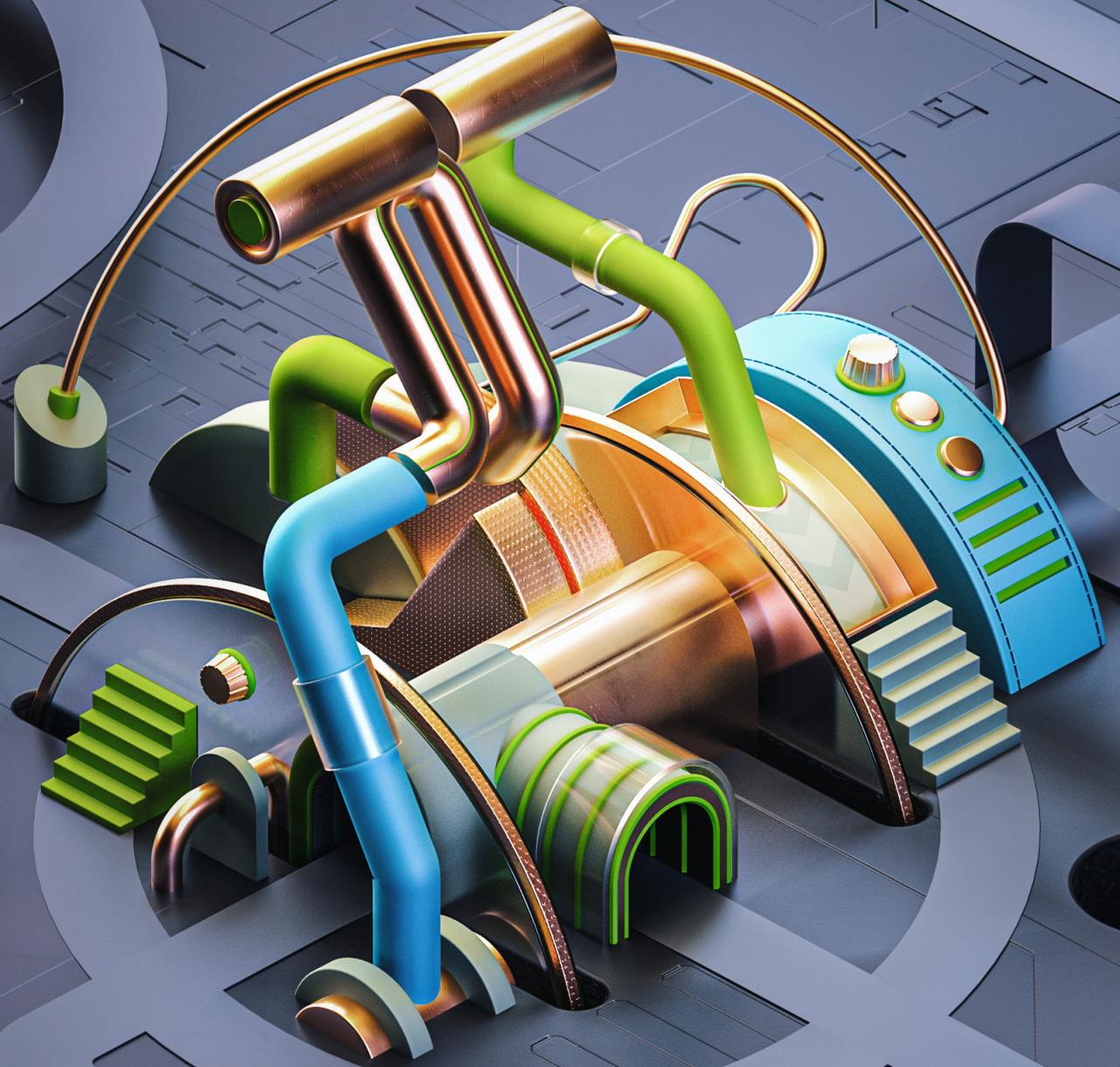


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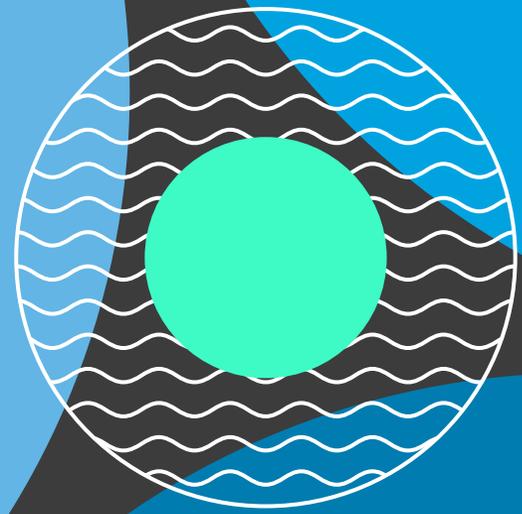


Core revival



MAKE A FRESH BUSINESS CASE

Reengineer your business case for reviving the core with new financial offerings and approaches.

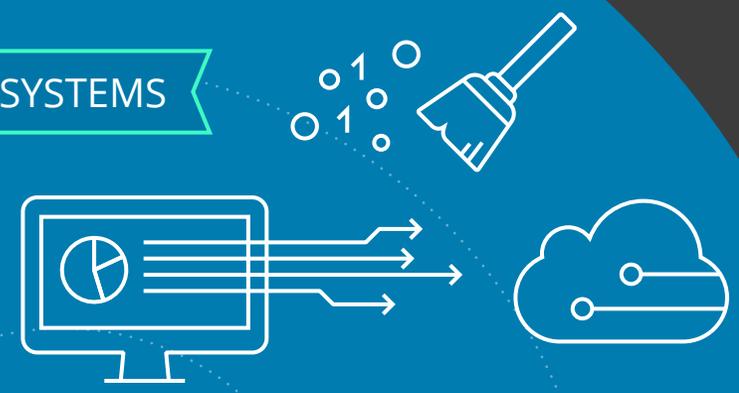


TRANSFORM CUSTOM CODE

Explore options for recreating legacy IT assets with a new generation of powerful low-code platforms.

REVITALIZE LEGACY ERP SYSTEMS

Pay down technical debt by refactoring critical code, removing unneeded functionality, and replatforming non-ERP capabilities.



TREND 2

Core revival

New technologies, techniques, and business cases to drive your modernization strategy

Since *Tech Trends* debuted 12 years ago, we have explored many of the transformational approaches and technologies that CIOs may take to extract more value from legacy core systems. This year, in what we recognize as an exciting new trend, some CIOs are exploring several innovative ways to redefine the core modernization business case. For example, new techniques are making efforts to lift-and-shift to the cloud more cost-neutral and operationally manageable. Likewise, an array of leading-edge technologies—including low-code/no-code, more intelligent business rule discovery, and core mapping—offer new ways to revitalize valuable core assets. Finally, looking beyond lift-and-shift, organizations can upgrade enterprise resource planning

(ERP) systems by reducing technical debt and leveraging non-ERP platform capabilities in a more manageable, cost-effective way.

In the current economic climate, it's more strategically important than ever to help your legacy core systems support the agility, innovation, and new modes of working that fuel that digital potential. Yet costs associated with popular approaches to core modernization—particularly those used with custom-coded business transaction systems such as application rewrites and cloud migrations—can give some organizations pause.¹ Faced with pandemic-related uncertainty and tight budgets, many IT leaders and their C-suite peers are looking for new ways to fund modernization

initiatives. Likewise, they want more from these investments than mere improvements to the enterprise IT plumbing—they want to create a lasting foundation for innovation and competitive advantage.

Over the next 18 to 24 months, we expect to see trend participants:

- Reengineer costs, project funding models, and the desired outcomes associated with their core (and, potentially, data center) modernization use cases by focusing on third-party platform management services. These services feature nontraditional funding arrangements and operate-to-transform approaches that combine modernization and innovation investments.

Trend participants can also lift-and-shift big, custom-coded transactional systems to hyperscaler cloud platforms.

- Explore opportunities to accelerate the discovery of the internals of black-box legacy systems to facilitate modernization. In addition, leaders will explore ways to use technologies such as PaaS low-code and no-code platforms to perform traditionally complex tasks and integrations via point-and-click, rather than by writing new code.
- Support a platform-first strategy by deploying leading-edge system analysis tools to identify redundant or extraneous code within legacy ERP systems, and either move this code to another platform or delete it altogether. The ultimate goal of this approach is to remove technical debt that accrued over years of using ERP as a development environment and, in doing so, return ERP assets back to a baseline state.

Then, going forward, CIOs and their teams will make key decisions about whether to develop mission-critical capabilities in the ERP system itself or on alternate platforms.

Lift, shift, and thrift

During the past few years, some companies began looking beyond lift-and-shift for opportunities to redesign core capabilities in the cloud;² they wanted to take full advantage of cloud platform offerings to enhance their existing capabilities. But many leaders were wary of potentially large future costs.³ Even before COVID-19 disrupted the global economy, pragmatism—and a growing focus on the business case for core modernization—had begun informing more transformation decisions.

Today, we see renewed interest in migrations to the cloud, particularly from organizations

that in this time of uncertainty need an efficient, cost-effective way to move rigid yet essential core assets. Revitalized in the cloud, these assets can provide a strong foundation for mission-critical innovation and growth strategies in areas such as artificial intelligence (AI), edge computing, and quantum.

Making a fresh business case

In the coming months, we expect to see creative approaches for financially reengineering the core modernization business case gain traction in the marketplace. Though the specifics will vary by need and industry, their common ground will be that they offer organizations the following ways to achieve their core modernization goals.

- **Operate and transform.** Organizations are exploring other creative operate-to-transform agreements with implementation

partners, holding them accountable for migrating and/or upgrading systems, and utilizing powerful tools. While these agreements will inevitably vary in detail and scope, many arrangements are designed to minimize capital-intensive efforts. In fact, some organizations are able to secure agreements whereby their systems will be modernized to cloud-native platforms in a few years, while organizational operating expenses stay neutral.

- **More bang for fewer bucks.** During the last few years, vendors have made significant improvements in proprietary tools that support transition to the cloud. By simplifying the process, these tools are giving rise to some compelling business cases in which migrations can be cost-neutral or lead to cost savings.
- **System rationalization—how less is more.** In many organizations, systems

have sprung up over time to work around other limitations, leaving burdens of technical debt, outdated applications, and workarounds. Transitioning collections of systems to the cloud may enable (or force) the long-overdue process of rationalizing redundant systems, eliminating unnecessary dependencies, and modernizing capabilities. Modernizing a collection of related systems—or retiring some of them altogether—can lower care-and-feeding costs, increase efficiencies, and enhance system performance, all of which may lower cost allocations across the stack and bolster your business case for a core revival initiative.

Building a fresh business case for core modernization represents a different kind of transformation play. Hyperscalers are increasingly willing to chip in funding to help organizations transition to cloud offerings with expectation of recouping their investments

over time. Professional services firms are willing to invest in back-loaded arrangements, to be rewarded for long-term impact while easing immediate cash-flow burdens. In some cases, all up-front fees can be deferred in exchange for a share on the upside of the business case. For clients, these options offer fast access to needed platform capabilities on what are, for some, attractive terms. The hyperscalers themselves can get more core systems operating in their clouds, make those clouds increasingly sticky, and over time support additional workloads for their customers.

Transforming custom code

New and improved technologies can help organizations revitalize legacy systems to either spruce up or retire core systems. Using the following advanced techniques, they can carve out pieces or wholesale replace legacy systems:

- **Improved low-code platforms.** Low-code (LC) platforms are dramatically more capable than even a few years ago. Some enterprise technologists may harbor doubts about LC scalability and performance, but the list of industry-specific LC platform opportunities continues to grow. Using LC offerings from Appian, OutSystems, Salesforce, ServiceNow, or other vendors, systems designers can carry out complex tasks and integrations through point-and-click rather than having to write code. Moreover, LC vendors are racing to integrate advanced AI/machine learning (ML) capabilities into their platforms to help augment the user experience. Finally, “case” and contact management are a core function of many of the LC platforms—and often an area of great need for agility in legacy platforms. As such, the impact that LC platforms can have on core modernization efforts cannot be overstated, a fact not lost

on tech leaders and developers. Grand View Research valued the global low-code application development market at US\$11.45 billion in 2019, and expects the market to grow 22.7% annually until 2027.⁴

- **Modernized business rule extraction.** Traditionally, the process of identifying and extracting business rules from custom code in legacy applications has required an extensive, manual effort and an army of specialized resources. Today, improved mining technologies and approaches make it possible to peer inside legacy code—regardless of language—and extract its business logic with less effort and higher fidelity. By scanning the code of an application that is a candidate for modernization, you can quickly identify essential business logic, as well as hot spots where a system issue is taking place, and either refactor the code in question, remove it, or perhaps replace

the application itself with a microservice. In the context of core modernization, this represents a game-changing breakthrough: Not only can existing business logic fuel requirements or LC development—the tools are improving as tool developers apply AI/ML to increasingly automate aspects of the code extraction process.

- **Improved incremental modernization.** Another novel approach to application modernization involves a process known as *core mapping*. Using a set of increasingly sophisticated mapping tools, legacy systems can be visualized as a connected graph of constituent parts. A map of connected code modules works similarly to a social network graph on Facebook, in which lines and dots represent connected people. By identifying logical subgroupings, system engineers can identify and sever legacy interfaces, replacing the interfaces with modern API and service-based

techniques. Over time, these services can then be modernized individually as needed in a more predictable, consistent way.

Breathing new life into legacy ERP systems

If financially reengineering business cases and transforming custom code represent core modernization's yin, then deploying more efficient, cost-effective approaches for cleaning up nonessential code in ERP systems and addressing years of technical debt can be considered its yang. Both share a couple of important goals. First, they advance a platform-first strategy for the development of business-critical software designed to create competitive advantage. Moreover, they both increase agility by reducing ERP technical debt. Technical debt in ERP systems is typically a symptom of business complexity, outdated business and IT operational models, and a company culture grounded in the business

priorities of yesteryear. Addressing these challenges can have the net effect on your ERP systems of jettisoning unneeded ballast.

Building a fresh business case for core modernization represents a different kind of transformation play.

As you look for ways to revitalize your core assets, monetize technical debt, and move existing capabilities to the cloud or low-code/no-code platforms, consider the following:

- **Is that all there is?** In the current economic climate, organizations with

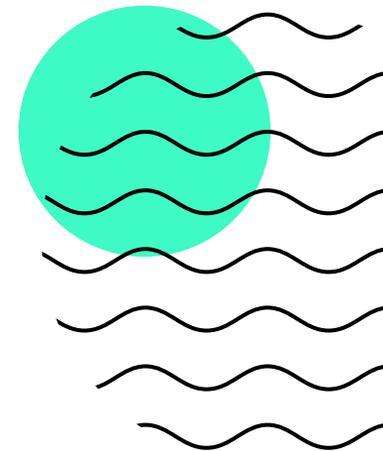
significant long-term investments in ERP assets have begun questioning the wisdom of spending seven or eight figures on a major ERP upgrade. Will these expensive, complex undertakings deliver lasting material benefit to the organization? Will enhanced ERP assets then support ongoing innovation and enable long-term business strategy? Or will ERP upgrades ultimately be just another cost of doing business? New approaches to modernizing legacy ERP systems represent a welcome evolution in approach to upgrading legacy ERP assets.

- **Refactor, remove, or replatform.** In the preplatform era, some companies used ERP as a development environment. Today, the residue of outdated requirements and governance, useless nice-to-have applications, workarounds and fixes, and customized code often lives on in a tangle of complexity that confounds system engineers and stymies digital

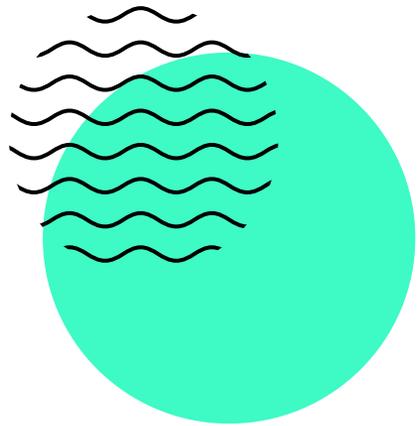
transformation efforts. In the face of such complexity, the process of upgrading an entire legacy ERP system to the latest release can be extremely expensive and time-consuming. But what if you could identify the ERP components that would make the biggest impact on your strategy or bottom line—for example, a proprietary pricing algorithm—and upgrade only those? Using advanced tools, you may be able to recode critical targeted capabilities—whether they be custom code or something like Java—while leaving them operating within your existing ERP system. Or you can move non-ERP capabilities to platforms on which they can create competitive advantage, thus monetizing your technical debt. Either way, reducing complexity and getting rid of technical debt can increase operational and strategic agility and, in turn, enhance the business's ability to evolve.

The way forward

The work of enhancing legacy core assets is not a one-time task—it's an ongoing opportunity. Core application scope is decomposing across platform ecosystems: What used to be a simple all-in-one ERP suite or an individual core module is becoming a decentralized, cloud-enabled, API-orchestrated collection of capabilities made cohesive by a simplified user experience. As this type of welcome innovative change continues its disruptive march into the future, organizations participating in the *core revival* trend will have a road map not only for adapting valuable core assets to new technological realities but also for funding this work in creative ways.



LESSONS FROM THE FRONT LINES



Albemarle takes on the core and more

Specialty chemical company Albemarle has completed its journey to one consolidated ERP system—a journey that in many ways exemplifies the art of the possible for core modernization.

After a series of multibillion-dollar acquisitions, this global leader of lithium, bromine, and catalyst solutions found itself with a stable of far-flung business units. Albemarle needed to integrate these acquired units, create a shared service center, and establish common best practices as soon as possible. But a major obstacle stood in the way: The business units in question did not share a common ERP platform. “Creating a single ERP platform was going to be essential to that business integration initiative,” says Albemarle CIO Patrick Thompson. “Not only would it support our shared services model—it would eliminate the technical debt from more than 3,500 customizations that had been made to the two platforms.”⁵

Albemarle spent almost a year vetting the business case for consolidation, refining the ROI metrics, and aligning on

how to reduce their existing technical debt. Upon finalizing a detailed consolidation plan, the company kicked off its business transformation journey in mid-2017. During the next 18 months, the Albemarle team executed a series of four ERP deployments, resulting in a single ERP platform that serves the entire global enterprise with common processes and best practices. Along the way, Thompson and his IT team migrated the global operation from Lotus Notes to MS Office 365. (This latter step is no small feat in an organization with operations ranging from remote mining locations in Chile and Western Australia to manufacturing facilities in the Americas and China.)⁶

Albemarle’s next step is notable: Once Thompson and his team had everyone operating on a single ERP platform, they executed a “big bang” version upgrade to the global ERP instance in a mere six months. How did this group of technologists achieve what may be a speed record for ERP upgrades? First, they eliminated their technical debt by electing to make no code changes or customizations to the global instance they deployed—it was basically out of the box, dramatically simplifying software upgrades. “We did create 70 extensions, but they were outside the code, and we used APIs for those,” Thompson says. “We also had really good

methodology and talent. Over the course of this project, we have put a lot of work into developing the foundational framework and the talent that we need to execute upgrades. Going forward, we will be able to flex this muscle up and down as needed for upgrades.”

As of January 2020, Thompson had completed the consolidation and upgrades, and began shifting his focus toward broad digital transformation. The company is accelerating its work on IT/OT convergence, particularly in its manufacturing operations. In the back office, Albemarle will be using robotic process automation and business process mining tools to elevate its first pass yield and rework process performance. And, on the customer side, the company is exploring opportunities to extend to customers some self-service ordering and track-and-trace.

“The work we did consolidating and modernizing our foundational platforms makes

digital enhancements like these possible,” Thompson says. “We no longer have to spend money on technical debt and customizations. Instead, we can invest those resources to make leapfrog progress with digital technologies that can transform our company.”

Centuries-old tradition meets a low-code future

In a family-owned company like Sogrape that embodies the painstaking traditions of Portuguese winemaking, the immediate benefits of modern technology’s speed and agility aren’t easy to see—after all, the journey from vineyard to bottle can never be rushed. Consumers in more than 120 countries prize Sogrape’s traditional approach to winemaking; over the years, public figures such as Jimi Hendrix, Queen Elizabeth, and Steve Jobs have savored the vintner’s unique signature brand, Mateus Rosé.⁷

But when, in 2017, the company found itself with a burning legacy platform that could no longer support its needs, Sogrape head of IT Carlos Alves began looking for a way to harness core modernization in the service of methodical, artisanal winemaking. “We needed a consolidated platform that could connect all the functional steps in our winemaking process,” he says. “At the same time, we—as a global organization operating in the 21st century—needed speed and agility.”⁸

Alves considered upgrading Sogrape’s in-house core systems to cloud-based offerings by the same vendors but instead chose to go with the OutSystems low-code platform. “We considered three factors: time to delivery, cost, and training time required to use the new technologies,” he says. “In each area, low-code worked best for us.”

Using OutSystems low-code technology, Alves and his team built “Wine Connection,” an

integrated platform that offers on-site process control and real-time information-sharing to functional groups across Portugal, including viticulture, wineries, bottling, registration, contracts, and others. Users can access the platform via desktop, tablet, or mobile phone.

Alves says the Wine Connection platform has delivered several welcome outcomes. “We have been surprised by the increased efficiency and decreasing costs.” He adds that low-code technology—coupled with Sogrape’s recent embrace of Agile development methodology—is having a surprising impact on IT’s ability to take new products to market. “We recently developed a digital platform for our restaurant customers in just three weeks,” he says. “That same project using waterfall would have taken much longer.”

The company’s success using low-code and Agile in tandem has led to fundamental changes in the way IT operates. IT has

developed a formal Agile methodology for low-code projects. Using this template, Alves and his team are standardizing the process that departments across the enterprise will use to create new products. “For example,” he says, “we are starting a new three-phase project for human resources to develop a platform-based portal for employees to choose company benefits. This portal will be completely integrated with our ERP system.”

Sogrape’s embrace of low-code technology has also fueled ongoing digital transformation efforts. For example, winemaking containers are now connected directly to company systems through embedded sensors, making it possible for winemakers to control wine temperature more consistently. In another application, field sensors embedded within containers used to store harvested grapes can gauge the density of the fruit in individual containers. Sogrape’s integrated low-code platform collects and analyzes sensor data.

Understanding the precise density of specific harvest batches can help winemakers control the fermentation process.

Says Alves, “Wine Connection strikes the perfect balance between innovation and tradition.”

GM Financial uses PaaS to build stronger systems for customers

GM Financial, the captive finance arm of General Motors, is in the early stages of modernizing a legacy loan origination system on which it relies to provide auto financing solutions to customers in North America.⁹ For this core asset, the organization considered several approaches for addressing challenging architectural complexity and manageability issues, including outsourcing the system to a third-party hosted platform. In fact, IT and business leaders took advantage of

public cloud providers' analysis of alternative resources to make key decisions about the organization's future architecture. But in the end, says Bill Livesey, GM Financial's senior vice president of digital software solutions, the most compelling business case called for using cloud platform-as-a-service, when possible, to modernize legacy systems already in place.¹⁰

"It came down to controlling our destiny. We want to maintain our competitive advantage using core systems that we own and control," Livesey explains. "We've invested so much of our intellectual property in these platforms for so many years, it just doesn't make sense to give away that IP to others."

The business case for cloud and PaaS also included cost-related elements that Livesey could not ignore. "With PaaS, we could keep developing the products and services our business partners need right now. We wouldn't have stopped everything and shifted all of our

energy toward migrating systems to a third-party platform." Moreover, the ability to push the burden of managing some core capabilities to a cloud provider was an attractive option, particularly for an IT team that had been gradually spending more and more time maintaining aging on-premises systems. Finally, business teams stood to benefit as well. Over the course of the project, the business and IT would have an opportunity to forge a strong collaborative partnership that could deliver innovation opportunities, enhanced operational efficiency, and more frequent deployments.

During the first leg of GM Financial's modernization journey, Livesey and his team went through a process of determining which system components were candidates for moving to PaaS. As it turns out, many were "very suitable" and will be migrated with few changes in the near future. Others, due to age or complexity, had no path to the cloud and will have to be refactored or deleted altogether.

IT undertook a similar process of careful analysis before deciding to migrate from a legacy on-premises database to a cloud-based alternative. "This was a big decision given the size of our loan origination system and the sensitivity of the financial data contained in it," Livesey says. "We ultimately became comfortable that a cloud-based solution could meet our standards for security and privacy."

GM Financial has more work to do as it reimagines its legacy loan origination platform in the cloud. But even in this first leg of the journey, the project enjoys broad support from across the organization. "Our partners in the business are excited about this effort," Livesey says. "We're taking a very large, sprawling architecture, and transforming it into a single, consolidated loan origination platform. They get powerful, reliable tools to support their work, and IT will get a stable, manageable production environment that we can modernize on an ongoing basis with minimal effort. Everybody wins."

MY TAKE

Justin Kershaw

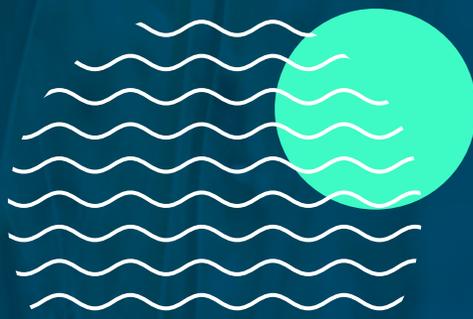
Corporate vice president
and CIO, Cargill



Over the last few years, I've noticed a big shift in the way boards and executive leadership think about enterprise technology—a shift that is redefining the way companies approach core revival initiatives.

Many of these decision-makers have traditionally viewed technology primarily in terms of cost, as in: "How much will this new system cost right now?" But many of these leaders are becoming more forward-looking, focusing less on technology's cost and more on its long-term value. This is a welcome change.

I see a growing recognition across industries of the strategic importance of running modern technology. What's more, I see a greater willingness to invest appropriately in such technologies and consider new approaches to core modernization—and to the business cases behind these efforts.



At Cargill, we have been on a core modernization journey for several years. From our HR systems to treasury, from distribution and transportation systems to manufacturing, we have modernized more than half of Cargill's systems. We have also invested heavily to update our approach to technology risk, both internally and externally. Such efforts are no small feat for a 155-year-old company with operations in 70 countries and an ambitious purpose of nourishing the world in a safe, responsible, and sustainable way.

For a company like ours, maintaining and operating core technology is more than just good business. Consumers and farmers, as well as some of the world's biggest food companies, retailers, and restaurant chains depend on Cargill. The pandemic-related disruption of supply chains and the global economy in 2020 served as a potent reminder to Cargill and companies everywhere that operating modern technology is critically

important not just to business success. In many cases, it's vital to the safety and well-being of our societies.

The modernization journey for Cargill began with a shift to third-party managed services, enabling us to reinvest in core networks and infrastructure. We invested in technologies like advanced analytics, cloud, and ERP systems. Our leadership team and board are now seeing the value and returns from these efforts.

Going forward, we will move away from talking about "applications" and "infrastructure." Instead, the next phase of our modernization is creating "platforms" and "services." This will ultimately change our talent requirements—we will need more people who can build and maintain platforms and services. It will also change the way we will work with third-party technology providers, and how we serve our internal business partners and Cargill's external customers.

For example, we developed a single, unified platform called Maestro for Cargill's strategic sourcing department, an internal operation that accounts for more than US\$5 billion in indirect spend annually. The investment in Maestro—a foundational platform that replaced dozens of systems—has modernized our sourcing operation. We've achieved significant sourcing improvements over the last few years that are improving the company's overall results.

In the analytics space, we stood up a data platform a few years ago and provided our employees access to two self-service analytics tools. We went from basically having no centralized, shared data to a platform that handles some 2 million daily transactions. Our data platform lets us wield information at the speed and scale our business demands, allowing our teams to make better, data-driven decisions. Meanwhile, our self-serve analytics tools and coaching services are now

helping about 30,000 employees. But the most impressive number—especially to our executive team and board of directors—is the more than 7x return on these investments.

We are also investing heavily to modernize our processes. Like many global corporations, we have some inefficient, disconnected systems—and more than a few manual tasks that can be automated. We are tackling this head-on. Working with our ERP vendors, we are creating perpetual, end-to-end processes throughout our organization. This is a complex task that involves system upgrades, process engineering, and a huge change-management effort. Putting new technologies in place is one thing—getting people to use them effectively is quite another. That said, we are making enormous progress on both fronts, and it has been well worth the effort.

My team's approach in the future will be to identify business needs and then build

platforms, services, and digital products to meet those needs. Soon, Cargill customers using their phones will be able to access an entire portfolio of digital services, some even connecting them directly to the manufacturing floor. In IT, we will still have engineers with traditional skill sets focused on maintaining and modernizing our technology stack. And we'll also have teams focused on digital platforms and services. Together, these teams will build the kind of modernized platforms and processes that we need to support a digital ecosystem.

Modernizing our core systems and augmenting them with new services and platforms is transformational—and hard—work. But in the current technology and economic climate, *hard* is relative. Savvy C-level leaders and boards of directors now get it: Rather than evaluating a technology investment for its costs, these leaders view these investments as continual modernization that will create positive returns.

And even beyond modernizing, executives are coming to understand that progress on these technology journeys is vital to an entirely new form of disruptive competition in the market. Today's savviest business leaders know that the future belongs to companies that put in the *hard* work to future-proof their technology foundation.

Rather than evaluating a technology investment for its costs, these leaders view these investments as continual modernization that will create positive returns.

EXECUTIVE PERSPECTIVES



STRATEGY // Ongoing investments in core systems are necessary for IT to be an enabler of business value. Too often, executives view such investments in terms of immediate cost rather than future value. This is shortsighted: In many digital nonnative organizations, legacy core systems provide essential foundations for critical digital and business transformation initiatives. Several nontraditional approaches for financing core projects can help cost-focused CEOs find a different path to modernization. For example, working with the CFO, they can identify more cost-friendly opportunities to partner with hyperscaler cloud vendors or major ERP vendors and pursue smaller revitalization projects using low-code platforms. These and similar approaches can fundamentally rework the traditional business case for modernization by transforming a line-item cost into an investment in the company's future.

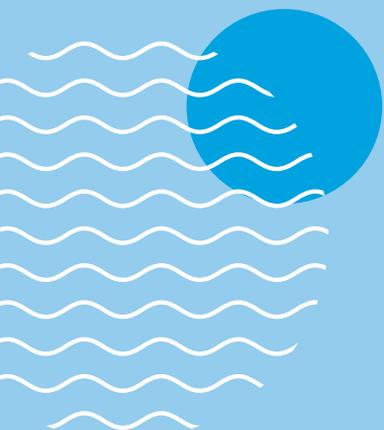


FINANCE // Many CFOs may have to make a crucial strategic decision about the future of their organization's core systems: procrastination or proactive modernization? The larger and more complex an entity is, the harder—and more expensive—an enterprise-level project such as core revival can be. Some CFOs may choose to wait for existing systems to break or become untenable before acting, but they can accumulate technical debt along the way. By contrast, finance leaders who are eager to modernize can consider a variety of approaches beyond large-scale migrations. For example, exploring creative deal structures with large cloud vendors or moving existing capabilities to low-code platforms can lead to cost-neutral options for establishing a future-ready foundation within core systems. Leveraging these and other core revival approaches, CFOs can become catalysts for fiscally responsible digital transformation and avoid being painted as a financial hurdle to the IT department's big goals.



RISK // Many core modernization initiatives today introduce leading-edge technologies into existing IT ecosystems. Risk officers should expect risks to emerge when old and new technologies intersect; they can work closely with CIOs to anticipate and manage risk in a manner that doesn't impede modernization efforts. Likewise, they can collaborate with the business side to identify opportunities to leverage risk management in new tech-enabled products and services as a strategic differentiator that helps build consumer trust. With these twin objectives in mind, CROs can help their organizations balance technology priorities and consumer sentiment against risks and regulatory concerns.

ARE YOU READY?



KEY QUESTIONS

1

Where would negotiating operate-to-transform arrangements with your technology vendor(s) be most useful?

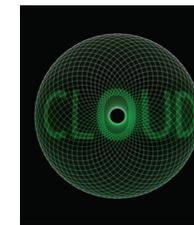
2

Would you benefit from moving legacy applications to more modern platforms (for example, low-code or cloud options)?

3

What is your strategy for eliminating technical debt in your legacy ERP system?

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Are you low-code yet?

Gain insights on the benefits of low-code platforms and how it can enable greater agility to respond to business needs.



Clean, connected, elegant

Explore a strategic approach to core modernization through clean ERP and reduced technical debt.

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Our insights can help you take advantage of emerging trends. If you're looking for fresh ideas to address your challenges, let's talk.

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ENDNOTES

1. Angus Loten, "[Lift-and-shift cloud strategies can be costly](#)," *Deloitte CIO Journal on the Wall Street Journal*, December 18, 2018.
2. Karl Schwirz and Michael Hodgdon, "[Is lift & shift actually a quick and painless path to the cloud?](#)," *Slalom*, March 2, 2017.
3. John Cronkite, "[What is so complicated about lift-and-shift cloud migrations?](#)," *Cloud Technology Partners*, October 8, 2019.
4. Grand View Research, [Low-code application development platform market size, share & trends analysis report by component, by application, by deployment, by organization, by region, and segment forecasts, 2020–2027](#), August 2020.
5. Patrick Thompson (CIO, Albemarle), phone interview with authors, September 30, 2020.
6. [Albemarle](#) website, accessed November 18, 2020.
7. Sogrape, [Annual report 2019](#), 2020.
8. Carlos Alves (head of IT, Sogrape), phone interview with authors, September 30, 2020.
9. GM Financial, "[About us](#)," accessed October 7, 2020.
10. Bill Livesey (senior vice president of digital software solutions, GM Financial), phone interview with authors, September 14, 2020.

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