Luxoft
A DXC Technology Company

The increasing business benefits of as-a-Service models for financial services

Luxoft Beyond leadership series in conjunction with:

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Table of **contents**

Introduction

The financial services industry is going through a period of unprecedented deployment, optimization and strategy change. Undoubtedly, this is an exciting time to be involved in the fintech sector.

From unparalleled leaps in technological advancement, challenger startups and shifts in customer expectations to increased regulatory requirements and the dawn of quantum computing, this new era of change presents enormous challenges — but also tremendous opportunities.

This eBook brings fresh insights from Luxoft and AWS experts on the rise of innovative as-a-Service solutions that provide a practical, cost-efficient and strategic approach to change management.

The first article addresses the value of as-a-Service models and the financial services industry challenges they address. The second article explains in detail how as-a-Service models work, while the next article explores the issue of adoption and the journey clients undertake. The penultimate article explores Intel's views on the journey and as-a-Service model opportunity for Independent Software Vendor (ISV) partners. And finally, we examine AWS's take on the acceleration of cloud adoption and the as-a-Service model.

With so much change upon us, the key to keeping up is to take multiple steps on multiple fronts. Luxoft and AWS are at the center of this journey, and we hope you find this industry report useful and insightful in informing your next steps.

About **the authors**

Mark Perkins

Global Offering Lead, as-a-Service Solutions

Mark Perkins is Global Offering Lead, as-a-Service Solutions at digital strategy and software engineering firm Luxoft. He has 12 years' experience across London and Sydney focusing on the application of cloud-based solutions to Trading and Risk Technology in Capital Markets. Working for Excelian and then Luxoft across London and Sydney, he helped to significantly grow the Digital Consulting practice in Australia before moving to ANZ where he ran the Market Risk Technology team and led a cloud acceleration program within ANZ Institutional. Mark relocated to London in 2021 and has joined Luxoft to drive the as-a-Service transition across Banking and Capital Markets.

Anthony Hammond

Global Offering Lead, Trading Systems as-a-Service Solutions

Anthony worked in back- and middle-office functions for over 20 years before moving into technology delivery as a business analyst. Living and working across the globe, he has delivered many highly complex projects for some of the most notable names in banking. Recently, Anthony has been focusing on building out as-a-Service offerings, which he sees as the most practical way for capital markets businesses to consume complex applications. In addition to extensive domain experience, he holds a Bachelor of Commerce degree with majors in finance and accounting.

Graham Barber

Global Revenue Lead, as-a-Service Solutions

Graham has 20 years of experience supporting client transformations across Banking and Capital Markets, most recently as Global Revenue Lead, as-a-Service Solutions at Luxoft. He helps client's identify opportunity within their technology estates to modernize, simplify and free themselves from non-strategic effort, enabling teams to focus on delivering business differentiating change.

Hugh Richards

Ecosystem Strategy, Banking and Capital Markets Solutions

Hugh has gained over 30 years' experience in financial services, investment banking, software company management and market strategy. He brings a unique balance of global business and technology leadership, focused on strategy, execution and innovation change management.

Matthew Hargreaves

Global Industry Lead, Capital Markets Solutions

Matthew has more than 20 years' combined expertise and international leadership experience as a CIO and COO in the financial and capital markets industry. His career spans Credit Suisse, Deutsche Bank, Credit Agricole, Daiwa Capital Markets and Lloyds Banking Group. He joined Luxoft in March 2020 to lead Capital Markets Solutions globally.

Ihyeeddine Elfeki

Global Lead, Trading and Risk Solutions

Ihyeeddine has 20 years' international experience delivering technology and business solutions to capital markets and financial services, with proven success and a track record of delivering optimal results in high-growth environments through initiatives that exceed operational performance targets and yield measurable outcomes. In 2016, he joined Luxoft's London office to lead the Trading and Risk Solutions practice, first in EMEA and then globally. He has led several deals with banks, asset managers, treasury and commodity businesses, playing a key role in guiding their transformation journeys.

Loubna Wortley

AWS Global FSI Lead at Intel

Loubna Wortley currently leads the global AWS Industry and Services team at Intel. She spent the last 12 years working with large enterprises, solving their business challenges through technology. In her current role, Loubna works hand in hand with DXC and AWS on optimizing critical legacy financial services applications leveraging Intel silicon and software tools. Loubna holds master's degrees in marketing science and international business, enabling her to marry business and technology to best support her customers through their journey to the cloud.

Farid Chalouhi

Intel Principal Solutions Architect

Farid is a Principal Solutions Architect at Intel. He has over 10 years of experience in cloud computing and running workloads in the cloud. He is currently focused on the FSI customer journey in the cloud. He previously worked for AWS, leading the migration and optimization team and helping FSI customers move to AWS. He has worked with FSI ISVs to accelerate their journey in the cloud, covering migration and AI workloads. He also has deep knowledge of AI and running AI workloads in the cloud.

Steven Brucato

Principal Solutions Architect for FSI at AWS

Steven Brucato is a Principal Solutions Architect for FSI at AWS where he works with financial service clients globally on a wide range of cloud projects, including new development and migrations in capital markets, banking and insurance. Steven's experience includes senior technology and quantitative roles at Goldman Sachs, Credit Suisse, Morgan Stanley and Trading Technologies including CTO of REDI Trading at Goldman, Global Head of Quantitative Trading Strategies for Rates at Morgan Stanley and CTO at TT. Steven has also been active in the blockchain and digital assets space having built trading, exchange and settlement systems.

Steven Wong

AWS WW Partner COE Financial Services Leader

Steven Wong is the Global Partner COE FSI leader, focusing on accelerating innovation and adoption of AWS cloud technologies for our mutual customers. Steven is a seasoned executive with over 20 years of experience in the financial services industry, including leadership roles at Merrill Lynch and PwC Advisory. Prior to joining AWS, Steven specialized in advising top-tier financial institutions on how to design transformative technology programs and regulatory governance models, working closely with global and cross-functional senior stakeholders to ensure successful programme implementation and to realize business benefits.

1. **Why** as-a-Service?

The financial services sector is in a state of flux. Financial firms that were traditionally at the forefront of technology change are now playing catch-up to new market entrants who, unencumbered by legacy technology, are out-maneuvering established organizations. This requires a bold response.

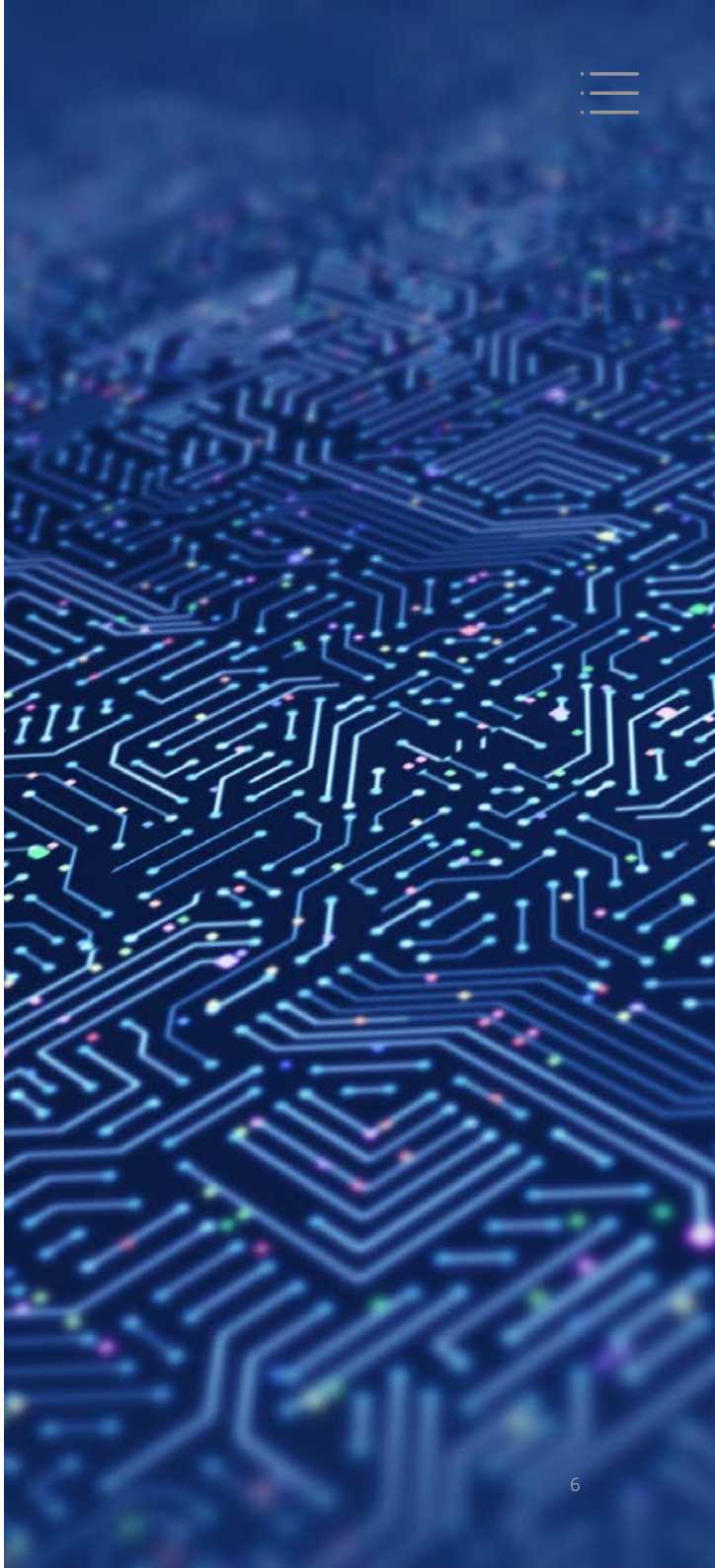
How can we turn these challenges into an opportunity?

Many large financial institutions have a legacy of technical debt resulting from a landscape of complex, interconnected banking and trading systems, constrained on-premises hardware and a need to prioritize regulatory changes.

Complex technology stacks run at a significant overhead, managing multiple relationships from contractors to vendors and internal staff. This financial and administrative burden distracts key players from focusing on revenue generation.

When you can't squeeze operating costs any tighter, there's only one thing to do: rethink how you operate. Completely.

Diagram 1. Steps to redefining your technology priorities



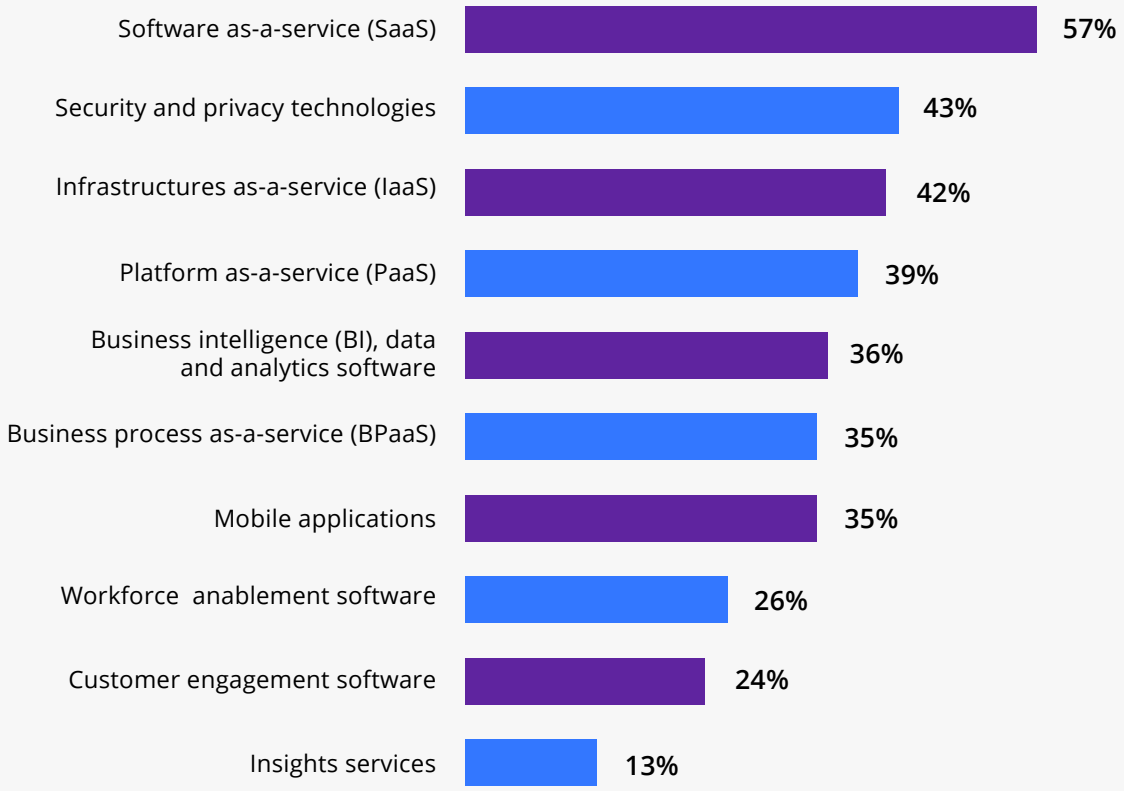
A new way of consuming enterprise software, as-a-Service, has evolved, allowing the consumption of the entire technology stack, from infrastructure through to integrated applications, with support and operations, on a per-usage basis.

Under the hood, these as-a-Service offerings mutualize key costs, which can help to bring down the total cost of ownership (TCO) for these complex systems. Moving to as-a-Service, also including run and small change capacity, can lead to TCO reductions of 25%–40%. This also provides an opportunity to streamline organizational structures, redeploying key staff to focus on supporting differentiating and profitable business activity.

A key benefit of as-a-Service models is that it reduces the risk of falling behind with upgrades, with built-in evergreening helping to predict TCO throughout the service duration, eliminating unnecessary CAPEX spikes. As-a-Service offerings provide the option to support not only the central third-party application but also the wider application ecosystem.

Unlike simple cloud migration — moving an application from on-premises to the public cloud — shifting to an as-a-Service model can reduce technology risk, with advanced cyber security controls baked into the service, while bringing further benefits in terms of the ability to scale rapidly, respond to market forces and keep up to date with the current version.

Diagram 2. "In which of the following technologies will your firm invest/is your firm investing as part of its digital transformation?"



Base: 2,457 global services decision-makers who are involved in their company's digital transformation
Source: Forrester Analytics Global Business Technographics Business and Technology Services Survey, 2019

Increasingly, these service-oriented business models are being adopted by the banking, insurance and capital markets industries with an increasingly wide and sophisticated scope. While each industry differs, common and key operating and business benefits are achieved with a wide range of positive outcomes:

Streamlining operations, typically following Agile principles, and reducing infrastructure and application management for IT staff

Built-in cyber security, data privacy, high availability and disaster recovery via public cloud best practices and services

Providing anywhere-access to applications that are hosted on public cloud

Ease of integration, integrate data from siloed application databases with analytics and other services via public cloud integration connectors

Mutualization of costs through standardization and shared services

Reduction in overheads for client staff to consume services, freeing time to focus on business-differentiating activities

Continuous upgrades, further reducing the operational overheads when compared to running a platform in full

Control over business priorities remains with the client, together with an ability to shape the backlog for future change

To step up agility, compete more effectively and drive transformation, organizations need to be continually assessing and deploying new technologies and operational models. The as-a-Service model releases money that can be reinvested in this ongoing cycle of innovation. This model raises standards by deploying the latest technology, more qualified, experienced and focused staff, ensuring higher-quality throughput at scale.

So, what are the next steps?

While it's partly about adopting a new technology ecosystem, it's also about taking the opportunity to optimize business processes. This coordination of adoption and adaptation must be directed at pace and scale, while at the same time keeping up with the needs of current business-as-usual targets.

Firms know they need to invest in the future, but many don't have the margin to begin or sustain the level of investment required. It makes perfect sense to use partners to solve the Catch-22 situation of how to fund change. However, this approach requires open minds and open books to arrive at the right operational models.

Not all organizations have yet begun their journey, but very few are not talking about their aspirations. Given the myriad of competing business and operational priorities, it is no wonder some firms are waiting for patterns and referenceability to emerge.

As well as AWS, Intel and an array of ISV partners, Luxoft is working with an industry-leading ecosystem of cloud providers, independent software vendors, leading clients and its own transformational (business and technology) and implementation practices to bring clients this as-a-Service model.

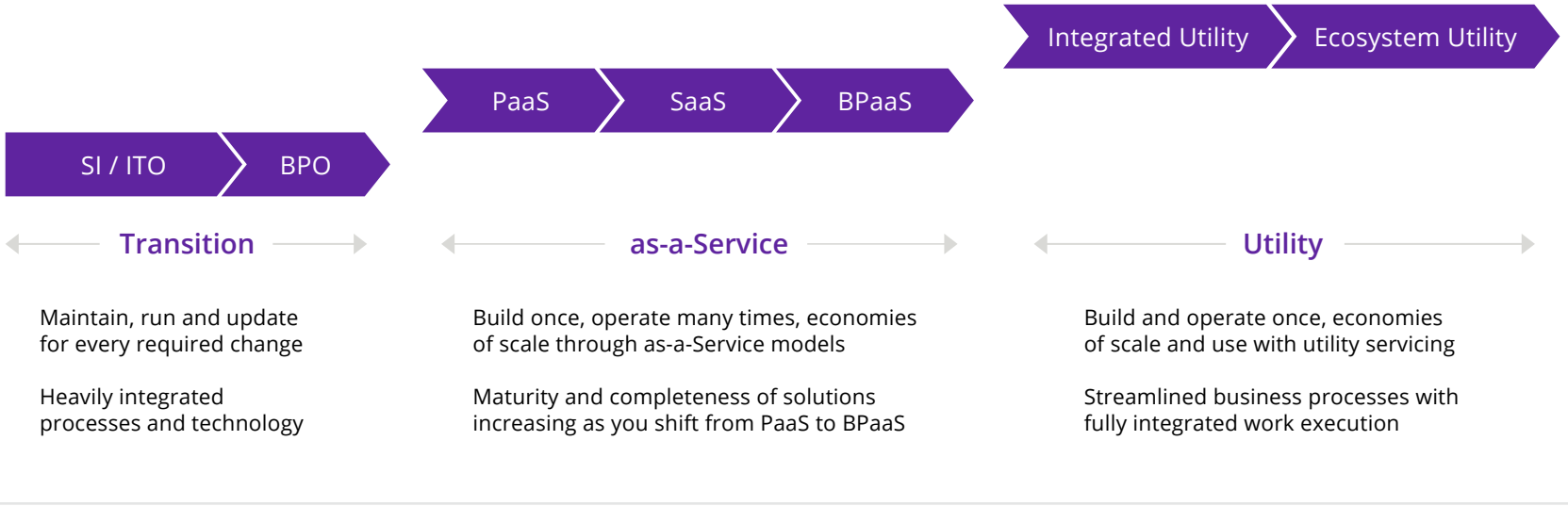
Luxoft is helping clients make the journey and realize their large transformational goals. That's what makes us different.

2. **What** is “as-a-Service”?

Across financial services, the adoption of consumption-based models, whether self-managed cloud or “as-a-Service,” is rising fast. What exactly is as-a-Service, and how does it differ from simple cloud migration?

The proliferation of cloud computing throughout the enterprise landscape has accelerated the growth of a new generation of businesses and business models. A new way of consuming enterprise software, “as-a-Service,” has evolved, allowing the consumption of the entire technology stack, from infrastructure to the application layer, including middleware, integration, application updates, support services, monitoring and security, all on a per-usage basis.

Diagram 3. Complete business and technology optimization journey



Analyzing the cost-benefit

With each step an institution takes towards an industry utility model, cumulative cost-benefits are achieved from shared and optimized business, technology, support, hosting, security and compliance services. The as-a-Service models offer these mutualized benefits with incremental integrated-application servicing (Platform as-a-Service), vendor and application standardization (Software as-a-Service) and key business operations outsourcing (Business Processing as-a-Service) options.

While the concept of shared access to centralized computing resources is not a new one, having existed since the '60s and typically associated with mainframe server architectures, AWS and other public cloud computing vendors have democratized large-scale server availability and paved the way for a new wave of innovation in technology servicing.

As-a-Service cost optimization

Initially used for smaller systems outside of the banking and capital markets business, such as human resources information systems, the as-a-Service model has pivoted, now offering large cost optimizations for core financial services infrastructure.

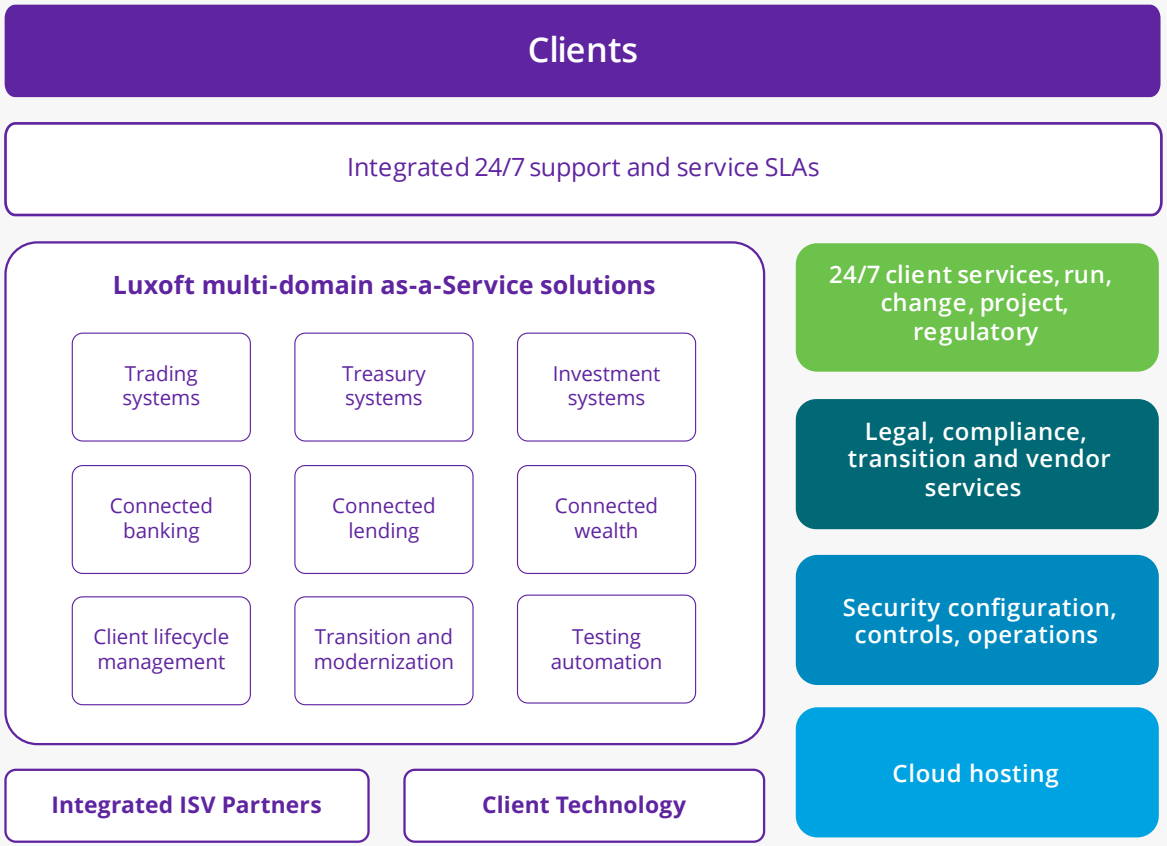
What does this mean in practice? Unlike basic cloud migration (simply moving systems to a lower, non-capital-intensive cost environment) the as-a-Service model introduces software service layers that simplify the responsibilities of many of the deployment, implementation and integration activities associated with third-party software.

From the point of view of financial institutions, it means that clients have a partner representing their particular interests, keen to customize and shape products to meet the specific needs of their organization.

Total connectivity

So, what is the full scope of as-a-Service? Rather than just outsourcing one or two systems to the cloud, this is nothing less radical than an entire ecosystem — a universe of interconnected systems which seamlessly and securely connect to one another. An organization's entire IT estate, including complex back-office processes and bespoke customizations, can be outsourced safely, securely and compliantly, while the client organization still retains full control and accessibility of their data and workflows.

Diagram 4. Components of an as-a-Service Ecosystem



Smoother migration and integration

Public clouds such as AWS have positioned themselves to host and integrate all your mission-critical applications. By providing application and data migration tools, they ease the migration of apps to the cloud. By nature, public cloud services provide API- accessible services, allowing easy integration between applications. In fact, many popular applications have built-in integration with data transport and analytics services on the cloud. This allows the migration of entire business functions. For example, trading, risk and middle-office systems can all be migrated to public cloud and integrate with each other, including adjacent services such as application health and security monitoring.

Partner with an experienced change manager

Having an experienced partner, certified in these public cloud technologies, helps financial institutions understand which operating model fits their needs and which applications are delivering business value. In addition, due diligence is performed on the client's behalf, keeping them fully compliant with outsourcing requirements both internal and external. With a fully hosted, managed service, every milestone in the process is included — from the most robust security protections to keeping up to date with upgrades to run, change and connectivity.

As-a-Service reduces complexity

The technology landscapes of financial services firms are, by their nature, complex. Underneath each application exists a microecosystem of integration links, monitoring programs and sophisticated systems of data transfer.

As-a-Service tackles not just one aspect of this convoluted ecosystem but takes on the entire scope — transferring data in and out of the organization instantly and securely with seamless access, utilizing cloud-native technologies for a smooth connectivity process.

There's no danger of falling behind with upgrades or getting stuck with obsolete technology, either. Inclusive of license fees, built-in evergreening provides a predictable TCO for the life of the deal, removing the CAPEX spikes associated with upgrades and end-of-life hardware.

Safeguarding sensitive information

Data is the key to business transition and profitability, and remaining complaint and secure is crucial. Working with a trusted partner is imperative to maintaining the right levels of due diligence, regulatory compliance and information security, such that consumption of as-a-Service solutions can take a load off the mind of senior executives, allowing them to focus on the profit- generation side of the business.

Regulatory compliance has also come to the cloud. Industry-leading public cloud services, including AWS, are ISO, SEC or SOC certified. In addition, public clouds offer services specifically designed to make applications compliant. Services such as audit trails, high availability (HA), disaster recovery (DR) and role-based access controls (RBAC) are built into most cloud services. Control and data access audits are made simpler with these services — especially when multiple applications composing an entire business unit are bundled together.

Business continuity is a major consideration

Working with a partner organization to outsource not just one system but the entire IT estate is a radical solution, and end users will naturally have doubts about how this will affect their day-to-day work. But the reality is that, on the surface, there is very little change in operations or processes for the systems' users.

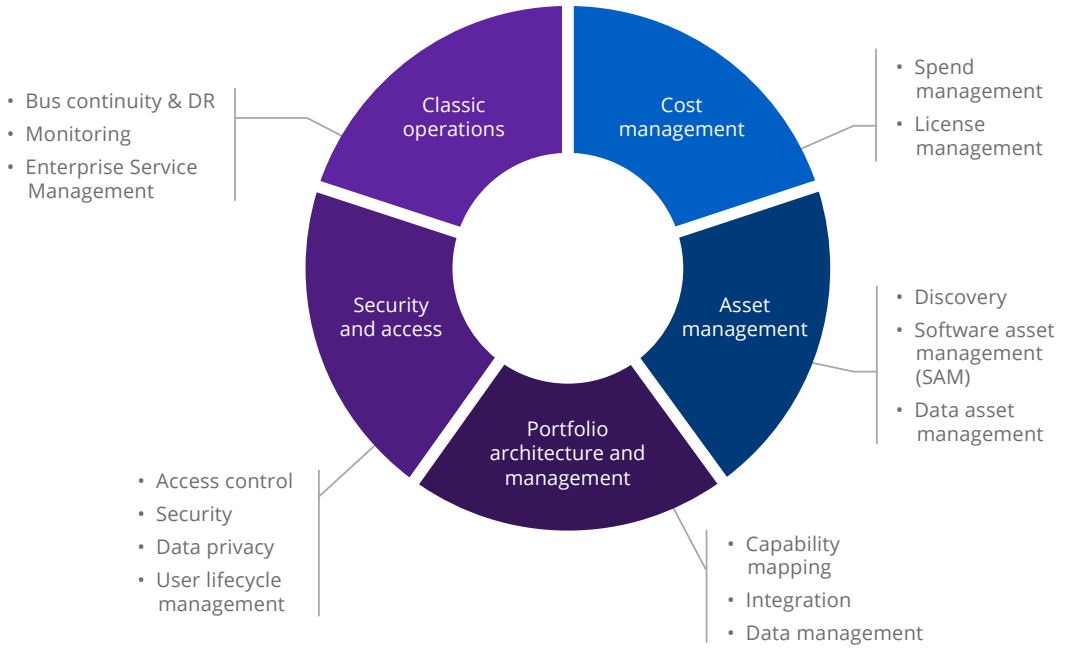
In fact, if there's any noticeable change, it's in making life easier. From seamlessly keeping on top of upgrades, security and due diligence to streamlining and simplifying the technology stack as well as improving data architecture, it allows organizations to optimize their time to focus on what really matters.

In the unlikely event a problem develops, the client should expect full provision for disaster recovery, together with solutions for backup and archiving. The technology partner should provide all the specialist tools needed to keep applications in good shape, managing change delivery in a consistent and reliable way. As-a-Service technology providers should be able to provide high-level architectures for their solutions, outlining how they solved important challenges such as high availability, disaster recovery, security, identity and access management and data backups. Strategies for keeping the software up to date, patched and with the latest security vulnerabilities covered should be shareable. And any subsequent processes that could affect the use of the as-a-Service offering should be flexible enough to reduce operational impact.

Cutting costs while driving global reach

As a global technology outsourcing organization, Luxoft has an optimized footprint of delivery locations globally, which will allow us to further reduce technology TCO by selecting the right regions and locations to support our customers. This global footprint also allows us to scale rapidly, building change capacity into our as-a-Service offerings and allowing for flexible increases in capacity to shorten time-to-market. Luxoft implements best-in-class policies and procedures with high levels of certification, ensuring that the necessary information security and technology controls, including informative management reporting, are provided to meet the highly regulated customer's needs. This is fundamental to compliance with executive accountability regimes and ensuring that clients are able to effectively lower their technology risk profiles.

Diagram 5. Principle elements of successfully designed as-a-Service operations



Trusted transition partners

Luxoft is already working with industry-leading partners and vendors in the financial services space — this is what makes us different. We are experts in fully hosted, managed as-a-Service solutions that enable optimization and a trusted transition and are actively and successfully providing these services for tier-1 organizations in the banking, capital markets and insurance sectors.

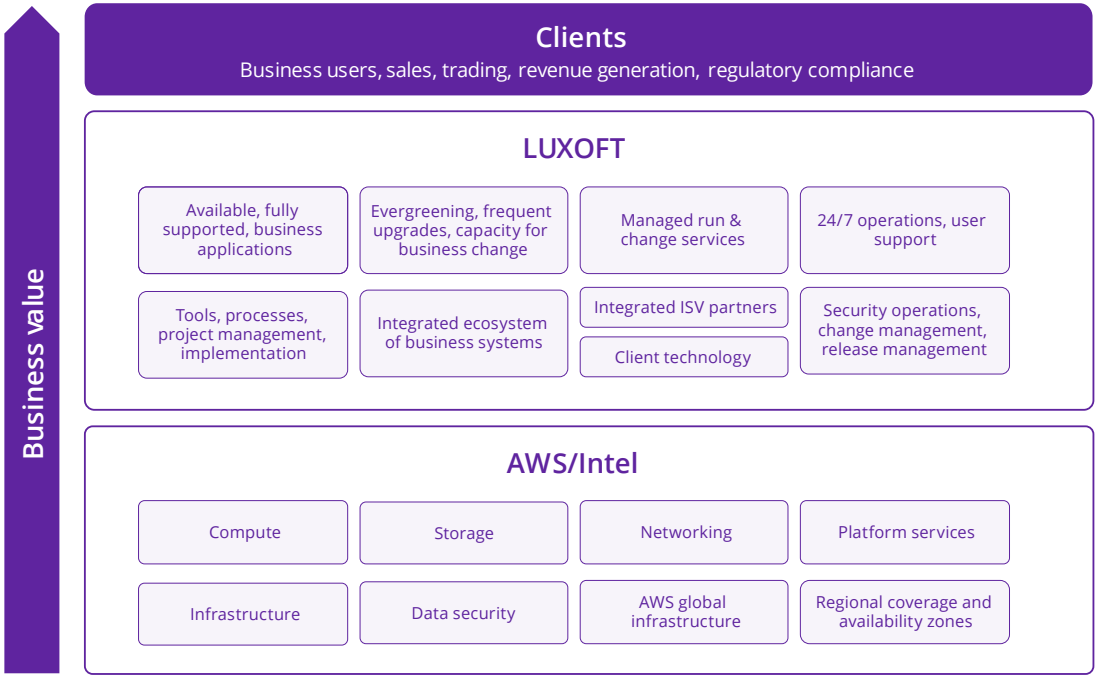
3. Streamlined IT-of-the-future with as-a-Service

Imagine this — you're a large financial organization with a range of complex and integrated applications, powered with advanced analytics and machine learning data optimization, and yet, you have little to no in-house IT managing these systems. Sounds radical? Absolutely.

Key elements of Service-oriented operating models and cloud-based solutions such as Software as-a-Service (SaaS) and Platform as-a-Service (PaaS) have been around since the 1960s, but only as siloed monolithic applications with access only from limited hard-wired locations. Public clouds such as AWS have decomposed this functionality into smaller, composable services that can be used to augment existing applications or build new ones, while allowing access from anywhere via any channel (mobile, text, web, voice, chat). This Service-oriented approach with access-from-anywhere has liberated both staff and data and allowed for improved productivity and insights.

These operating models elevate the value derived by your own IT department by outsourcing the commodity and readily automatable portions of owning infrastructure and software. Thus allowing your IT staff to consume the end product on a pay-per-use basis. Providers maintain everything lower down in the stack, allowing customers to focus on their business processes.

Diagram 6. As-a-Service operating models enable elevated business value of internal IT



There's no need to explain the multitude of factors pressurizing the financial services industry right now — from adverse market conditions, rising costs and complex regulatory requirements to the dawn of quantum computing, the next few years will be pivotal for organizations to make the changes required to weather the perfect storm that's approaching.

One factor hindering growth is that, due to the complexity of their systems, clients often spend more on running legacy applications than those systems deliver in revenue. Consequently, clients are actively searching for ways to improve the situation

Thickening the bottom line

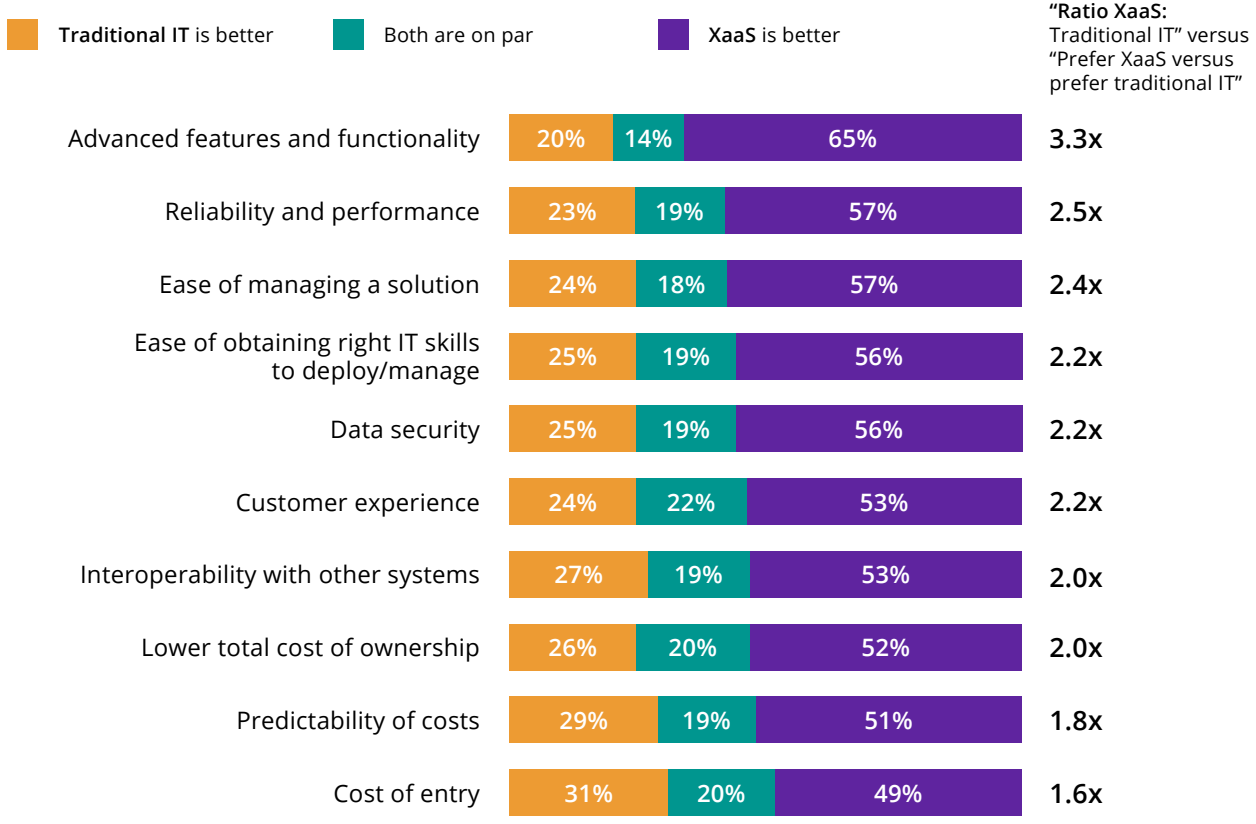
As-a-Service operating models are increasingly seen as potential solutions for clients moving forward, as they can solve the equations of cost and revenue and reach profitability. As-a-Service provides an organization with the ability to scale rapidly and respond to market forces, as well as always keeping up to date with the latest software versions.

Integrated clouds help you do more with less

Public clouds have made advanced data analytics and machine learning (ML) far more approachable. Many of these services can now be added to existing applications without the need for data scientists or ML specialists. By leveraging no-code analytics, ML and the integration connectors in the cloud, organizations can derive business insights rapidly with existing business and IT staff. Luxoft, with certified analytics and ML cloud specialists, can assist in adding these capabilities to your existing data sets.

According to recent research by Deloitte, over the next two years, as-a-Service will become 2.3x more critical to organizational success, and almost all organizations expect to adopt multiple as-a-Service offerings within the same timeframe. Organizations report that as-a-Service has already delivered significant benefits across multiple areas of IT efficiency and agility, and as-a-Service is seen as superior to conventional IT across a wide range of IT attributes.

Diagram 7. IT and LOB preferences for system deployment



Note: N=600 US IT and LoB professionals. Rows may not total 100% due to small percentages of "don't know" responses. Source: Deloitte Everything-as-a-Service (XaaS) Study, 2021 edition

Typically, as-a-Service offerings require a higher level of standardization than bespoke, on-premises, existing implementations. This can be a good thing — by shifting from complex business processes to simplified and standardized processes, things like codebase mutualization, support and operations cost reduction and improved time-to-market are far more achievable.

Partner with an expert change manager

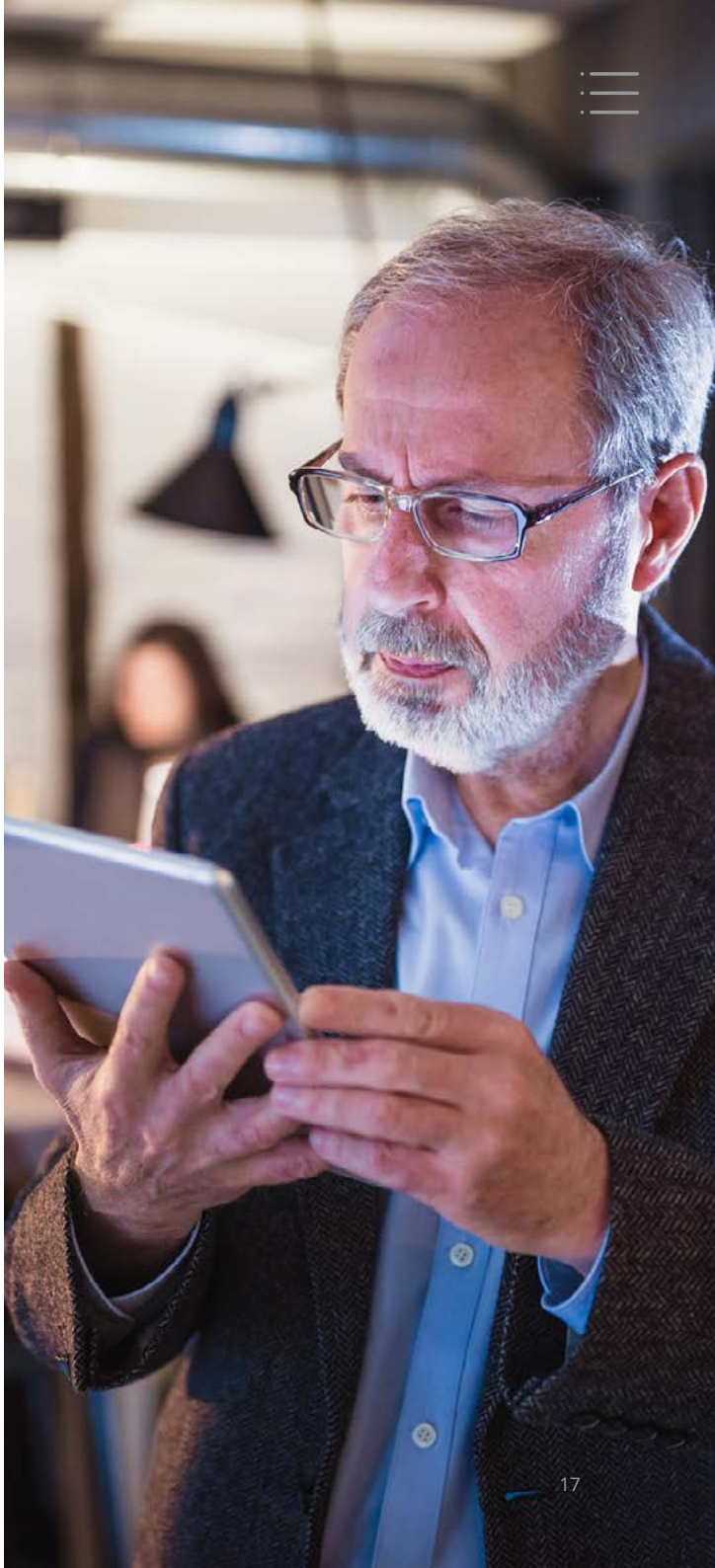
By working with a partner organization experienced in as-a-Service transition and delivery, it's possible to keep a lot of bespoke, client-specific customizations as well as laying the foundations for further business-driven change, keeping existing workflows intact and accessible at all times. End users will have the ability to manage their data in a spontaneous yet fully accessible way, allowing them to explore the most relevant data needed for a specific task. In addition, a partner organization can shoulder the burden of cyber security, technology risk and outsourcing compliance, freeing up senior executives to focus their time on revenue generation rather than risk aversion.

Adopt a more productive way of working

End-users of as-a-Service solutions can notice significant change for the better in their day-to-day activities, through simplified processes, enhanced automation unlocked through more recent versions of the software they utilize and increased operational effectiveness. In-house staff are enabled to shift their focus to more meaningful priorities, supporting revenue-generating business activities and change rather than spending their time maintaining a complex estate of legacy systems and processes. Technology and business personnel within an organization will start to see the benefit of shifting focus to adding business value, and this change can amp up transformation and allow the business to expand.

Front-to-back rationalization

This also provides a framework for the different key business processes, such as front office, risk, back office, accounting and data management. This can help clients determine which of these are the key strategic functions for a financial institution to retain in-house and what can be fully outsourced. The first step is to come to a proper consensus about what is differentiating and non-differentiating in technology and business operations, then to retain ownership of just the differentiating items, moving the non-differentiating and behind-the-scenes technology and business process either to as-a-Service or utility models. Functions such as back office, risk and regulatory management are ideal candidates for outsourcing. The as-a-Service ecosystem integrates easily with advanced fintech solutions that can handle these functions with greater efficiency and flexibility.



More than just a collection of platforms or systems, the differentiating factor of as-a-Service is how interconnected it is — a complete ecosystem where separate systems and processes can interact seamlessly with one another and transfer data quickly and securely, simplifying the complex universe of interconnected systems while still retaining full functionality.

Commoditized agility and flexibility

Future financial services operating models will make greater use of commodity banking technology. These commoditized technology solutions will be consumed as-a-Service, combined with multi-tenant utility platforms and key differentiating systems retained in-house. It allows organizations to lean into a collaborative approach while accessing the latest external solutions. It ranges from niche applications such as Regulatory Reporting as-a-Service or Collateral as-a-Service through to central platforms such as Trading Systems as-a-Service. In practice, this allows businesses to scale up or down services as needed on a pay-as-you-go basis, paving the way for greater agility and flexibility. The first step on this digitalization journey is the adoption of cloud technology — this opens the door towards other systems which have the potential to unlock greater flexibility, profitability and operational efficiency.

Collaboration is key to success

Another unique and welcome development in this space is the emergence of collaboration between multiple independent software vendors, system integrators, IT service providers and fintechs. These organizations, working together to harmonize an commoditize their offerings, allows businesses to tap into the ever-changing technology landscape, granting access to the latest technologies with reduced costs and greater flexibility. Standardization of integration is crucial to these evolving technology ecosystems, allowing businesses to keep costs lower than they would be when managing different types of integration, this is achieved through the use of open APIs. Other bespoke as-a-Service solutions — Integration as-a-Service and Data as-a-Service — can also manage this process, removing overheads associated with infrastructure and potentially making huge savings on DevOps, platform maintenance and data management.

Overwhelmingly, the preferred operating model for as-a-Service utilities is for them to be operated jointly by third-party providers, to mutualize the costs of operations and infrastructure management, as well as provide the expertise in managing cloud services and workloads. A strong technology partner will understand how the as-a-Service model can help an organization drive digital transformation, reduce capital costs and accelerate innovation.

Stay focused on what matters most

Financial institutions can enable more ambitious transformation initiatives while remaining focused on their core business objectives. Such a technology partner can provide the right mix of skills and resources to manage change — from subject-matter experts as frontline support to technical analysts dealing with complex integration challenges.

The future of banking, insurance and capital markets technology will be radically different, and the tech and strategy to underpin those changes are available right now. Natural human resistance to change as well as the cost of implementing these changes are obvious barriers, but financial institutions now need to confront the question, what's the cost of not acting?

4. Accelerating **ISV as-a-Service model adoption**

Maximizing market competitiveness with performance-optimized software tuned for the right infrastructure

Embracing the as-a-Service model with Intel

Intel's involvement in the financial services industry goes beyond its reputation as a leading chip manufacturer and alliance partner for industry strategy and change.

In addition to accelerating the business case of legacy system cloud transition, Intel helps independent software vendors (ISVs) with deep performance optimization of their software. As-a-Service deployment is an effective way to achieve this.

In the financial services industry, full stack as-a-Service models bundle together the ISV hosting, technical deployment, vendor engagement, operations, and support functions into one service level agreement (SLA) and price.

Variations consist of direct inclusion of the ISV software license and the extent of managed services outsourced by the end client. The model benefits the end client by simplifying multi-party engagement, greatly reducing service costs, streamlining support and maintenance costs, shifting to recurring revenue licensing, and focusing on product investments.

How these benefits materialize depends on the ISV software's readiness to scale in this model or the complexities involved in preparation. Originally developed for running on pre-cloud chipsets and distributed architectures, the software might not be taking full advantage of today's cloud performance infrastructure. Client customizations and past-versions support may make the investment too costly for the ISV to start the full journey. Equally, the end clients who depend on these critical systems face risks in making the transition on their own.

In many cases, the transition journey ROI simply isn't sufficient to commit. However, Intel can unlock ISV potential by enhancing existing software performance and injecting run-cost relief to begin the transition.

This chapter explores how, in collaboration with Luxoft and AWS, Intel supports ISVs with experience and incentives to enhance existing software performance and market competitiveness.

Managing end-client expectations and migration complexities

As clients continue to migrate critical systems to the cloud, traditional software, integration and support models (originally designed for on-premises deployment) face significant limitations.

To justify embarking on their transition journeys, clients expect high returns on cloud-based migration projects with cost benefits across a wide-range of integrated services. Embracing full-service as-a-Service models with scale, run and change services included, can be daunting where critical systems are concerned.

Specifically, end clients can be reluctant to accept responsibility for managing the transition of critical third-party software in their cloud. Tackling the inevitable challenges is better left to the vendor or other industry experts who excel in general cloud enablement, data, and AI technologies.

Transitioning to as-a-Service models requires careful management of client expectations and migration processes. Clients who lack the necessary expertise or resources may be wary of managing ISV software in the cloud. Moreover, the cost benefits of moving existing software to the cloud can be marginal, making it difficult to justify the transition.

Breathe new life into established solutions

Many ISVs face the daunting task of modernizing legacy systems that have been extensively customized with client-specific configurations. Consequently, transitioning to as-a-Service models is likely to be complex and challenging. The cost of re-architecting these systems for the cloud can be prohibitive, making it difficult for ISVs to optimize offerings and remain competitive.

ISVs must adapt their software to exploit the benefits of dynamic scaling, on-demand consumption and cost efficiency offered by the cloud. However, re-architecting software is often unfeasible, and migrating software as-is rarely achieves the anticipated cost benefits.

This is less of a challenge for emerging software vendors building new software to target the benefits of distributed, on-demand containerization-based architectures. But the issue is high on the agenda of software vendors with hundreds of global customers using heavily customized versions of various products sold over many years.

For established vendors, deriving value and benefit from as-a-Service models requires investment that could unbalance a delicate product P&L. In addition to the cost of cloud re-architecting, the setup for running in a cloud environment and incentives for individual client transitions must be addressed.

In many cases, these critical systems are often left in place, so a catalyst is required to accelerate the proposition for the end client and ISV in both the software transition and scale journeys. Here, together with key partners like AWS and Luxoft, Intel leads the financial services industry, providing a competitive edge for all.

Intel, the catalyst for unlocking key ISV performance

Intel's expertise in application tuning and optimization makes the difference.

By utilizing Intel's advanced libraries and system configurations, and running on the latest Intel® Xeon® processors, ISVs can achieve substantial performance improvements for existing software. The run-cost efficiency is extremely attractive to individual clients and ISVs alike.

This process involves application tuning to specific Intel chipsets with a focus on compute load configurations, database query optimizations, database load configurations and low-level chipset library settings. This tuning achieves new levels of performance and scalability without a complete re-architecture.

Intel has extensive expertise in tuning application consumption, compute, network, and data performance. With fundamental experience in low-level execution libraries and system configuration, targeting specific chipset and architectures, Intel can provide immediate advantages for ISVs. In many cases, these libraries and configurations can deliver significant performance improvements, providing a cost-competitive edge in the as-a-Service journey. By using Intel accelerators and technologies, you can measurably improve computer, memory, network and database performance.

Intel works closely with ISVs to provide comprehensive support throughout the tuning process, from initial planning and assessment to ongoing review and optimization. By leveraging Intel's deep knowledge of cloud technologies and financial services, ISVs can offer their clients a more compelling value proposition.

AWS and Intel have partnered together to create the **Intel Accelerator Program**. The program focuses on delivering customer outcomes by leveraging Intel's latest technology and solutions, providing customers best-in-class experience on AWS and Intel by ISVs. Targeted to ISV partners to develop scalable, marketable, cutting-edge solutions built on the latest Intel technologies, the program may help reduce costs of service delivery, POCs and performance optimizations.

Intel provides a wide selection of instance types optimized for different use cases and workloads. Instance types comprise varying combinations of CPU, memory, storage, and networking capacity, giving you the flexibility to choose the appropriate mix of resources for your applications. Each instance type includes multiple sizes, allowing you to scale your resources to the requirements of your target workload.

Performance advantages by the numbers

4th Gen Intel® Xeon® Scalable processors include many built-in innovations to accelerate **compute- and data-intensive** workloads, common in financial services. These innovations include Intel® Accelerator Engines, such as Intel® Advanced Matrix Extensions (Intel® AMX) **to speed AI, machine learning, and deep learning** workloads, and Intel® Advanced Vector Extensions 512 (Intel® AVX-512) to accelerate **analytics** workloads.

When you combine the value of performance-optimized software running on the latest AWS Intel-based instances known as *better together*, the resulting performance and cost reduction benefits can be significant. And, AWS offers a vast array of flexible, Intel-based instances to meet a wide variety of needs.

AWS EC2 R7i instances are memory optimized, making them ideal for in-**memory database and analytics** workloads—and offer compelling performance advantages over prior-generation R6i instances. R7i instance performance improvements include:

- Up to **1.39x normalized MySQL throughput** for smaller instances versus R6i
- Up to **1.31x normalized MySQL throughput** for larger instances versus R6i

AWS EC2 C7i instances are compute optimized and are a great choice for many **CPU-intensive financial services applications**, such as high-frequency trading, risk analysis, fraud prevention, financial modeling, and others. The LINPACK benchmark is a strong performance indicator for these types of applications, and C7i instances deliver the following LINPACK performance improvements versus prior-generation instances:

- Up to **1.21x normalized LINPACK GFLOPS** versus C6i
- Up to **1.27x normalized LINPACK GFLOPS** versus C5

AWS EC2 M7i instances are designed for a variety of **general purpose applications** common in financial services. M7i instances deliver the following performance benefits versus prior-generation instances:

- Up to **1.91x normalized MySQL new orders per minute:** versus M5
- Up to **1.40x normalized MySQL new orders per minute:** versus M6i

A lower-cost variant of the M7i instances, with 5% better price/performance and 5% lower prices is the M7i-flex instance. M7i-flex instances are are great for applications that don't fully utilize all compute resources. The M7i-Flex instances deliver a baseline of 40% CPU performance, and can scale up to full CPU performance 95% of the time. M7i-Flex instances are ideal for running general purpose workloads including batch processing, databases and enterprise applications. If you are currently using earlier generations of general-purposes instances, you can adopt M7i-Flex instances without having to make changes to your application or your workload.

Improving ISV existing software revenue, margin and customer value

For many ISVs, maintaining the status quo leads to high maintenance costs, fragmented support and reduced profitability. And, maintaining legacy systems consumes significant resources, leaving little room for innovation or investment in new technologies.

The transition to as-a-Service models offers ISVs the chance to create new revenue streams through subscription-based pricing and recurring services revenue. This approach not only generates a steady source of income but also enhances customer value through access to the latest features and technologies on an ongoing basis.

By consolidating client customizations and focusing on a single, optimized version of software, ISVs can reduce maintenance costs, improve support efficiency and enhance overall profitability. This not only streamlines operations but also makes it easier to offer consistent and high-quality services.

Intel's involvement in this process is critical. By providing ISVs with the tools and expertise to optimize their software for cloud deployment, Intel helps ensure they can deliver high-value, cost-effective solutions that drive growth and profitability. These new revenue streams provide ISVs with the financial resources to invest in further innovation and expansion, supporting long-term business success.

Intel's focus on software optimization embodies its commitment to empowering ISVs. This concern is crucial for ISVs looking to enhance product offerings and maintain a competitive edge in a rapidly changing industry. For example, Intel can unlock database optimization where they run thousands of benchmarking jobs per day unlocking optimization over 3 separate layers (hardware, OS, technology stack).

Encouragement is sometimes all that's required to break the deadlock of starting the as-a-Service journey. These performance improvements lead directly to cost reductions that can be passed onto the customer or used to help fund other product enhancements (i.e., full cloud re-architecture, AI for operational support and trading optimization, etc.) which, in turn, improves total customer value.

Break the profitability deadlock and client erosion by working with service partners

Breathing life into legacy software is a challenge faced by many multi-product line companies. Although ISVs can have impressive client lists, many of their end-clients run old software versions with customizations, which can be costly for both the bank and the ISV.

One approach historically has been to create a new next-generation replacement product for end-clients to be migrated to. This has had varying successes for critical software, where the attempt to sunset old products has been met with stiff client resistance, resulting with the ISV having to manage even more software than they started with.

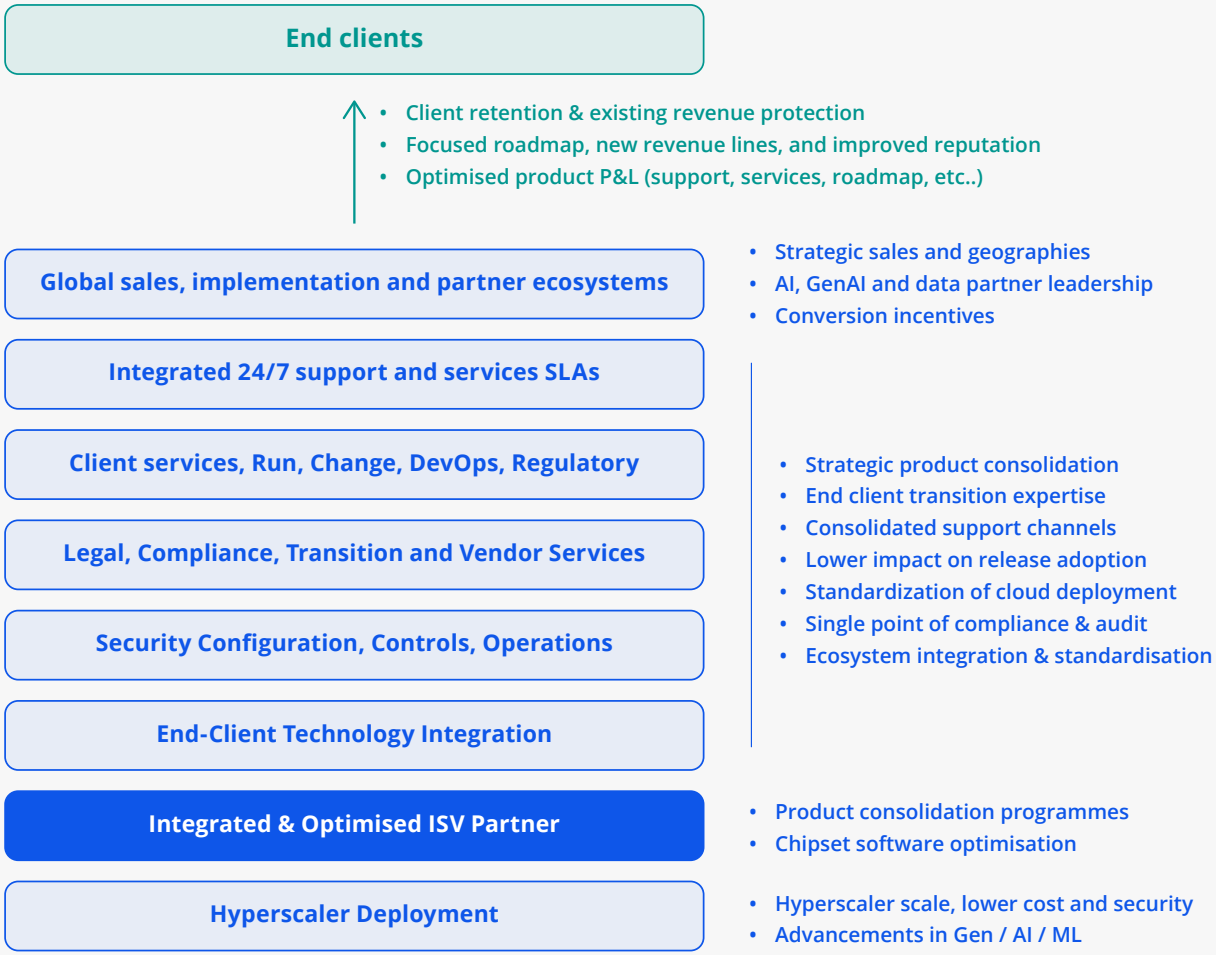
Alternatively, maintaining the status quo is costly to both ISV and client, and only compounds over time:

- Supporting multiple past product versions and customizations results in low or negative maintenance margins
- Client or mandatory regulatory updates are required to be backported to old versions, impacting services margins
- New product features have to be implemented on multiple versions, eating into investment returns
- The ISV product P&L erodes overall, investment wanes and new sales stall
- Client costs increase as a consequence, leading to poor TCO
- The end-client ability and trust in moving to the cloud to reduce costs becomes a risky proposition on their own
- The client is forced to upgrade or seek new software, which is costly

Although the downsides are material for both, ISV's alone can't provide all the necessary incentives to entice clients to take the full modernization journey. Working with partners in a stacked as-a-Service model creates an environment that leverages trust and economies of scale to justify this journey.

There are many steps involved with migrating critical software and maximizing the benefits of the cloud and optimized software. Engaging services partners who excel in hyperscalar deployment, application/database optimization, transition/migration expertise, and integrated ecosystems is key to success. These partners can wrap ISV solutions, presented as an as-a-Service model, allowing the ISV to remained focused on what they do best—taking care of the industry solution.

Diagram 8. The benefits of partnering in as-a-Service delivery models



With an as-a-Service partnership approach, the ISV can focus on optimized versions of their software for clients to migrate to, avoiding the costly distraction for end-clients moving to a completely new software solution. The benefits of this optimization, namely Intel-identified run-costs, along with the economies-of-scale offered by the as-a-Service partners, creates a solid set of incentives for both the ISV and end-clients to achieve their expected returns.

With these incentives in place, the relationship between the ISV and end-clients enables:

- Support footprint and maintenance margin improvement
- Client and regulatory change deployment once for the benefit of all
- Valuable customizations from clients to be consolidated and made available to all
- Maintenance and service margin gains to be used for incentivizing client upgrades
- More profit to be reinvested to advance the product roadmap
- Increased product profitability making it a viable product once again
- The creation of new revenue streams and recurring licenses
- New cross-sell opportunities for new features, products or partners to be introduced
- Significant improvement of client satisfaction, protecting revenue and market share

Embrace the future with Intel

The financial services industry is at a tipping point, with as-a-Service models offering unprecedented opportunities for growth and innovation. By partnering with Intel, ISVs can unlock the full potential of these models, delivering high-performance, cost-effective solutions that drive value for clients and position themselves for long-term success.

Identifying the right partner and making the right infrastructure choices are critical factors to your success. Intel works with many key executives and industry leaders, building trust and awareness of the latest solutions for cloud, optimization, and security. This includes not only the end-to-end benefits of as-a-Service models, but also the associated advances that come with cloud-based machine learning, AI, automation, and GenAI.

Intel is unlocking every machine learning use case through both hardware and software innovations. From a software perspective, Intel has released a comprehensive software stack called oneAPI, which enables users to leverage software acceleration for running their AI workloads by taking advantage of Intel® Acceleration Engines, like Intel AMX, to speed deep learning and generative AI workloads—and putting transformative AI capabilities within reach of everyone.

Intel and its partners can provide funding and Proof of Concept (POC) support for customers migrating and modernizing their applications and infrastructure. And, the Intel Customer Enablement Platform—created by DXC and hosted by AWS—simplifies and streamlines your efforts by providing ready-to-use platforms for common applications, managed by AWS, to help maximize your agility and minimize your TCO.

Next steps

Explore the benefits of advanced software optimization, cloud deployment and strategic support, and discover how Intel can help you achieve your goals and transform your business.

- **Leverage Intel's expertise:** Utilize Intel's advanced technologies and optimization techniques to enhance software performance and reduce costs in the as-a-Service transition
- **Focus on cloud compatibility:** Ensure that your software is fully optimized for cloud deployment to maximize the benefits of dynamic scaling and on-demand consumption
- **Drive continuous improvement:** Embrace the as-a-Service model to deliver ongoing enhancements and new features, ensuring long-term competitiveness and customer value
- **Partner for success:** Work closely with Intel and other industry leaders to navigate the complexities of the as-a-Service transition and achieve sustainable growth and profitability

5. No time like **the present**

In the previous chapters, we've looked at the advantages and path forward for the as-a-Service model. Now, let's explore what's entailed in moving your existing applications to this model.

The past two years have been a wake-up call for business. Covid-19 has disrupted the normal course of business for financial consumers and institutions alike, each having a strong focus on how they address their unique concerns.

Financial consumers are focused on access to capital, and time is critical in determining the viability of businesses to enable them to continue to meet their financial commitments. Financial institutions, meanwhile, have been focused on safety, security, resiliency, scalability and the continued health of their operations — including the reality of remote and work-from-anywhere staff who need to access critical business applications from anywhere there is internet access.

The regulators of the financial space have also seen disruption, pivoting to focus on economic recovery and making capital accessible to those who need it, ensuring the stability of national and global financial systems.

These heightened concerns and requirements have translated into increased burdens on the financial system, particularly from a technology perspective.

While it's true that financial firms had been exploring and adopting new technologies such as public cloud to boost innovation, provide better services to customers, and increase security, the issue was that they'd done so at a rate slow enough to not have had as meaningful an impact as they now know is possible.

Fast forward to today and most firms are looking to the cloud as the true driver of innovation and transformation, leveraging its ability to increase development and provide near-limitless scale. This newfound cross-industry affinity for the cloud has come as a direct result of disruptive years that have favored fast-moving digital players over slower, larger enterprise monoliths. For financial institutions, cloud adoption and acceleration are no longer just about minor efficiency improvements and potential revenue increases — the focus now is on surviving and thriving in a world where speed, scale, innovation and experimentation are the only reward generators. Certainly, unburdening local IT staff from installing, patching, customizing and integrating ISV applications and redirecting their efforts to creating differentiated offerings. Moving your common ISV solutions to as-a-Service accomplishes just this.

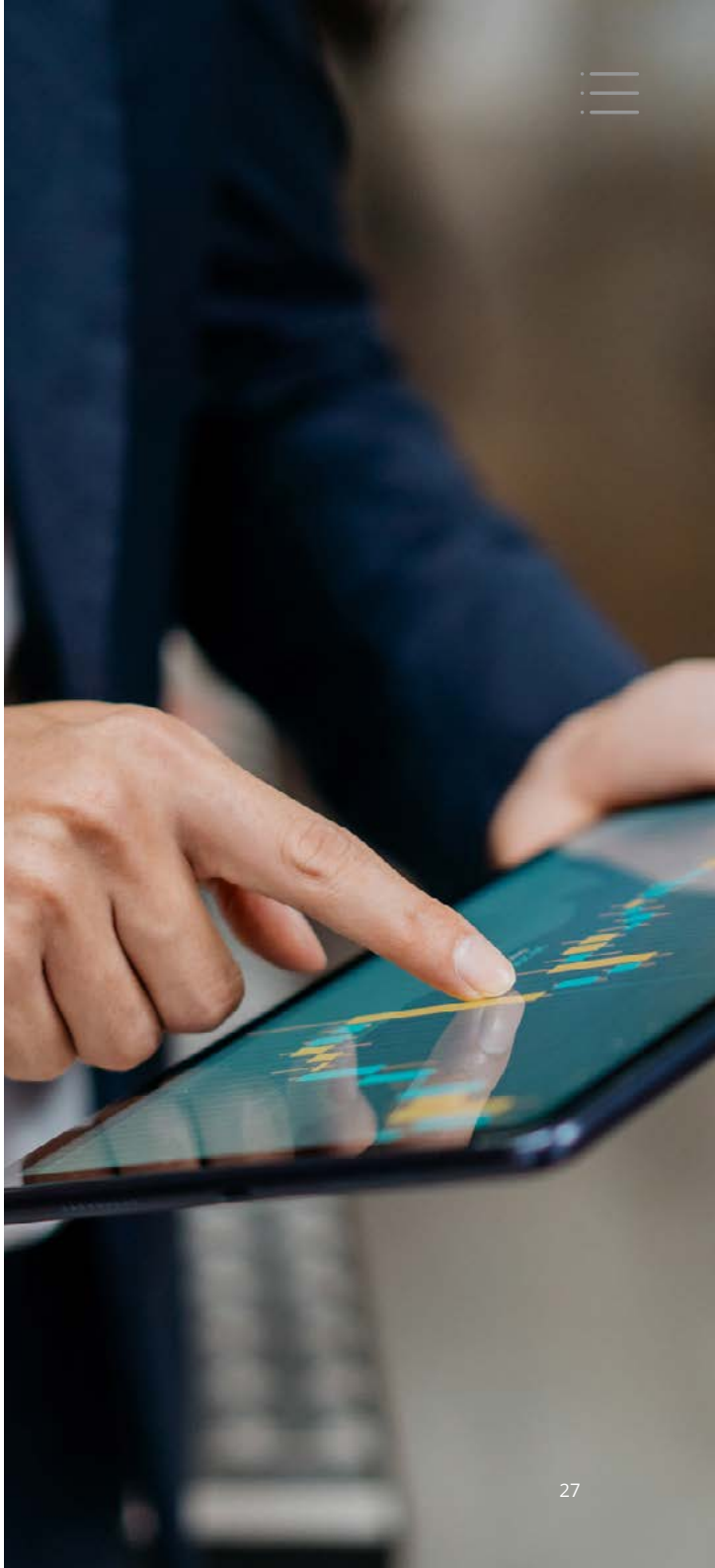
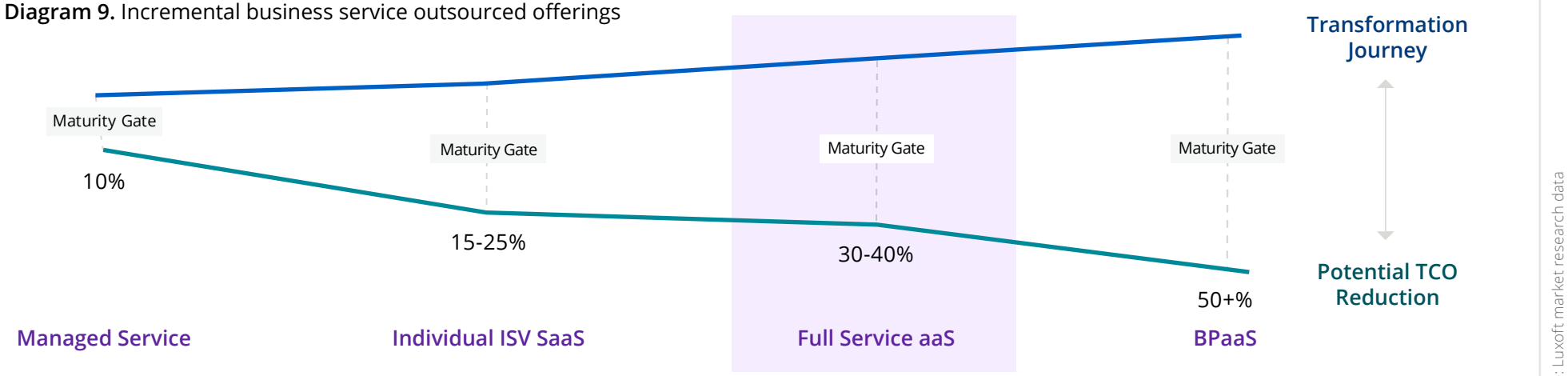


Diagram 9. Incremental business service outsourced offerings



Base: Luxoft market research data

Managed service vs ISV-own offered SaaS

While some ISVs offer a dedicated SaaS version of their offerings, which may be a fast route to migrating your on-premises application to a service offering, be aware of potential limitations of such an approach. While this will work for the application in question, it is key to consider the entire constellation of connected applications that we've discussed previously as an "ecosystem." In moving an entire business function to as-a-Service, you may want to consider a managed service provider (MSP) that offers multiple integrated applications and services in a consistent as-a-Service solution. The MSP can provide infrastructure and application support services for the entire integrated offering, made possible by integration services available on most public clouds (e.g., Amazon AppFlow).

For example, hosting your trading system and middle- or back-office system with the same service provider will allow a seamless flow of trade data from one system to the next. This is where you begin to really capitalize on the value of as-a-Service. Don't see your particular application offered by the MSP? Talk to them — very often, they are willing to add ISV applications to their supported offerings if there is a larger market opportunity.

What if you've customized your application? Many apps can have custom configurations or support the inclusion of customized business logic. If you've made such customizations within the framework of the application, it's very likely these customizations might not be offered in the ISV SaaS version. But what if you need further modifications? Very often, the MSP can implement these customizations for you as well.

Similar to customizations, what if you want to extend the functionality of a vendor system beyond its ability to be customized or configured? A common example is analytics. