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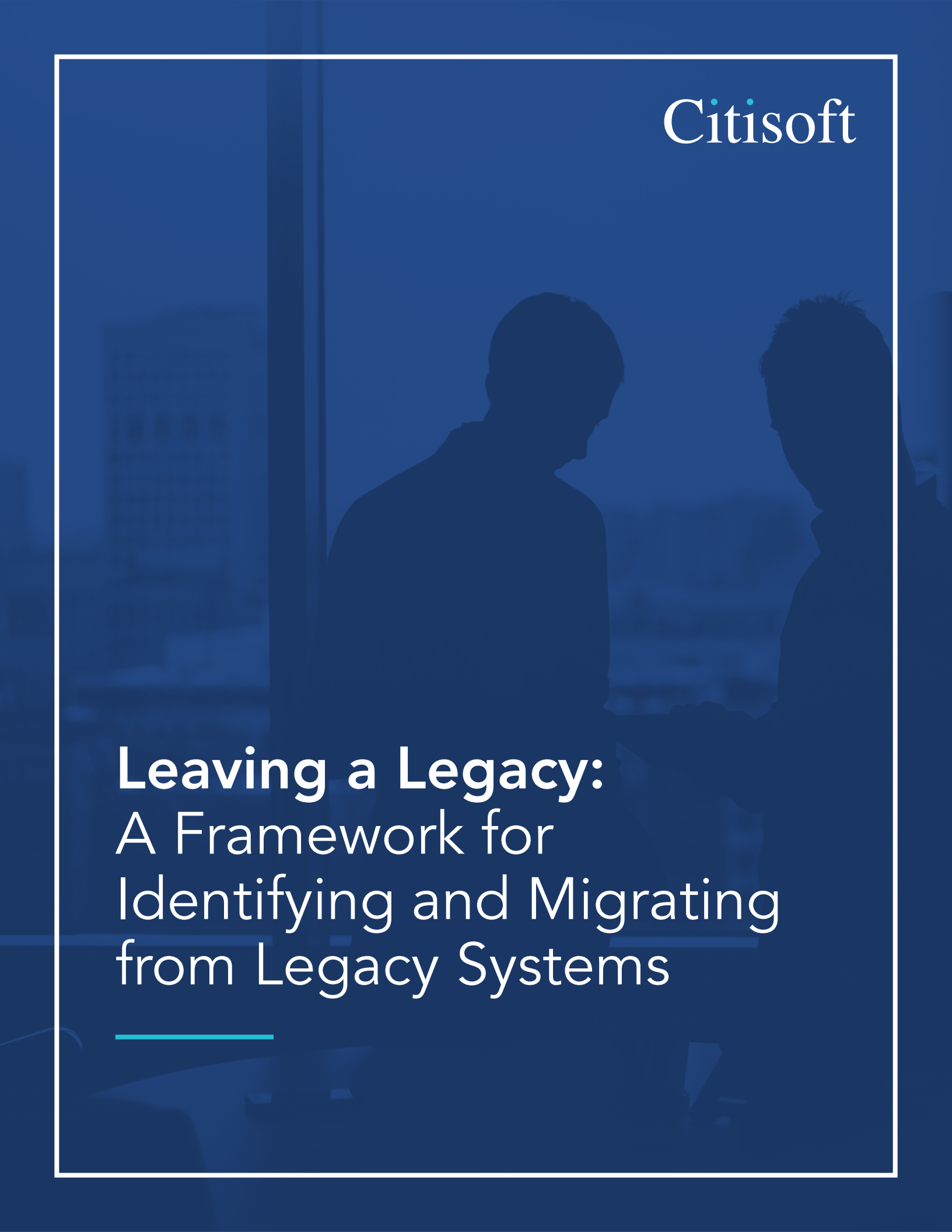


Leaving a Legacy: A Framework for Identifying and Migrating from Legacy Systems

Technology Is Driving Competitive Advantage

Compressed innovation cycles have had one of the most powerful impacts on business since the internet age reached maturity. With information flowing unencumbered across geographies and networks, entire industries can pivot on a dime—whether that means tapping into new markets, new pricing models, or new manufacturing optimization models. In many cases, innovation is an absolute requirement due to lower barriers for entry in nearly every industry with a sizeable digital footprint. The cycle follows a familiar curve, but with increasing frequency; new entrants introduce an innovative business model and their successes are mirrored by competitors. As they grow into comfortable incumbency, the next wave isn't far off from disrupting this new normal. The innovation age has pushed these peaks and troughs closer together such that periods of stagnation are brief and innovation is always cresting close behind.

If there is one notable industry exception to these compressed periods of innovation over the past ten years, it is financial services. Some would argue that financial services has adapted well to the internet age—after all, online banking is nearly ubiquitous and trades are now made on the order of nanoseconds. But this doesn't paint a full picture. One may argue that the financial services industry stagnated at the point of the financial crisis. By propping up firms that should have succumbed to a natural business lifecycle, the government played a role in shuttering the doors on new entrants and giving incumbents carte blanche to continue business-as-usual. The evidence of this is clear: most of the biggest and most profitable financial services companies in the world are still shuffling paper, producing archaic code, and reconciling critical data in spreadsheets. This would never fly in the world of Amazon.

If you didn't beat us to the punchline yet, this is changing. Though the term is amorphous and overhyped, fintech is finally bringing about the innovation that was stymied a decade ago. It seems that this tidal wave is hitting everywhere at once: lending, advisory services, exchanges, clearinghouses, financial products, investment strategy. In our view however, the most revolutionary change is behind the curtains.

Many asset managers are still limping along on platforms that were installed over 20 years ago, with a patchwork of proprietary applications and limited functional data architecture or data governance programs. With the allure of predictive analytics, robotic process automation, and blockchain technology tempting any fund manager with access to Twitter, it's no surprise that our industry is seeing firms rush to get involved. While it's clear that these futuristic technologies will drive competitive advantage, it's not quite as clear how to get there. In our view, this revolution will not begin with flashy headlines, it will begin with the plumbing. One of the most critical tasks in paving a path to meaningful innovation is identifying the systems and processes that are currently posing a clear risk to operations.

Legacy Behaviors Are Stifling Innovation

In many industries, there is an implicit understanding that technology must be continuously invested in and teams across all business functions must be focused on

innovation. This understanding has been underscored by a subtle behavioral shift away from risk aversion in business strategy. That hasn't been the case in financial services. Compounding the stagnating effect that the financial crisis had on innovation has been a deeply entrenched conservatism in our industry. Perhaps unsurprisingly, the crash encouraged asset managers to take on even less risk and tread more carefully around business change.

While new technologies have entered the industry, these have mainly been devoted to automating pre-existing processes and designed to sit on top of the established infrastructure. Static operating models and stale technology are still prevalent throughout financial services, even in firms that appear to be shifting to a technology focus. Innovation labs can only go so far when the majority of decision-makers and technologists have long been rewarded for stability. What's emerging is a siloed organization: hoodies and flip-flops tinkering in one office and business as usual throughout the rest of the firm. With the cultural and physical chasm within these businesses, it's hard to see how lasting change will take hold. In our view, innovation must be led by the those who are in the trenches and their mindset must be the first to shift.

To convince an asset manager to begin the process of identifying its legacy systems, it generally takes someone very senior in the firm to become the project champion, such as the COO, CIO, or CTO. Too often, although the burgeoning risk is acknowledged, it is dismissed as tomorrow's problem. In reality, many firms will not address the obstacle until something happens to force their hand, be it a notice of system retirement from the vendor, an unsupported operating system, or a potent regulatory change that cannot be managed in-house. In reality, legacy systems often cause unrealized problems in the form of operational deficiencies due to an inability to launch new products, invest in new instrument types, penetrate new geographic markets, and onboard clients, resulting in potential lost revenue.

Given the complexity of replacing these long-established systems, it is usual for key stakeholders to defer a decision for as long as possible. As time goes by, the

temptation to push the decision away also grows. It takes strong and decisive leadership to drive through this change, and asset managers need to focus on the benefits that a new system and operating model will bring: increased agility and an opportunity to create a more dynamic and change orientated culture.

The first step to making a change is acknowledging that legacy systems are an unmanaged risk—and a potential threat—to business. There are a great number of legacy platforms performing critical duties in some of the industry's largest firms, yet the regulators and stakeholders are not being vocal about the peril of deferring a snowballing problem.

Defining a Legacy System

In our industry, legacy technology has become the foundation that many firms have built their operations and technology infrastructures upon. In an ideal organization, these technologies would have long ago been replaced or steadily upgraded, but this has not been the case in asset management.

Part of this problem is an issue of semantics. While "legacy system" is commonplace in the investment industry vernacular, there's no agreed-upon definition. Though it goes without saying that old software applications are often problematic, there is a lack of clarity about the point at which an application becomes outdated or what the scale of risk is. Without a clear definition, there are misunderstandings even in IT circles about what legacy risk is and how to go about assessing applications, let alone replacing them.

Because the definition of a legacy system is gray, we've found it more intuitive to represent technology applications on a sliding scale in terms of their legacy indicators. Rather than suggesting a black-and-white view of whether a system is legacy or not legacy, we can more easily understand risks by grouping solutions into four categories: no legacy issue, early warning, pre-legacy, and clear legacy.

The Legacy Scale

Applying these four categories presents its own definitional challenges. To understand where an application falls, there must be clear criteria set forth. By applying the general guidelines below with a score attributed to each assessment criteria, we can make a reasonable estimate of where an application lies on the legacy scale.

We have put into use a metric system to help quantify how much risk a particular system poses. Our assessment looks at key criteria specific to a firm's applications including functionality, core business, re-investment, support, and sales and marketing. By drilling down into each category and assigning and weighting scores for an application and firm, we can map applications across an organization or across the vendor landscape. The table below provides a high-level overview of our framework and key considerations.

As a consultancy, we're able to achieve granularity across a firm's enterprise-wide applications or as an application-specific competitive set by leveraging our library of vendor intelligence. Having worked on hundreds of evaluations, selections, and implementations, we have a unique purview on how vendors are performing relative to peers in terms of health and functionality across the investment management landscape. This tactical insight (coupled with the wisdom of 30-years' experience) has helped us rapidly assess technology architectures at a glance and anticipate where technology and operations need to focus to maintain operational health. If you're unable to leverage external resources for this analysis, this exercise can still be performed for in-house applications that you use currently by using data from end-users and publicly available information.

Functionality	Features	Product functionality including infrastructure, user experience, hosting options, security, product bandwidth and richness of features.
	Re-investment	Vendor's dedication to investment in product research and development, effectiveness of product roadmap, and cost of upgrade.
Firm Health	Core business	Health of the application's core business, including likelihood of M&A activity, trends in financials, and market intelligence.
	Support	Availability of support resources for both implementation and ongoing service.
	Sales and marketing	Sales trends for application and investment in marketing the product to new clients.

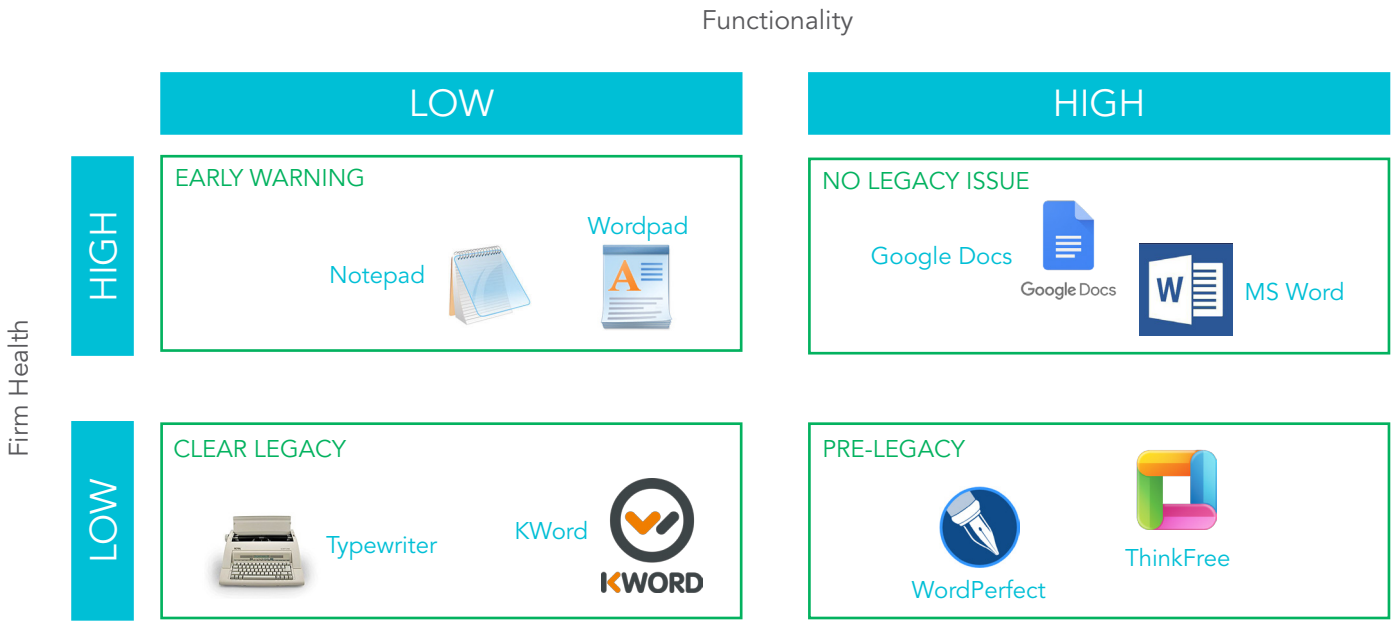
The Legacy Stage Scale in Practice

Ideally, the most cost-efficient approach to managing a legacy system is to have a strategy to supplant it before it needs to be replaced. If an alternative can be planned for during the pre-legacy phase, before the application begins its operational descent, this is the best scenario in terms of cost and risk. However, replacing a pre-legacy system is a brave step for any senior leader to take because it involves getting internal buy-in for planning to replace a system before a problem starts. Utilizing a quantifiable scale can help identify where applications need to be pulled out and achieve stakeholder support for your business case.

We recommend that firms adopt a practice of analyzing all of their applications across the investment management lifecycle to help guide their future state operating model and roadmap. While a full-scale strategic assessment is an ideal case, performing this application analysis on a yearly basis can be a low-cost effort to future-proof operations.

Using an example that most are familiar with, we've applied this scale to a number of word processing applications.

Legacy Scale: Word Processing



This analysis helps us quickly assess where applications should be addressed as soon as possible. In this scenario, typewriters pose a clear risk of becoming defunct, losing data, or consuming valuable resources. This should obviously be addressed but what's less clear is the line between Microsoft Word and Google Docs. With a revised product strategy and the recent release of Microsoft 365, Microsoft has bumped its products into the 'no legacy issue' category, but if we had assessed them a year prior, they might have been showing early warning signs. Regular analysis helps us assess changes in the market and understand where applications lie on the product lifecycle spectrum.

A firm may benefit from mapping applications across enterprise functions—from accounting systems to reconciliation software. An important component in this type of assessment is understanding the priority of an application in terms of operations. This analysis is firm-specific, but by weighting the score by the criticality of the application, a firm can use this analysis to guide their technology strategy or course correct.

During an evaluation and selection, this type of analysis is invaluable in ensuring that the technology you choose to implement is viable over the long-term. Because asset management technology is incredibly difficult to lift-out once implemented, performing this due diligence is a key step in mitigating technology risk.

Strategy for Legacy Replacement

This structured approach to identifying legacy applications can provide valuable metrics to gain internal support and understand where risk could be creeping in—but it does not replace a true current state assessment. Such a project should include comprehensive documentation on applications and processes, stakeholder interviews, and a strategic look at the market to understand where gaps and pain points should be addressed. This exercise should serve as the foundation for any transformational project or future state.

That said, with increasing industry consolidation and rumors of longtime incumbent vendors sun-setting key applications, a legacy risk can quickly become a scramble to identify and implement a new technology solution (case in POINT, pun intended). Such a situation does not lend itself to the robust framework of a typical transformation project. This risk can be mitigated by having a regularly updated legacy analysis, maintaining close vendor relationships, and periodically issuing RFIs to keep informed of the market.

Conclusion

As investment management continues to be shaped by this period of innovation, it's critical that firms get their front, middle, and back office systems and data architecture in order to ensure they are able to reap the benefits of new technologies. We see many firms falling into the trap of sending technologists to an "experimental silo," isolating them from the old world order. As long as there is this cultural divide, there will be a struggle to make any positive technological change. Innovators don't understand that the organization's operational framework is hanging by a thread, and legacy behaviors are guiding the processes that keep outdated applications in place.

As a first step, we recommend all asset management organizations assess their applications on a legacy analysis scale. This quantifiable system for categorizing technological risk can help lay the groundwork for a transformation project, benchmark changes in the market, and help identify priorities for system replacement. While gaining buy-in for a technology project that doesn't have the allure of robotics or blockchain may be difficult, this exercise will help highlight for all stakeholders what's at risk and lay the groundwork for achieving operational excellence.

About Citisoft

Since 1986, we've solved complex technology and operations challenges for the investment management industry. With a team of over 100 dedicated consultants in North America and EMEA, we're committed to working with asset managers and asset servicers globally on projects of every scope. From guiding complete business transformation programs to on-the-ground delivery, our team is equipped to fulfill any strategic or tactical need.

To learn more about our Advisory and Delivery Services or to leverage the legacy scale in your organization, contact us at insights@citisoft.com or visit us online at www.citisoft.com.

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