An illustration of a person in a gold silhouette climbing a staircase made of four purple, rounded rectangular blocks of increasing size. The person is on the second block, stepping onto the third. The background is white with a green circular shape in the top right corner and a green rectangular shape in the bottom left corner.

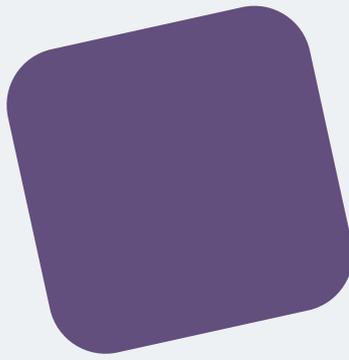
Legacy modernization

A transformation opportunity

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Executive summary

Modernizing technology within established businesses is hard. Failure rates are high, and even if you're one of the organizations that make it through their modernization program successfully, the decisions you make today may negatively impact your operations later down the line.

With the technology and competitive landscape evolving faster than ever, organizations can't afford to ignore the modernization imperative. But, to avoid the pitfalls others have fallen into and increase their chances of long-term success, there are several important lessons they must learn.

Of the numerous modernization failure modes we have identified, many result from the lack of a holistic perspective — one which recognizes the business context around the technology and approaches the change as a broader business transformation initiative.

In this eBook, we identify the elements of this approach and explore how these can be used to improve the chances of modernization efforts resulting in successful business outcomes.



Introduction

“The only thing systems modernization will do for a company with a broken business process is break it faster.”

Raymond D. Nelson Jr.

Maintaining legacy technology consumes as much as 80% of some organizations' IT budgets. To bring that cost down and reallocate budgets to innovation and value creation, thousands have started to modernize their legacy technology and bring it in line with modern standards.

It's a logical strategy, and one that offers numerous benefits beyond just freeing up resources that are being used to 'keep the lights on' but success is far from guaranteed.

Almost three quarters of organizations that embark on legacy modernization projects fail to complete them. This results in fragmented technology, misaligned processes, reduced efficiency and even higher Total Cost of Ownership (TCO).

In most cases, that failure can be traced back to internal challenges — most commonly, misaligned leadership and a lack of understanding of what modernization really means.

Both business and technology groups are guilty of thinking that legacy modernization by itself will lead to business agility, resilience and growth. But without the necessary changes, most organizations won't see the results they expected from a seemingly successful modernization following its delivery.

A recent example of this comes from Mizuho Bank, a Japanese megabank that was founded following the merger of Dai-Ichi Kangyo Bank, Fuji Bank and the Industrial Bank of Japan in 2002. Mizuho's \$4bn technology upgrade has suffered a string of serious outages since it was completed in 2019 prompting the Japanese financial regulators to intervene. This led to **high profile resignations within the bank**. Core among the issues plaguing this modernization is the **complexity of hanging on to and merging three IT systems** arising from a lack of agreement and alignment within the firm and its technology vendors on what the modernized technology should look like.

Mizuho's modernization challenges resulted from technology decisions and choices which (on a generous interpretation) devalued customer value and business benefit as decision criteria. This is not a unique case either. In most such examples, firms struggle to realize the outcomes they seek from their modernized technology even when the resulting technology is stable.

IDC predicts that **65% of organizations** plan to aggressively modernize legacy systems with extensive new technology platform investments by the end of 2023. To ensure their success, these firms must keep their desired business and technology outcomes front and center when making technology implementation decisions.

If they don't, they risk falling foul of the five biggest modernization failure modes:

1. Architecture and technology entanglement leading to internal and external lock-ins which heighten the risk of even minor changes
2. Transformation fatigue due to long running programs delivering in large, infrequent increments, or those driven at a pace much faster than the team can cope with
3. Misaligned talent and organization structures which cause friction in delivering value — leading to individual and collective frustration
4. A lack of cultural transformation where organizational values don't support the newly adopted ways of working, leading to regressive behaviors
5. Innovation theater where seemingly innovative initiatives don't align with desired business outcomes or drive any business value

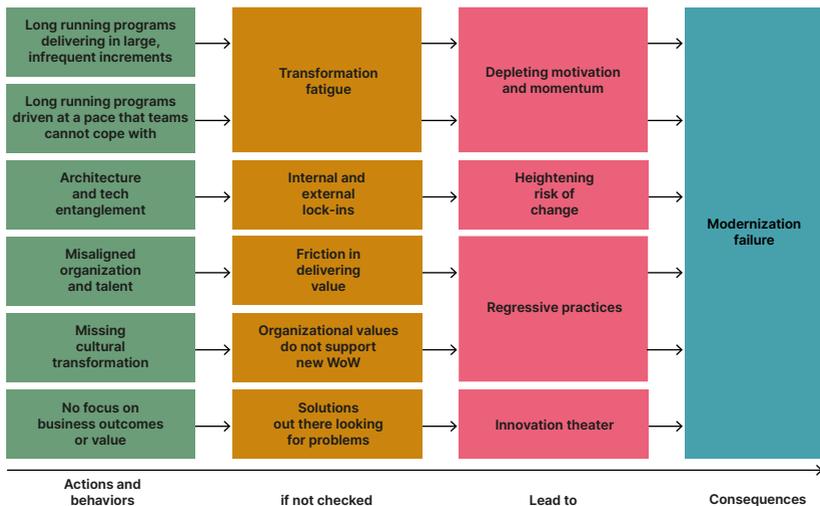


Figure 1 - Modernization failure modes

Together, those common failure modes show us that legacy modernization shouldn't be approached simply as a technology exercise. Instead, organizations need to think about modernization primarily in terms of the customer value and business benefit they want their program to ultimately deliver.

Rethinking modernization from the perspective of business capabilities and customer value may even help to narrow the scope of the modernization initiative, simplifying technology implementation and maximizing ROI. But most importantly, looking at a proposed modernization through those lenses helps organizations see the full scope of operational, cultural, talent and technology change required to deliver it successfully.

Why modernization is so challenging - a typical journey

“Lack of direction, not lack of time, is the problem. We all have twenty-four hour days.”

Zig Ziglar

To understand how to better manage and implement legacy modernization programs, we must first analyze the ways that organizations can make modernization challenging for themselves.

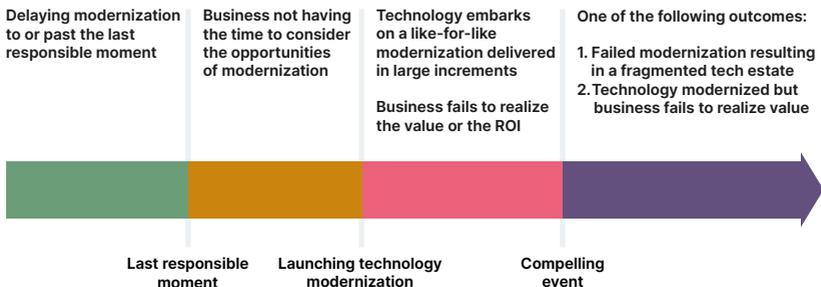


Figure 2 - Marching into a modernization catastrophe

The journey in figure 2 shows four stages where organizations either frequently make mistakes or miss out on major opportunities as they modernize their legacy technology. Here's a closer look at what's going on at each of those stages.

Stage 1: Delaying modernization past the last responsible moment

In many scenarios, IT undertakes legacy modernization at or past the last responsible moment while approaching a compelling event, such as contract renewals for legacy systems, or end of life or support for obsolete technology. As a result, the business doesn't have enough time to think through the full range of opportunities that modernization may provide.

Typical reasons for delaying modernization include:

- Business as usual delivery pressures
- High cost and complexity of decommissioning legacy systems
- Sunk cost in technology that is now commonly available off the shelf
- High demand on technology groups to support legacy systems with very little remaining budget even for incremental modernization
- Perceived technology risks

Stage 2: Resorting to like-for-like modernization

When a program begins without carefully considering the business and operational opportunity available, organizations quickly resort to like-for-like system modernization, where the old is replaced directly with the new — typically delivered in large increments or as a single all-or-none release.

Instead of strategically imagining a more robust and valuable modern business, organizations fall into simply recreating what they already have using a new modern technology stack. This intentional 'parity approach' creates a prioritization challenge for IT, as there is constant tension between building new capabilities and the modernization of existing ones.

When a modernization program is in progress, IT is likely to delay the creation of new capabilities, forcing the organization to stand still while modernization is ongoing. As a result, once their modernization program is delivered, it rarely reflects what the business really needs at that stage. Instead, it's simply a modern reimagining of what the company needed one to three years ago.

Stage 3: Failing to demonstrate potential or realized ROI to the business

As many modernization programs are delivered in large increments, organizations don't have the opportunity to see or deliver ROI until it's too late. It creates situations where teams work for months to create large releases — realizing no ROI along the way.

Because of the scale of the program and the size of the increments, IT usually struggles to maintain momentum. The business loses motivation to modernize because it's not seeing any ROI. And because new feature development has been paused during the modernization, the whole process can have a huge net-negative impact on value. This often leads to immediate stalling of the modernization initiative or even complete abandonment.

Stage 4: Dealing with the consequences of failed or suboptimal modernization

At this point, the organization may end up with complicated and fragmented technology. Such a technology stack does not provide the flexibility or the agility that the organization needs to compete in a dynamic business environment. Overlapping applications introduce business and security risks. And operating and maintenance costs escalate with low employee engagement and satisfaction.

Even if a purely technology-driven migration program completes, it may end up being an antiquated and suboptimal implementation of business capabilities on a modern stack. Resulting systems may be unnecessarily complicated (e.g., distributed coarse-grained transactions on microservices) which may increase the technology TCO, lower business agility and impact resilience. The technical debt which accumulates within this complexity is often not accounted for. And with leaders further from the detail falsely believing that the job is now done, gaining support for further funding under a modernization banner becomes even harder.

How can this be approached differently?

This journey shows how far the negative impacts of a single technology or strategy decision can cascade across a modernization program. A rushed start leads to a narrowed scope, which in turn leads to poor ROI, and ultimately, limits the long-term value and success of the program.

Instead of following that path, organizations should consider a different approach — one that tackles each of those four challenge areas in turn. Both business and technology should start with a broader view of what they could (and want to) achieve through modernization, and implement smaller changes more frequently to progressively deliver increasing ROI.

Once that ROI is proven, everyone will see the value of modernization, dramatically increasing the chances of its long-term success — and giving technology teams the opportunity to work with the business and intelligently scope, prioritize and optimize business capabilities.



Organize by capabilities for greater business alignment

“IT is the building block of the business capability when business-IT gaps are shrinking, and it would be the roadblock if the gaps are enlarging.”

Pearl Zhu

To survive and thrive long term, large-scale modernization programs need continued logistical and financial support. And to secure that, they also need the full buy-in and confidence of business leaders.

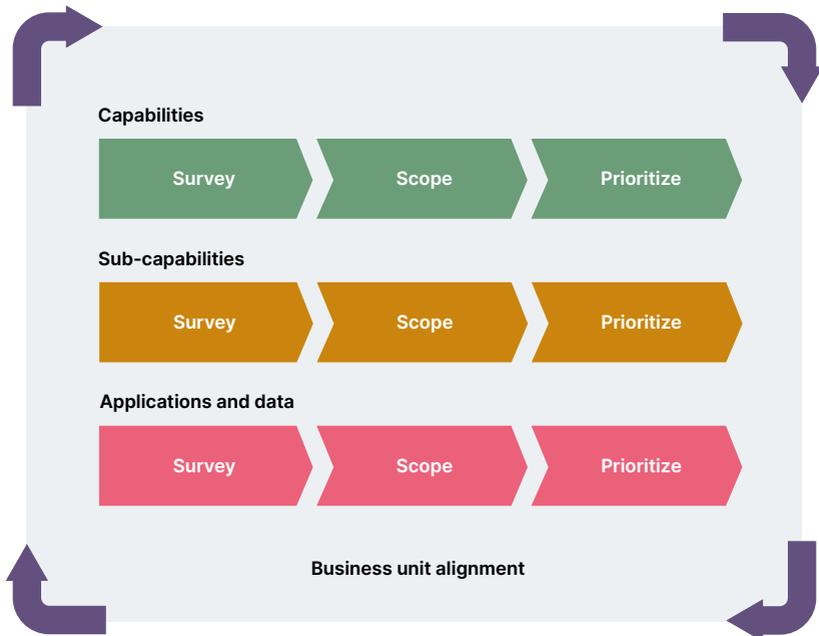
A [survey](#) quoted earlier highlighted that only 12% of technology teams received full funding commitments for modernization projects, with 56% of leaders citing fear of change as the primary reason for lack of funding. Nearly 50% of CIOs and CFOs get full funding commitments from senior leadership, but only when they substantiate the business case in terms that the entire business team can easily understand and relate to.

