

Where financial institutions can innovate is in the way that the basic payment product is delivered, whether that is through offering a consistent level of service across all points of contact or creating market-specific products for individual geographies. Innovation is to be found in the services that accompany that payment,

[2] Celent, *IT Spending in Financial Services: A Global Perspective*, January 2011

—› If payments are the life blood of the banking industry, then outmoded technology is clogging its arteries.

the way the service is delivered and the communication that surrounds it. Legacy systems have a deadening impact on this innovation in a number of ways:

- **Time-to-market:** Inflexible, non-integrated systems make it difficult to respond rapidly to new market requirements, regulations and customer demands. New initiatives take time to bring to market, lengthening the time between concept and benefits realization.
- **Lack of customer focus:** Siloed legacy systems deliver only a splintered view of each customer, making it harder to adopt more sophisticated products or target customer service effectively. While this remains the case, generating a customer-centered approach to the development of new propositions will remain an illusion.
- **Operational risk:** Sub-optimal risk management opens up institutions to greater levels of fraud losses and prevents them from serving riskier but potentially profitable customers effectively.
- **Limited commercial opportunities:** With no integration or cross-channel information sharing, the opportunities for cross-selling or up-selling additional products or services are extremely limited.
- **Liquidity management:** If you can't see it, you can't measure it. This applies to liquidity as to anything else. With information spread over multiple silos and unavailable in real time, neither financial institutions nor their corporate customers can maximize working capital or net their liquidity in an optimal fashion.

The pressure of maintaining and supporting legacy systems consumes resources and has rendered payments an expensive commodity rather than turning them into a strategic and financial advantage. If payments are the life blood of the banking industry, then outmoded technology is clogging its arteries.

The critical moment: how a rapidly changing environment requires urgent action

Part of the problem is that the limitations of this maze of legacy systems are not immediately obvious. Individual systems function, and function well, for the most part. But although they serve their individual purposes now, there is little to suggest they will be able to work together to support financial institutions as they adapt their business models to the demands of a new decade.

The sheer volume of transactions that these legacy systems are expected to handle continues to grow. Consumers in developed markets are adopting new payment methods as they become available and this is slowly but surely increasing the market share of electronic payments at the expense of cash and checks. Businesses are ramping up their use of electronic payments, for example by adopting e-invoicing, and the growth rate in use of commercial cards is picking up once more[3]. The move from batch to real-time processing, such as that which has enabled the U.K.'s Faster Payments initiative, also adds pressure to payment infrastructures.

Elsewhere, emerging markets have seen the move to electronic payments accelerate, driven by the introduction of payment cards and new payment forms such as mobile. Remittance flows are now more concentrated in Asia than in Latin America[4], and both India and China have seen non-cash payment volumes increase dramatically as their payment infrastructures modernize[5].

But the financial crisis has dramatically accelerated the pace of change and has placed acute pressure on legacy systems. It brought about unprecedented levels of consolidation and tremendous regulatory change, and is accompanied by a fast-paced revolution in technology and a varying customer demographic.

1. The financial crisis

The financial crisis has re-invigorated the role of payments within the banking industry. With other more exotic forms of income no longer available, payments have risen in profile within individual institutions and the industry as a whole.

In March 2010, McKinsey showed that although banking revenue had dropped by more than 10 percent overall between 2007 and 2009, the decline in payment revenues was confined to single digits, with some areas performing more strongly[6]. TowerGroup drew similar conclusions in May 2010 and predicted that electronic payment transactions were expected to grow in volume at 4.95 percent per year to 2012, to reach a total of 299 billion items[7].

However, the crisis has caused global trade volumes to drop and financial institutions find themselves handling much reduced wholesale payment flows. No-one can be certain about the time it will take for volumes to reach their previous levels. Meanwhile, the crash has also created a number of liquidity and confidence issues in the market that have caused both corporate and retail consumers to readdress the way they manage their cash and transactions.

Financial institutions have responded by attempting to increase their retail market share to reinforce liquidity positions and compensate for lost revenues, developing aggressive agendas for customer retention, and initiating new B2B programs to provide true value-added services to corporate customers.

The net result is that the very service that had been written off as an expensive if necessary commodity can now be viewed as one of the more reliable sources of potential revenue.

[3,4] McKinsey: "Outlook for the Global Payments Industry" by Philip Bruno and Wouter de Ploey, presented at SIBOS Open Theater, October 26, 2010

[5,7] TowerGroup, *Around the World in Five Payment Types: A Review of Global Noncash Payment Transaction Volumes*, May 2010

[6] Phillip Bruno, David Chubak and Charlie Nunn, *"Winning in the New Payments Landscape: A Global Outlook," McKinsey on Payments* Number 7, March 2010

2. Tightening regulation

In Europe, SEPA has already changed the landscape for payments processing. The capital adequacy requirements of Basel II – and now Basel III – apply to financial institutions around the world, and stretch the capabilities of many who, without a complete picture across wholesale and retail deposits as well as credit and debit card transactions, have sub-optimal liquidity management.

Following the crisis, financial institutions also face a swathe of new regulations that require them to strengthen risk controls, which will ultimately reduce margins and increase compliance costs. In the U.S., it is estimated that these new regulations, in the form of Reg E and the Durbin amendments to the Dodd-Frank Act, will reduce DDA (checking account) profits by 50 to 65 percent[8]. Although profits are expected to be restored by 2013, the free checking model will no longer be viable for most financial institutions.

Activist regulators in the U.S. are likely to continue to reshape markets, particularly in highly visible areas such as ATM fees, and change the economics of card use through changes to interchange fees. As a result, the balance-transfer based, direct-mail credit card business model is unlikely to drive industry growth[9].

Financial institutions around the globe thus face a squeeze on margins and will need to look for more retail deposits or prepaid cards to increase their liquidity. At the same time they must maintain compliant systems that enable them to fulfill the regulatory requirements in a transparent and auditable fashion.

3. A new competition

The payments industry is no longer the exclusive domain of established financial institutions and traditional payment processors. New entrants from non-financial industry sectors are making their presence felt and challenging long-held notions about the payments business. These new entrants have been enabled by customer-friendly regulations and fast-emerging technologies, and are gaining ground in traditional B2B and B2C spaces as well as creating and fulfilling an electronic person-to-person (P2P) payments environment.

These new entrants come without the baggage of years in the payments space. They offer new products and services, carefully targeted and often fulfilling a niche demand, without having to compromise because of their technological limitations.

In advanced markets the most obvious non-traditional participant is PayPal, which leads the market in P2P payments that disintermediate financial institutions from significant parts of the payments process. Western Union is of course a familiar player particularly in the field of remittances between developed and developing nations. But companies like Visa, FIS and First Data are all extending their influence in the payments sphere, while the U.S. has seen an increase in prepaid card offerings, such as the Walmart MoneyCard.

In emerging markets, it is mobile payments that are challenging the dominance of traditional banking institutions. Of the 60 percent of the global population that is unbanked, more than a billion have a mobile phone. That number is expected to rise to 1.7 billion by 2012[10] and represents a significant opportunity for serving the unbanked.

[8, 9, 10] McKinsey: "Outlook for the Global Payments Industry" by Philip Bruno and Wouter de Ploey, presented at SIBOS Open Theater, October 26, 2010

Payment alternatives

- M-PESA – mobile payment systems to capture the unbanked in Kenya and other African nations
- PayPal – peer-to-peer payment systems
- Luup – provider of mobile payments solutions
- SafetyPay – e-payment process that operates as a online global clearing house
- Google Checkout – online payment solution for merchants and consumers
- GreenDot – provider of prepaid debit cards in the U.S.
- Amazon Payments – service for sending and receiving money to email addresses or mobile numbers
- OB10 – global B2B e-invoicing network
- Tradeshift – business network for sending, receiving and managing e-invoices
- Tuxedo – a provider of e-money solutions in the U.K.
- Boku – global mobile payments platform
- Square – credit card reader that plugs into a smart phone or iPad

The success of the M-PESA program in Kenya has encouraged its backers to extend their service to other parts of Africa and even to Afghanistan – where the service is branded M-PAISA[11]. Companies like Airtel, one of India's leading mobile carriers, are entering the market while mobile payments are becoming well established in more sophisticated markets – notably in South Korea where advances in mobile telephony have been accompanied by a growth in mobile payments, along with other non-financial services.

The payments industry is also regarded as fertile ground by a new wave of companies who have built their businesses on strong customer loyalty and consumer engagement: Apple, Facebook, Google and Amazon have all started to build their presence within the payments space, focusing on the client-facing and processing segments of the value chain. Although these organizations have little if any history in payments, they bring high levels of trust and brand loyalty with them – qualities that banks are working to regain after the financial crisis.

They are joined by more specialist providers like Green Dot, BOKU and Square who may lack the consumer brand awareness, but with streamlined and focused business models are creating a nimble alternative with whom financial institutions have to compete or collaborate. Initiatives and partnerships will increasingly be critical to success: and they will depend on a flexible technological infrastructure.

4. Changing consumer expectations

The convergence of payments and consumer technology favorites is indicative of another critical factor facing financial institutions. Consumer's lives are increasingly digitized. Customer expectations are therefore changing rapidly. Younger customers in particular are used to services delivered online and in real time, and expect similar levels of service from their financial institutions. Traditional banking brand strengths, like reliability and security have less meaning for the next generation of customers for whom speed and convenience are the key values, with dependability and safety considered to be hygiene factors only.

> Amid the tempest of the global financial crisis, payments have proved themselves to be reliable revenue generators, sharply raising their importance for banks[12].

[11] www.cellular-news.com/story/29186.php
[12] Boston Consulting Group, *Global Payments 2009 – Weathering the Storm*, March 2009

Mobile payment innovations[13]

M-PESA is perhaps the most famous mobile payment scheme. But elsewhere, innovations in the mobile space have produced new and customer-friendly ways to make retail payments. For example:

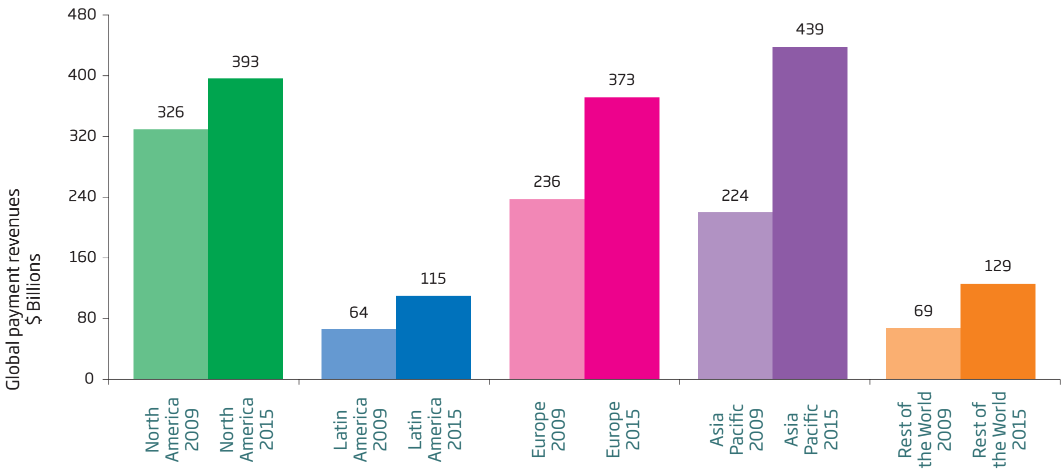
- A smartphone application that allows customers to conduct any online task on their mobile device: checking their balance, monitoring credit card activity, transferring funds, locating the nearest ATM using GPS and paying bills.
- A smartphone targeted at small businesses and mobile workforces with an embedded card reader that can be used as a POS terminal. Transaction details are sent over mobile network lines and authorized like a regular transaction.
- An application that enables customers to make a deposit by choosing the account, entering the amount and then using the phone to take a photo of the endorsed check and then receiving confirmation of deposit – all via their mobile phone.
- Using bar code technology to set up a smartphone as a store of value to deliver transactions at a POS. Users can send mobile gift cards to other recipients through their mobile device, and the merchant simply swipes the phone under a card reader like an airline ticket.

Changing consumer attitudes have been accompanied by enabling technologies in almost all other areas of their lives: from household utilities to music consumption and social engagement. Similar real-time, enabling technology is available to financial institutions that need to create services to attract the eBay generation.

The payments industry is therefore at a tipping point. Financial institutions need to be more proactive in the payments evolution while managing crisis-driven business pressures and new regulatory and compliance imperatives. First of all, they will need to make some prompt decisions about how to redesign or accelerate their revenue-focused and cost-focused payment strategies. New pressures threaten to overwhelm the legacy systems on which the payments business has been built.

The global trend is for the overall volume of non-cash payments to go up, but the average value of each transaction to go down – resulting in increased revenues from payments – with growth rates in Asia and the rest of the world surpassing all other regions.

In 2009, global payment revenues were roughly US$900 billion[14].
By 2015, global payment revenues are projected to grow to US$1.45 trillion.



The payment system of the future: what agility can do for financial institutions

As we emerge from the financial crisis, the payments industry has a window of opportunity to transform its electronic payment systems.

If today's payment systems are siloed, non-compliant, inflexible and uncommunicative, the payment system of the future is the opposite. Whereas legacy processes and architectures effectively disable new initiatives and strongly limit the ability of any financial institution to be proactive, advanced systems and architectures facilitate the achievement of both revenue-raising and cost-reducing strategies.

The payment hub

The development of payment hubs has been enabled by new service-based software technologies that have matured and opened the door to creating a central, unified platform for payments. The accepted vision of the future for payment systems is the payments hub. A hub is a central platform that breaks down internal, vertical barriers to integration. Rather than having one system for each channel, payment type or business unit, mature payment hubs will provide a central processing service to feed all channels and all payment types[15].

A hub processes input data from all wholesale and retail channels and then routes it intelligently to the relevant downstream application such as check clearing networks, ACH networks or DDA systems. At the same time it provides a single feed to all centrally managed utilities such as risk management, settlement and reconciliation and customer services, as well as value-added capabilities such as data analytics and product enhancement[16].

As a result, a payments hub integrates all payment types onto one platform. It also concentrates business processes such as customer service, fraud prevention and risk management into single service units that are shared by the entire enterprise.

Agility: the end goal

Payment hubs may take one of a number of forms, including front-end collation of data, middle-office reporting and customer service, or back-office processing and settlement. But the essential characteristic that underpins them all is agility: the essential combination of speed and efficiency that enables financial institutions to realize their strategic imperatives without compromise.

A truly agile organization will have all forms of payments integrated on a single payment system that will handle each phase of the payments process. But agility is not just about the underlying platform. Agile financial institutions have the tightest focus on the customer regardless of channel, payments type, system or business silo. Everything the organization does regarding payments, including channels, processing, product development, sales, marketing and systems, is geared to the needs of its customers. That often requires a significant change in thought processes and business operations to accompany the new flexibility and capabilities of the underlying IT platform.

An agile payments platform helps transform the business of payments in a number of ways:

- It enables organizations to collapse business, operational, customer service, risk management, fraud prevention and systems silos, and to consolidate them into operational units that provide optimum support to payments received through any channel.
- It allows financial institutions to develop products and services that target 'markets of one'.
- It ensures that profit and loss can be measured at a unified 'payments' business level and managed to the incremental value of a specific customer's transaction.
- It gives financial institutions the opportunity to look at a specific customer's transactions in the context of their past and current activities and their relationship with the institution as a whole, rather than restricting them to a narrow account-based view.

[13,14] McKinsey: "Outlook for the Global Payments Industry" by Philip Bruno and Wouter de Ploey, presented at SIBOS Open Theater, October 26, 2010

[15,16] McKinsey, "Payments hubs: Redefining the industry's infrastructure" in *McKinsey on Payments*, June 2010

The distinguishing factors of agile hubs

Traditional payment systems are characteristically siloed and monolithic. They tend to be inflexible, with proprietary messaging and interfaces, and difficult to monitor and manage. An agile payment hub is modular, utilizing integration standards such as SOA, ISO 20022 and IFX; it is flexible, processing transactions in real time and batch, across multiple payment instruments; and it enables monitoring, management and customization, using standard processes and messaging.

Agility is not merely a matter of technology: it requires systems, information, organization and processes to work in tandem to achieve the desired result.

- Systems incorporate the operational platforms that support payments processes.
- Information includes data design, repositories, operational data and analytics about payments processes and transactions.
- Organization recognizes roles and reporting structures, metrics, goals, management tools, skills and lines of authority.
- Process refers to activities, resources, workflows, decisions and feedback that comprise each key process area[17].

- It enables financial institutions to maximize the potential benefits of new systems: it keeps costs and risks to a competitive minimum; it shortens time-to-market and it allows the financial institution to leverage payments volume to create competitive advantage from both its transactional capabilities and liquidity capacity.
- It enables financial institutions to update or replace functionality on a service-by-service basis. It generates a return on investment by decreasing total cost of ownership and improving the ease with which new services can be introduced.

Payment hubs are a very different proposition from other big bang replacements of existing systems, and avoid the risks traditionally associated with such deployments. They offer a very simple business model that creates significant value. Instead of diverting resources to migration, operation and implementation, financial institutions can focus them on growing its business.

[17] AITE Group, *The Payment Maturity Model: A Tool to Modernize Payments Processing*, 2010

Moving away from legacy infrastructure: how financial institutions can start the journey to agility

Agile payment systems enable financial institutions to do more with less. Centralized, integrated and fluid payment systems support operational efficiencies and the development of innovative initiatives that enhance product and service offerings.

But legacy systems are so entrenched in financial institution's business DNA that replacing them is a daunting task. The complexity should not be ignored or underestimated. Nor is there a universal replacement schema to be followed: the extent and nature of an individual organization's existing system will be largely dictated by the company's history, the markets and customers it serves, and the regulations that provide the parameters for its operations. No two financial institutions are identical and the path to success at one may be the path to ruin at another. Each must determine its own requirements and priorities, and the means by which these will be achieved.

Equally, the move to an agile payments platform is not a matter of completely retooling the entire payments infrastructure and architecture or ripping out the entire edifice and starting again. It is more an evolutionary than revolutionary process.

Consider the management of complex medical procedures. A heart surgeon works on an isolated problem in a highly controlled environment; the patient is heavily sedated with vital functions plugged into life-support systems. Successful replacement of legacy systems works on the same principle: financial institutions are performing the equivalent of open heart surgery on a live patient, and must do so without destroying the rest of the body.

Achieving agility is therefore a piecemeal process conducted with surgical precision, but broken down into a series of manageable projects.

The Payments Maturity Model

Each financial institution will need a different operation, but the underlying method applies to any organization moving to a more agile platform. This is described in the Payments Maturity Model, developed by ACI Worldwide and the AITE Group, which details five stages to full maturity: reliable, scalable, efficient, responsive and agile.

- A **reliable** financial institution has a well functioning payment service that is available for use during all relevant time periods and capacity requirements. However, this is the bare minimum and the true value of systems are locked away.
- A **scalable** payment system will cope with increasing volumes as more payments move from paper to electronic. It therefore decreases risk and operating costs to a degree. However the payments business is still largely piecemeal in nature and is spread across various applications and infrastructure components in various parts of the organization, with the result that processes must be managed manually across multiple domains. Standards may be applied across each payment system.
- At the **efficient** stage, a financial institution is able to deploy and leverage a common set of services on a single hardware platform or in an on-demand model, and benefits from improving business information and reduced unit and operational costs as a result – although processes may still be fragmented between different business units. The emphasis is on mapping processes across to the hub to enable IT to manage the system as a set of services rather than as disparate hardware and software.
- When a financial institution reaches the **responsive** stage, it has the ability to react to new business requirements in a timely manner and to create higher levels of customer service. A common hub-based architecture is in place: transactions can be executed through a least-cost route and there is a common point of exception management. IT starts to become a service provider for the rest of the business, enabling operations to turn its attention to improving customer service. Responsive financial institutions have the tools in place to work on staying ahead of the competition instead of struggling to keep up.
- **Agility** is the end goal. The agile organization experiences a decreased time-to-market, consolidated costs and improved operating income. Rules and predictive models allow the business to respond dynamically to market changes and to create new offerings 'on the fly' for specific customer segments. Services and capacity are shared up and down the enterprise and across units, further reducing resource requirements and improving the ability to anticipate change, thereby bringing true agility to the organization.

> No two financial institutions are identical and the path to success at one may be the path to ruin at another. Each must determine its own requirements and priorities, and the means by which these will be achieved.

Putting the model into practice

The Payments Maturity Model fulfills a number of functions: it enables financial institutions to accurately assess their current position in terms of agility; it provides a series of incremental targets for organizations undertaking a long-term transformation project; and it provides a proven map for navigating the journey to agility.

When it comes to implementing a payments transformation program, there are a number of specific steps to consider, while using the maturity model as an essential roadmap.

1. Know your starting point

Even the most detailed of maps will fail if you cannot pinpoint your current position. The same is true of the Payments Maturity Model. A 'reliable' financial institution will rapidly stall if it believes it is already at the 'efficient' stage. Similarly a 'scalable' financial institution will waste valuable time and resources if it assumes it is at the 'reliable' stage. An organization needs to assess its current position against the model, in the knowledge that different elements of its payment system are likely to be at different levels of maturity, to find out what its next steps should be – and accept that there are few shortcuts between the lower and upper levels.

2. Consolidation and unification

Before transforming all the components of its payments infrastructure, a financial institution should look at where existing components can be consolidated onto a unified platform. Commonality of platform, database or server can deliver cost savings in its own right before the long-term project to move to agility and payments maturity begins. It also facilitates the creation of an accurate record of the current IT estate.

3. Take stock

Build a clear map of the current inventory: the people, processes, overall technologies, applications, interfaces, feeding procedures, networks, costs and revenues, strengths and weaknesses. Individual departments can then be brought into the initiative, relieving the pressure on IT, which should be positioned as a critical enabler but not the primary driver of the transformation.

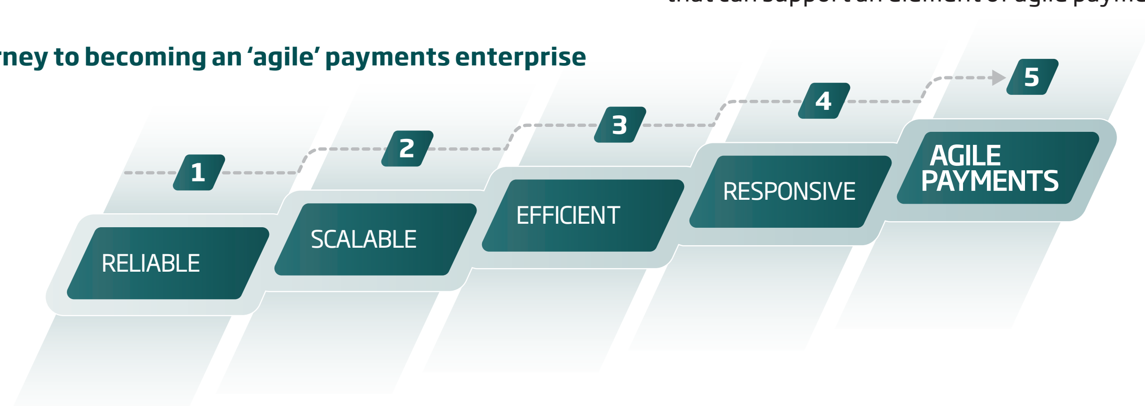
4. Understand the objectives

Maps can show you how to get to your destination, but they cannot choose what that destination will be. Progressing through the stages of the Payments Maturity Model also requires financial institutions to carefully consider what their specific goals are and how these meet overall business imperatives. Is it to grow through acquisitions, organic investments or both? Will future focus be on consumer or business customers or both? Are certain geographies of greater interest than others? Is the aim to be a low-cost provider or to charge a premium for value-added services? What are the demographics of the target customers? Organizations can then set the nature of the target systems and processes.

5. Leverage existing investments

Financial institutions will need to decide what to take on and in what order. The decision will be informed by a number of factors: the volumes the financial institution attracts, its geographic focus, the markets it serves and the products and services it offers now and wishes to offer in the future. Financial institutions should also consider how far current systems can support the desired outcome. The incremental nature of the legacy infrastructure means that the average large or medium size financial institution will already have some system components that can support an element of agile payments. If there

Journey to becoming an 'agile' payments enterprise



are already pockets of agility, then these are the obvious starting points for future development.

6. Impact assessment

By now a financial institution will have the information necessary to work out what changes will have the greatest impact, and what parts of the system require the biggest change. This informs the overall project plan and scheduling to ensure the most effective and efficient timing of results delivery. If enterprise level fraud prevention and detection will have the greatest impact, start there. An agile payments platform will enable institutions to build out from the initial implementation without complexity or compromise.

7. Building the business case

From here it is possible to draft the initial business case for the first transformation project, which examines revenues at risk, proposed cost reductions, efficiency and volumes. Building on what is currently in place, each new step should produce a return on investment that helps to fund the next step. This is the only approach that is practical from a financial, managerial and organizational point of view.

8. Perfect planning

The level of change required to transition from today's complex infrastructure is so massive that financial institutions should lay out this transformational journey in a five-year plan. Planning involves setting realistic expectations and ambitions, understanding what should be done against what can be done and making appropriate strategic decisions. For example, in the post-crunch environment, compliance has proved to be a significant drain on resources and revenues. It is also not an option, and is therefore likely to feature very highly on any 'must-do' list. However, organizations should be able to select a single component of the enterprise vision as a starting point that if implemented successfully, will create an 'island of stability' from which to build the next stage of the program.

9. Invest in leadership

This is not a short project. There may be low-hanging fruit that can deliver quick, positive results, but the projected benefits may take a number of years to materialize. A designated and recognized leader will need to drive the project forward, ensure that interim goals and milestones are met and that benefits are realized as expected. The leadership will need to ensure that the project stays on track during the periods where behind-the-scenes work is carried out but has not yet manifested itself as front-of-house results.

Learn from others

There are institutions that have started their agility project. Advice from the front line includes:

- While dismantling the payment silos of the past, avoid building the silos of the future.
- Remember you don't have to rebuild everything to change one thing; you rebuild just the little thing you want to change.
- Implementing a hub is a journey, not a sprint; implement in stages.
- Don't try to design the perfect solution to last for years – design a flexible architecture and you can always evolve it later as the world changes.
- Design an enterprise vision for the payments hub at the start of the process, not as an afterthought.
- Avoid hard-wired relationships between data and processes. The data layer should be independent of the application layer.
- Keep it simple. Don't weigh your new solution down with so many complexities and exceptions that it becomes too difficult for IT to maintain let alone the business to operate.

75% of the world's financial institutions are still at either the reliable or compliant stage, a further 20% are efficient, approximately 4% have achieved responsiveness. Only 1% of the world's financial institutions have achieved full agility[18].

10. Create a can-do culture

Project leaders will also need to find ways of maintaining enthusiasm and positive energy around the project, and that requires the development of the right culture. The five-year plan will require a long-term commitment to change, but also to day-to-day improvements. All the technology in the world is not going to make a difference unless the wider team is willing to be transparent about performance and stay focused.

[18] AITE Group, *The Payment Maturity Model: A Tool to Modernize Payments Processing*, 2010

System consolidation at a North American financial institution

For this North American institution, the path to agility started with its need for an updated and improved clearing and liquidity gateway. Its legacy infrastructure included nearly 20 different overlapping systems and an aging messaging environment that had limited functionality. The result was that its liquidity management did not have the most up-to-date requirements, and technical knowledge was limited to a few select individuals. Support costs were consequently high, as was the unit cost of processing.

The bank implemented a single wholesale payments platform to consolidate systems and standardize operations across its messaging functions and thus address the problems that its legacy IT estate had created. By prioritizing its activities and developing a precise implementation plan, the bank was able to deploy the new platform on time and to migrate approximately 150 applications to the new system without disrupting daily operations. It is able to process more than US$10 trillion of SWIFT payments per day, and does so on a much reduced cost basis: the overall costs of messaging have been reduced by 97 percent and the cost per payment message is down by 98 percent.

With the platform now in place, the bank is looking at ways to bring other aspects of its payments operations into its agile payments 'hub' and to extend the efficiencies it has experienced in messaging to the wider wholesale and retail payments environment.

Global processing at a European financial institution

After many years of mergers and acquisitions this European organization had an extended global footprint, multiple systems throughout its retail and wholesale operations, and a multitude of payment types across high and low value to manage. It had to contend with global and local business models, while ensuring that it could deliver cross-border and domestic payment facilities that would create an efficient process throughout its locations worldwide.

The bank needed to create a repeatable model that could be deployed around the world to bring consistency and efficiency to all its payment operations, and selected a wholesale payment hub to support its global processing. Before implementation, the bank assessed the precise nature of the functionality it required, which services would need to be used and how the deployment would be scheduled.

The new payments platform provides a Euro clearing hub and processes SEPA credit transfers, Target2, Euro1, Step2 XCT, SWIFT, Equens ACH and intra-bank payments through a single-source interface that links the back and front offices, internet channels and other legacy systems. It is designed so that the bank can create tailored payment products, types and workflow rules from its standard set of payment types that have been included.

The platform also integrates with the rest of the bank's systems, providing the highest level of processing efficiency. On its first day it processed more than 200,000 payments with an STP rate of 100 percent for ACH and 97.5 percent for high-value payments. Overall, STP rates have exceeded the industry average by 30 percent. The new platform has enabled the bank to reduce complexity and redundancy in its payment systems across diverse channels, payment types, geographies and vendors. It has decreased day-to-day operational costs and freed up resources for the bank to invest in new applications and to continuously improve customer service.

Fighting fraud at an Asia-Pacific financial institution

Financial institutions in the Asia-Pacific region are no more immune to the attacks of organized fraudsters than their counterparts in America and Europe. When it came to replacing legacy systems, the priority for this institution therefore was to detect and manage fraud and to deploy a system that would give it the agility to keep up with the constantly changing nature of fraud attacks.

Initially focusing on countering credit card fraud, the bank deployed a system that now covers debit cards, internet banking and phone banking, and has added real-time functionality across all channels – thus simplifying the bank's IT estate. Its flexible design has enabled the bank to respond rapidly to the multi-faceted fraud threat with new techniques and without undertaking a system rebuild or a brand new installation. In addition, the bank's team of analysts is smaller and doesn't have to be trained across multiple systems. Operators have the same interface across all banking channels, and interaction with customers is identical across all activity, which has made it easier to introduce new channels like mobile phone banking.

The financial institution has established itself as a leader in the fight against fraud. The agile fraud solution has enabled it to detect 75 percent of card fraud and 90 percent of counterfeit fraud before customers become aware of the attack. On average, the bank spots fraudulent card use by the third transaction and counterfeit fraud after 1.8 transactions. The bank also has an almost 100 percent record for detecting internet bank fraud, and recovers 100 percent of funds if fraud is detected within 12 hours. Real-time fraud detection has led to a 90 percent improvement in terms of the amount lost per fraud event.

A retail banking hub at a North American financial institution

Customer service is the primary focus of this North American institution. It serves almost 11 million customers and processes more than five million financial transactions every day, and has created an innovative, standards-based payments hub for retail banking payments to ensure it remains ahead of its industry. The hub includes real-time, cross-platform account balance synchronization across all customer touch points including ATMs, POS devices, call centers and internet banking.

The flexibility within the hub has enabled the bank to extend and augment its original solutions to address new challenges. The hub supports the bank's fundamental IT by relying on re-use and extensibility rather than building new systems and solutions from scratch. For example, the product that was initially licensed for use with the telephone banking system has been adapted to support internet banking by front-ending it with a web server instead of an interactive voice response unit. It is typical of an approach that has seen the organization accelerate its servicing capabilities by using 'enabler' services to extend core products into broader capabilities. The underlying hub software also provided real-time synchronization across existing mainframes and a new HP NonStop™ environment when the bank transferred its all-important customer database. It also enabled SOAP messages and the replication of customer updates across platforms during the transition period.

The bank has been able to architect its payments platform to reduce reputation risk and to manage regulatory and compliance controls in a centralized and simplified way. At the same time, the highly stable systems in the payments hub have translated into customer confidence, and by standardizing financial transaction processing on the platform, the bank has been able to rapidly add new functionality through multiple channels whenever it is required.

Do you need to replace your legacy infrastructure: check your status and potential benefits

1. How do you compare with your competitors when it comes to the sophistication of your offerings?
2. Are your customers happy to stay with you, or is the flexibility offered by your competitors overcoming their loyalty?
3. Are the services you are providing to your customers giving them greater value, and are they willing to pay for it?
4. How far can you tailor the services you deliver to your customers? Are you offering a fine-tuned Ferrari or an assembly-line Model T Ford?
5. Do your customers get the services they want when they want them?
6. Do you know what your customers' overall positions are? Are you able to tell them?
7. Does information get used and shared by the whole financial institution? Or is your customer talking to three different businesses?
8. Can you take on board white labeled products from third-party specialists and use them to efficiently expand your range of services?
9. Are you able to provide your own specialist services to other parties for them to white label?
10. Do you know whether you would benefit from in-sourcing or out-sourcing payments services – and are you in a position to do so?

If you have decided that now is the time to consider replacing your legacy payment systems, Louis A. Blatt, ACI's chief product officer, would be happy to discuss your next steps. He is available at louis.blatt@aciworldwide.com.

Louis Blatt is responsible for the evolution and market success of ACI's strategy and resulting product line. He is focused on extending ACI's global leadership in the payments market by delivering a unified solution to maximize the total economic impact for our customers.

Louis received a doctorate and masters degree from Boston University where he studied human-computer interaction and has attended executive management training at Harvard Business School.

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