Once that support and commitment has been secured, teams and technology must demonstrate progress towards business goals, to help maintain that support. If they can't clearly show that they're delivering on the original promises of the business case, senior buy-in — and by extension, financial support — can quickly be withdrawn.

That's where measures of success become incredibly important. Often, we see modernization progress communicated back to the business in terms of the number of applications that have been modernized and moved to a new platform. But that alone is no measure of success. Even if an application has been successfully moved to a new modernized foundation, there's no guarantee that it's driving value or other metrics the business is truly motivated by. In a lot of cases, those migrated applications are still running in parallel with their legacy equivalents — meaning very little meaningful progress has been made towards outlined business goals.

A better approach is to work closely with business units and map their business capabilities and **sub-capabilities** to their corresponding applications and data. Producing such a map has two benefits. Firstly, it delineates applications and data for these respective capabilities. Secondly, the dependencies between these capabilities reveal opportunities for structuring a business platform in the modernized technology — consisting of decoupled services and data. This business platform acts as a modernization accelerator as it contains capabilities commonly needed for different business applications, thus relieving the application development teams from building them separately for each application.

Once that capability mapping has been developed and agreed with the business, the technology team can start building the architecture and implementation plans for individual capabilities and sub-capabilities. Each of these may consist of a number of applications. From there, teams can start communicating, as progress, the number of capabilities and sub-capabilities that have been modernized, as opposed to the volume of applications. This enables the business to understand both the true progress and impact of the modernization program more clearly — securing their ongoing buy-in and support.



- Clear delineation of technology and its mapping to business capabilities
- Prioritization of capabilities based on business value
- Common sub-capabilities leading to platform emergence
- A capability level definition-of-done shows meaningful progress to business

Figure 3 - Business capability driven modernization

Beyond reporting meaningful progress to the business, this approach provides opportunities for the business to rethink its operating models and the value proposition of its capabilities. It's a chance to optimize how the business operates, which can in turn help simplify technology implementation. Instead of moving complex operations to a modernized foundation, the business builds something better, leaner and more future-ready — streamlining the modernization program and increasing its chances of success.

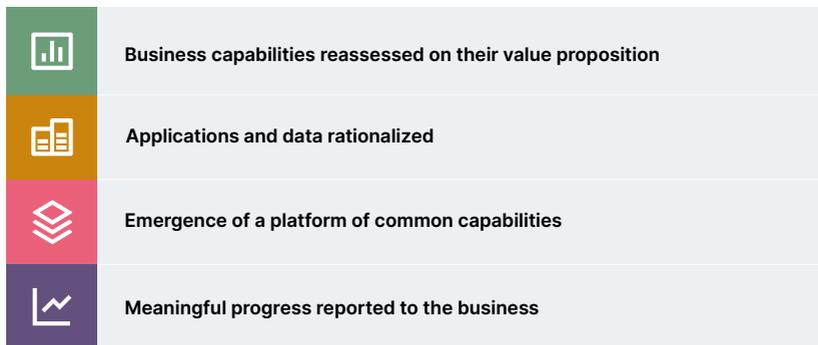


Figure 4 - Benefits of approaching modernization from business capabilities

Thinking in terms of capabilities (rather than applications) can help organizations get to the heart of true modernization. A key point often missed in such programs is that the 'legacy' which is being addressed is not simply pure technology, but also the outdated thinking implicit within that technology. For example, the predominant organizational model in use at the time the technology was created is likely to be reflected within a system. Chances are, that organizational model isn't as relevant or valuable today. So as technology is modernized, teams shouldn't try to bring that operating model along with it.

Today's focus on 'platform' concepts within businesses typically centralizes expertise while decentralizing the ability to innovate by the user through self-service consumption. Business capabilities on a platform are typically built using loosely coupled services and extended via open but secure APIs. They then provide substantial opportunities for other developers and customers to rapidly develop business applications and unlock an organization's capabilities to drive customer value and business benefit.

This is a drastically different context to that which most legacy technology was created and deployed within. Thinking only about technology, and not enough about the business and organizational context of modernized capabilities, will limit the impact of the investments made and will make it harder to report and justify meaningful progress to the business.



Build for the future

“The biggest impediment to a company’s future success is its past success.”

Dan Schulman

Legacy IT supports the business of yesterday. In doing so, it becomes an obstacle for the business in modernizing itself. Hence, a legacy modernization program is not just an opportunity to improve technology, but also an opportunity to reinvigorate and reimagine the business. Not doing so risks falling into a like-for-like modernization trap, supporting yesterday’s business with an improved technology stack. At best, this kind of modernization only impacts a business’ bottom line.

A common misconception is that once the technology has been moved to a more modern stack, it will be easier to transform the business. But when you move technology like-for-like to a new platform, you also move a considerable amount of waste, complexity and technical debt along with it — leading you to experience the same challenges as before, just in a new modern technology stack.

By taking a lock-step approach to modernization and transformation, organizations can increase the value of modernization programs, while making them much easier to manage and execute. A few ways to do so would be:

- Focusing on business value by deprioritizing and decommissioning business capabilities which may be providing diminishing returns, and using commodity off-the-shelf technologies for implementing undifferentiated capabilities
- Redefining business operating models for the remaining business capabilities, thus simplifying the technology while aligning it with emerging operating models that will better prepare the business for the future

Focus on business value

“It’s all about business value. Why do customers want end-to-end integration? It’s about speed. It’s all about return. It’s all about creating great business revenues.”

Steve Mills

McKinsey and Oxford University conducted a comprehensive [survey](#) of 5,400 IT projects in 2012 to understand the causes and impact of IT delivery delays and failures, the results of which still resonate with the industry. They found that nearly half of the projects over \$15 million overran their budgets. On average, large IT projects ran 45% over budget and 7% over time, and they delivered 56% less business benefit. The main reason for

cost overruns were found to be ambiguous and non-business oriented objectives, followed by execution, both accounting for nearly half of all cost overruns.

Furthermore, the longer a project is scheduled to last, the more likely it will be delayed and run over budget. Every additional year that one of the projects ran for, increased its cost by 15%. And across the projects surveyed, 17% of them became existential challenges for the firms pursuing them.

What is abundantly clear from this research is that successful IT delivery rests on having a laser focus on business value and maintaining or reducing the scope of delivery. Crucially, this does not mean that project teams should cut corners and compromise on quality. Conversely, they should clearly articulate the value of every feature to the business and deliver their backlog with the highest possible standards — building the right things, and building those things right.

Delivering a like-for-like modernization introduces the risk of delays and cost overruns. Operating model optimizations present simplification opportunities for both business and technology. Additional opportunities can be uncovered to decommission products and services that provide diminishing returns, and shift commodity off-the-shelf technology for undifferentiated capabilities — cutting costs while keeping the business and its modernized technology foundation lean.

Decommissioning capabilities with diminishing returns

“Whenever you compete, trying harder is truly the game of diminishing returns and a losing one at that.”

Jan Garavaglia

Legacy systems support business capabilities and customer products that have been developed over the life of these systems — sometimes over multiple decades. Many of these capabilities and products are either no longer relevant to current and emerging business environments, or they have been superseded by newer capabilities and products. Hence, modernizing such legacy products and capabilities would introduce waste both in delivery and in operation.

Decommissioning decisions should be led by usage statistics. If the business is no longer using or seeing significant value from a particular application or capability, it's a candidate for decommissioning. But often, legacy systems don't have the monitoring or metering capabilities to track usage reliably. In those cases, teams should defer to business and commercial data relating to these capabilities. Are customers engaging with them? And how are they benefiting the business?

To use a real world example, when considering offloading a legacy banking system from a mainframe, a team reviewed the business' list of financial products and found several that had only a handful of customers. They realized that it was costing them more to support those products than the revenue they

generated from them. The choice was clear, migrate those customers to products with comparable or better returns and decommission the technology for the unused products. Not only would that provide an immediate support and maintenance saving, but it would also reduce the scope, cost and risk of modernization and migration off the mainframe.

Commodity technology for undifferentiated value

“Yesterday’s new technologies, today’s commodities.”

Kieth Campbell

When auditing applications to determine if they should be modernized or decommissioned, it’s essential that the auditing teams understand the capabilities these applications provide for the business. Without that understanding, they’ll quickly fall into the trap of recreating the same applications with similar drawbacks on the modern platform. As a result, the like-for-like modernized applications they deliver won’t be able to take advantage of new underlying platform capabilities, significantly reducing the value they deliver to the business.

Another disadvantage of not having that understanding is that it causes teams to miss opportunities to move to off-the-shelf commodity capabilities as part of their modernization. In many cases, the business may have created an application many years ago to deliver capabilities that weren’t available on the open market. But now, those capabilities may be available at a fraction of the cost required

to maintain the business' purpose-built applications. A typical example is building and maintaining homegrown security solutions or networking appliances like API gateways when these technologies are fairly commoditized and widely available to buy.

Deciding whether to build or buy is a multidimensional challenge. Here, **Wardley Mapping** plays a pivotal role in building and executing the build versus buy strategy. This technique helps visualize the value chain mapped to the evolution of these capabilities. Mature and commoditized capabilities — especially those that do not align with the firm's core points of differentiation — should be widely available to purchase, making their in-house development questionable.

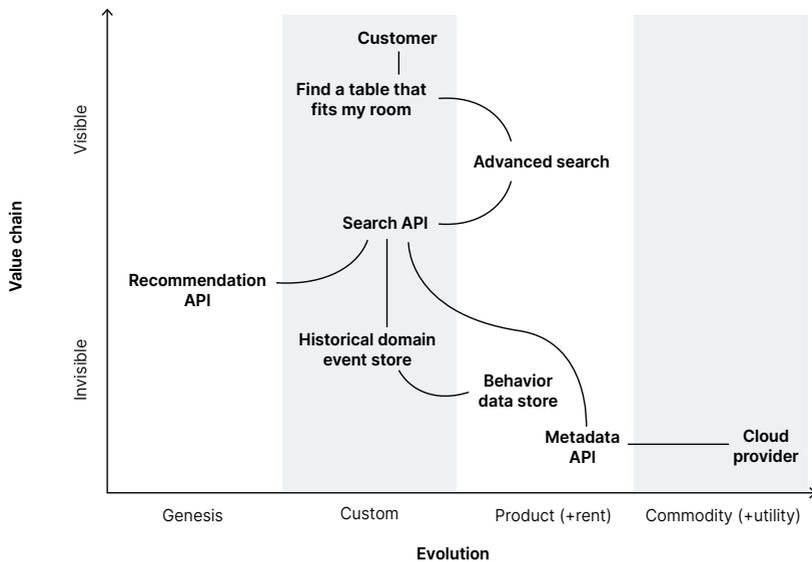


Figure 5 - Wardley Mapping

Many organizations, especially those with a history of significant in-house development, are afraid of vendor lock-in, leading them to avoid commodity and utility products. Vendor lock-in is particularly challenging when interfaces between in-house and commodity technologies permit vendor-specific constructs to leak into the in-house build. Putting vendor technology within their own **bounded contexts** or behind **anti-corruption layers** usually provides the necessary isolation without affecting the necessary functional and cross-functional requirements. This strategy is also referred to as **bounded buy**.

Redefine operating models where appropriate

“The best way to predict the future is to invent it.”

Alan Kay

While planning their technology modernization, one financial services firm realized that their conversion ratio during customer onboarding was less than 40%. This meant that more than 60% of customers who were attracted to the firm’s products found the six day account setup lead time too long to start investing — driving them towards agile fintech competitors that could onboard them faster, in hours if not in minutes. Their operating model had caused a huge revenue leak, especially during high market volatility due to geopolitical events (e.g., Brexit) and then COVID, thus highlighting it as an immediate opportunity for modernization.

Legacy modernization is an opportunity for firms like this to rethink their business operating models to optimize and simplify their business. One of the worst outcomes of poorly conceived modernization efforts is the digitization of bad processes. Instead, streamlining these first can cascade into technology leading to a simpler, leaner implementation which is flexible, extensible and performant.

Operating models are a means to execute a business strategy. To do that, they need to be tightly aligned with that strategy. If your strategy has moved on since your legacy technology was created, there's a very good chance that the operating models that this technology supports are no longer fit for purpose. That's why it's so important to align modernization programs around your current strategic goals — and eliminate excess technical and operational baggage that's no longer relevant to what the business wants to achieve.

Once your business outcomes have been defined and agreed, you'll also need to define some specific and effective measures of success to help track progress towards them. We recommend focusing on leading versus lagging indicators. In the example above, the onboarding lead time is a leading indicator while customer conversion ratio is a lagging indicator. A leading indicator provides an early (but not guaranteed) indication of performance while a lagging indicator is the measure of actual impact. Leading indicators provide early feedback which helps improve the lagging indicators.

Finally, both the business and technology teams need to agree on the key guiding principles that the organization needs to follow as it progresses towards achieving desired business outcomes. These guiding principles — along with outcomes and measures of success — provide a framework to build suitable organizational structures, processes and governance models that come together to form an appropriate new operating model to execute the business strategy.

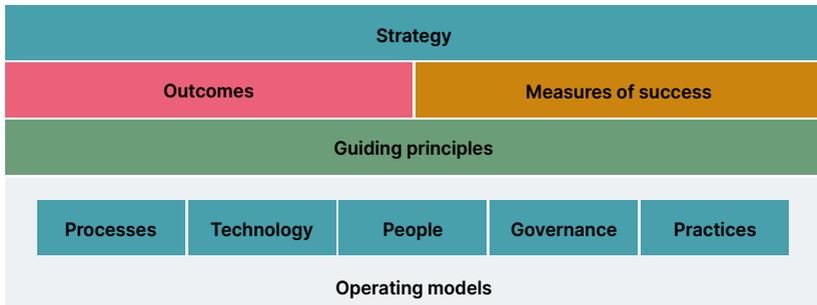


Figure 6 - Strategy, operating models and guiding principles

For large enterprises going through this exercise, it's important to consider both local (functional area) and global (end-to-end) perspectives to ensure the operating model can meet both local and global needs and mitigate side effects on one because of the other. In the example above, simply focusing on reducing the processing time once a prospective customer submits all the details overlooks the time they would need to spend offline to collect and compile that information. In that case, taking the customer onboarding journey from the time they decide to onboard to the time they are eligible to invest, would ensure true optimization of the customer experience as well as of the operating model.

The technical solutions needed to solve a challenge like that can be quite simple. But if the firm in this example decided to place the emphasis on the technology alone while modernizing like-for-like, their customers would not receive any value. Plus, the business would not see any benefit arising from a very expensive and modern tech stack except, perhaps, a marginally lower technology TCO after a slow ROI.



Execute for competitive advantage

“Strategy without tactics is the slowest route to victory. Tactics without strategy is the noise before defeat.”

Sun Tzu

When Sonic, a major American drive-in fast food chain, wanted to engage customers through an interactive multi-channel engagement platform to grow sales, and reduce time to market for new customer features, its legacy technology held it back. Sonic's existing infrastructure and architecture lacked scalability, flexibility and extensibility, limiting how the company could evolve and improve its digital services to achieve its goals.

They partnered with Thoughtworks to replace their legacy technology with a cloud-native digital platform of loosely coupled microservices that allowed them to experiment, add innovative services quickly and evolve in line with their customer expectations.

Sonic's API-first strategy exposes existing business capabilities allowing its business units to rapidly add new services and technologies, and adapt to new customer demands quickly.

A continuous delivery approach, along with tools to improve operational efficiency, allows Sonic to reduce time-to-release of new features to customers to days and weeks, instead of months and years. As a result, Sonic has turned around their same-store sales, built substantial order ahead revenues from scratch and increased daily in-app offer revenues.

Like Sonic, successful businesses aim to achieve and maintain their competitive advantage by creating compelling customer value early and frequently. Modernization is an opportunity for businesses to holistically re-evaluate what it means to maintain and extend their lead over their competitors. Their technology is the foundation of their competitive advantage, and underpins their capability to deliver changes with low friction and high confidence.

With clear visibility of their differentiated and undifferentiated business capabilities, organizations can focus their resources and efforts on building and maintaining technology that provides competitive advantage — unique capabilities that put them ahead of their competitors.

Through modernization, those capabilities can be deployed on flexible platforms with modern foundations that enable them to be quickly and easily transformed. This enables the business, its people, and its product and service offerings to keep up with rapid market and technology shifts.

This ability to simultaneously support rapid value creation, evolution and the capture of market opportunities makes modernization one of the greatest competitive opportunities ever seen. But to gain those advantages, teams must implement the right architectures and processes.

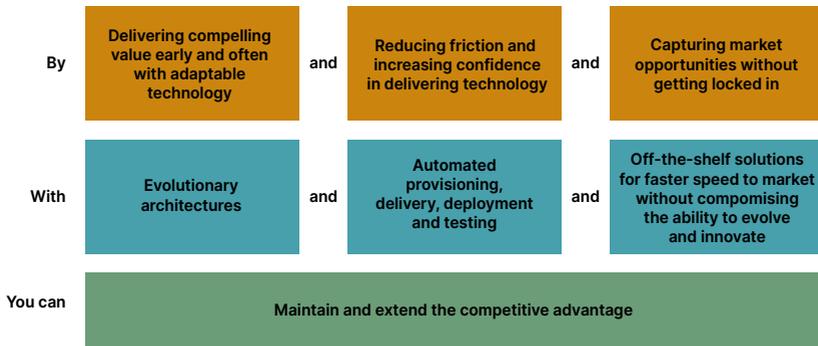


Figure 7 - Maintaining and extending the competitive advantage

Technology that evolves to maintain the competitive advantage

“It is not the strongest of the species that survive, nor the most intelligent, but the one most responsive to change.”

Charles Darwin

Central to this is the concept of **evolutionary architectures**, characteristics of which allow technology to be adapted with relative ease and confidence. Evolutionary architectures enable incremental development and delivery. This requires them to be composed of decoupled components that are developed by autonomous teams. As a result, such architectures are highly adaptable.

These architectures focus not only on technology implementation, but also on the business domain which helps keep them closely aligned to current business needs. Finally, evolutionary architectures have fitness functions defined for them. These functions measure how well these architectures achieve their fitness for purpose, both functional and cross functional. These fitness functions can be automated as tests within delivery pipelines to ensure that architectural fitness is not violated as the technology is adapted to meet the changing business needs.

Because technology based on evolutionary architectures is able to iteratively and incrementally adapt alongside business goals and demands, it's able to deliver progressively increasing ROI. It can continuously modernize throughout its lifecycle, keeping it aligned with current needs and preventing a lot of the challenges that drive organizations to undertake complex and costly modernization projects in the first place. This means that large scale, expensive and risky modernization events only need to happen when there are seismic shifts in the technology or the business landscapes.

Delivering value with low friction and high confidence

“Showing a strong success and visible benefits is key to getting others to agree to try your way of doing things.”

Frederic Rivain

Evolutionary architectures are themselves built on leading technology delivery practices. While the architecture is itself highly adaptive, it's these practices that enable evolutionary architectures to deliver value with low friction and high confidence.

These capabilities include building continuous integration, delivery and deployment pipelines. The key aim of these pipelines is to provide early, fast and frequent feedback to the development teams on their changes to minimize the risk of defects and the cost of their resolution.

The following DevOps practices are critical to achieving this feedback:

1. Automating and shifting left both functional and cross-functional testing
2. Building delivery capabilities that are fully automated, repeatable and produce immutable release artifacts
3. Efficient provisioning of testing environments and data for higher-level testing
4. Integrating the delivery of both custom and commodity technology to the delivery pipelines

Large modernization programs involve multiple teams from different business units. A single, central DevOps team may fail to lower the delivery friction. This is because with larger numbers of teams comes more diverse needs that a central team may not be able to meet or facilitate. That makes it harder to impose a common set of practices and tools, and doing so introduces dependencies for all the delivery teams on the DevOps team — which create friction and inefficiencies that slow feedback.

In scenarios like that, the central DevOps practice may need to evolve to become more federated, where the teams agree on common delivery principles, outcomes and measures of success with adaptable and extensible tooling. Within this framework, teams can operate autonomously with the freedom to adopt and adapt practices and tooling to achieve their respective delivery outcomes.

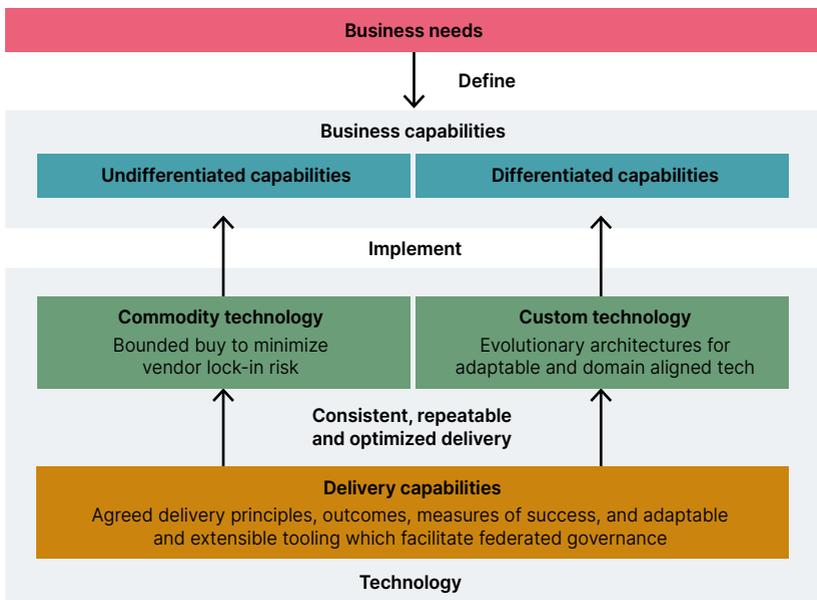


Figure 8 - Delivering competitive advantage

Using commodity solutions without compromising evolution and innovation

**“It’s no longer the big beating the small,
but the fast beating the slow.”**

Eric Pearson

As we mentioned earlier, with the ever increasing commoditization of technology, many industry domains are seeing the emergence of off-the-shelf software products and SaaS based services delivering capabilities that are usually considered as differentiated capabilities. Examples of these include Mambu and Thought Machine that deliver core banking capabilities via the cloud. Similar products and services also exist in commerce and retail, for example, ElasticPath and CommerceTools.

These products and services may help businesses achieve a first-mover advantage by reducing the amount of effort required to launch and begin using the respective business capabilities. These technologies are also attractive to established businesses that are embarking on legacy modernization programs as they can considerably reduce the associated costs and risks of modernization.

However, the businesses deciding to use them must also have a clear strategy to continue to maintain their competitive lead and to succeed with modernization. Without such a strategy, adopters of these technologies risk falling into the **commodity trap** where their products and services regress into purely price-based competition rather than value-based differentiation. This is where fast followers overtake first movers.

These commodity technologies alone may not be able to provide all the capabilities that a business needs. They will need to be integrated with other applications within the business' ecosystem to deliver all the necessary capabilities. Integration complexity with multiple vendor products in a technology ecosystem can increase substantially, especially when the specifics of vendor products leak into the business' domain model. Once again, this is an example of somewhere that the **bounded buy** strategy can help to reduce integration complexity.

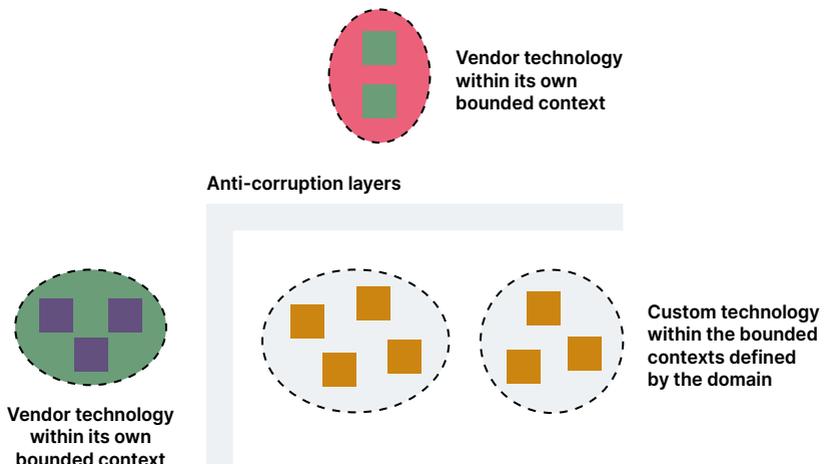


Figure 9 - Bounded Buy: Preventing the corruption of the domain model and simplifying integration

The bounded buy strategy is particularly successful when the off-the-shelf technology is modular, decoupled, extensible and composable. This allows the incremental adoption of such technology, which again helps achieve early and incrementally increasing ROI.

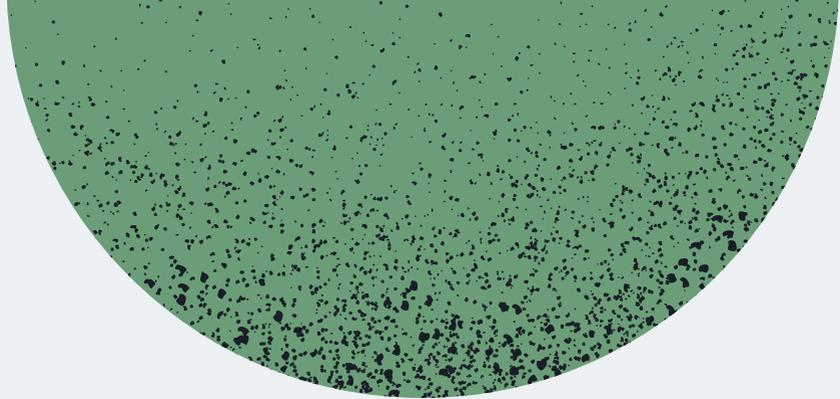
As businesses select outsourced capabilities, it's important that they consider their impact on business continuity, especially in a stressed exit situation. Stressed exit is an unplanned termination of an outsourcing contract due to insolvency or a catastrophic failure.

To mitigate the potential damaging impact of a stressed exit situation, decision-makers should ensure that their chosen capabilities will enable them to maintain continuous access to their data and freely create backups. Equally, they should also examine and consider the vendor's own business continuity plans along with their business continuity plans to help reduce the likelihood of such an event happening.

Other factors to consider when choosing to outsource differentiated business capabilities to third-party products and services include:

1. The modularity, extensibility and composability of the vendor's technology
2. The vendor's direction of travel including customer's alignment with and influence on vendor's strategy and technology roadmap
3. Regulatory compliance especially for regulated industries like finance and healthcare
4. Support for customer's change delivery practices including testing and staging changes in SaaS environments

If you'd like to explore the build versus buy decision in more detail, this Thoughtworks [eBook](#) breaks the entire process down.



Maximizing value via product orientation

“Good companies manage engineering, great companies manage product.”

Thomas Schranz

Traditionally, software delivery has always been project oriented. New deliverables are built and deployed as distinct projects, and once they're in use, that's where the project ends. This mindset however isn't well aligned with modernization. It leads to early and prolonged obsolescence, which is what organizations planning modernization are trying to avoid.

A typical project-oriented delivery mode consists of:

1. Identifying a business need
2. Defining the project scope
3. Allocating the budget
4. Establishing the delivery team
5. Launching the project

Within that delivery mode, measures of success are not aligned to the desired business outcomes. Instead, they're largely based on completing the project within the budget and on time, which are both difficult because these projects are often built on a speculative scope.

Furthermore, a project-oriented organizational structure naturally gravitates around the waterfall delivery model. Separate business, product, program management, delivery, quality assurance and change management teams work in silos with limited collaboration, aiming towards a big-bang initial release.

Once the project is deemed completed, the delivery team is disbanded. Most of these team members move on to other projects with only a handful of team members left for routine maintenance of the delivered technology. With very limited budget and capacity, technical debt and obsolescence sets in, prolonging the lead time to deliver any new value to customers.

More importantly, without a clear assessment of the ROI of the project, it becomes difficult to justify additional investment in the technology delivered to the business. As a result, the focus shifts to just managing risk rather than pursuing opportunity. Modernization comes on the agenda only when serious regulatory, security or business continuity limitations emerge. A new team is then quickly organized for remediation. Without the relevant business context and the understanding of the rationale of previous implementation decisions, any large scale remediation is difficult and risky.

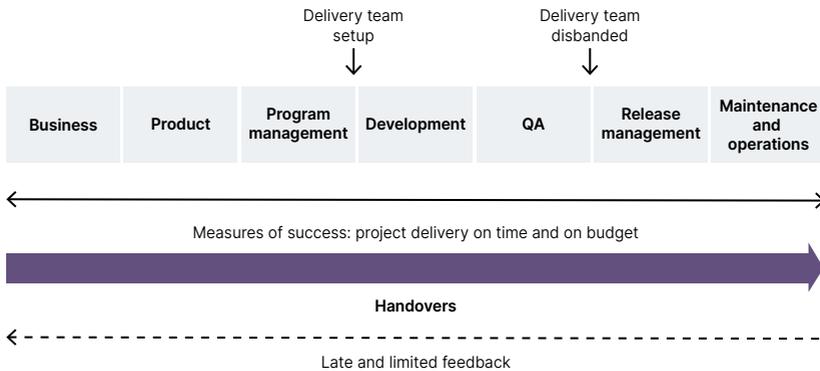


Figure 10 - Project orientation

Instead, organizations should adopt a product mindset that prioritizes customer value and enables continuous and iterative improvements to software, in line with shifting demands.

Conversely to the above, a **product-oriented organization** delivers technology that is continuously aligned to customer value and business needs. In a product-oriented organization every business need is fulfilled through an existing or new product. Every product has a long-lived, fully cross-functional product team that manages and delivers on a product roadmap, and operates and supports the technology delivered. The product roadmap is continuously re-aligned to maintain the focus on customer value based on feedback and with a clear visibility of the ROI.

As product teams have both knowledge of the business context and control over the technology for as long as the product is in service, technology upgrade and modernization decisions can be articulated in terms of both business benefit and business risk.

Modernization then becomes incremental, and largely business as usual, giving teams greater freedom in where, when and how they modernize to maximize value.

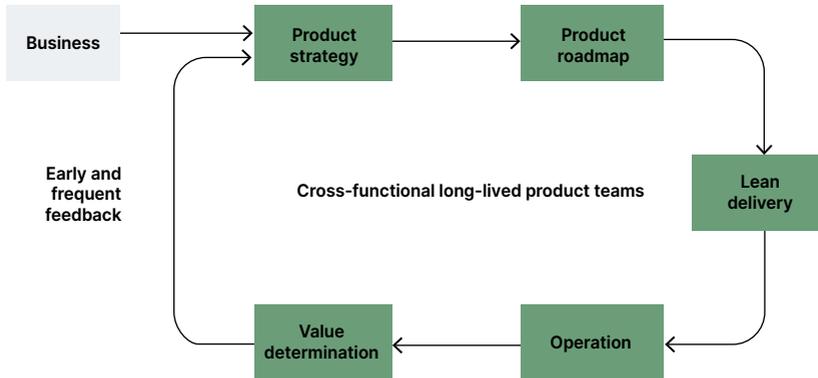


Figure 11 - Product orientation

A frictionless and responsive product-oriented organization aims to continuously reduce cognitive load on the teams. These cross-functional teams are set up around business capabilities and user journeys which also map to the technology architecture.



Avoiding the modernization death march

“Hell is very likely to be modernization infinitely extended.”

Tom Stoppard

Statistics mentioned earlier show that most legacy modernization programs are long, complicated and painful. Unsurprisingly, those kinds of programs frequently fail to deliver value for businesses, making it even harder to secure the funding and buy-in for future modernization efforts.

That creates a cycle of continuous skepticism around modernization. Senior stakeholders are naturally apprehensive about investing in it, because they’ve seen how it can go wrong and the failure may even pose an existential risk to their business. That in turn leads them to ask questions like ‘when will this be done?’ and ‘when will we need to modernize again?’ rather than ‘how will this support the business and create value for us?’ As a result, they never identify or realize that value, and the cycle begins anew.

To break this cycle, teams must demonstrate early and progressively increasing ROI from their modernization programs. Reporting that ROI back to the business is key to gaining and maintaining momentum and motivation for ongoing change. Once you can demonstrate how incremental and continuous modernization leads to continuous value creation and ROI, you can create a new cycle — one of ongoing capability-focused and product-oriented optimization and improvement in both business and technology.

Approaching legacy modernization from a business capability perspective helps deliver technology that is loosely coupled and can be delivered and maintained as products rather than a fixed scope project. Approaching modernization with a product mindset facilitates the continued evolution of the technology to keep it aligned with the business needs while keeping both the business and technology risks low. This creates opportunities for subsequent modernization to be incremental and executed as BAU (business as usual). That ensures that your wholesale modernization program is only needed once and that the challenges you're modernizing to get away from don't return in your new modernized context, unless there is a seismic shift in business and technology landscapes.

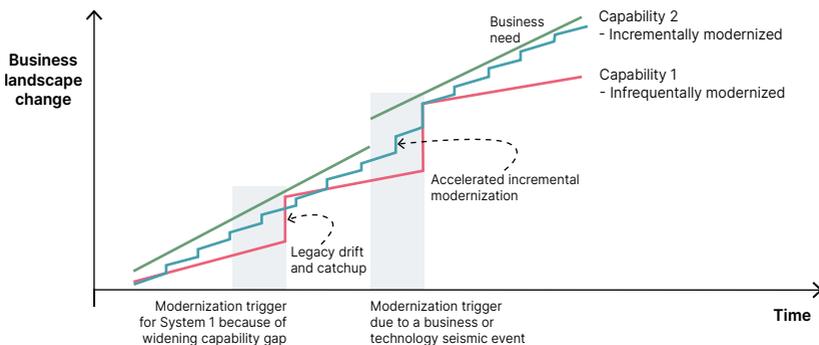
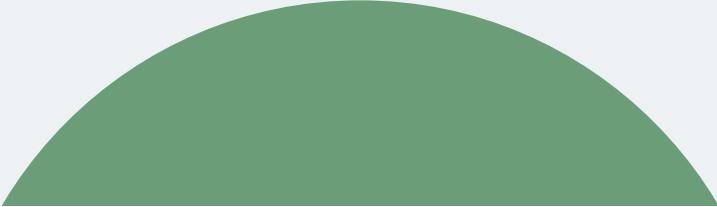


Figure 12 - Avoiding repeated drift-catchup cycles through incremental modernization



Conclusion

“The technology you use impresses no one, the experience you create with it is everything.”

Sean Gerety

Organizations create value by bringing together human effort and technology through operating models, structures and processes. Thinking about technology on its own, decoupled from how the business creates value, doesn't make sense. Yet still, it's a trap that many organizations planning modernization programs fall into.

Viewing modernization through a purely technology lens is fraught with risks and challenges. It leads organizations to simply move legacy complexity and inefficiency to a new foundation. In turn, all their modernization does is enable them to experience the same challenges with new technology.

Successful legacy transformation, therefore, is a combination of technology and business change, synchronized to amplify each other's impact. Conducted in this way — as a business transformation, with the perspective, language and approaches to match — modernization provides the capabilities businesses need to propel them into the future, unburdened by the problems of the past.

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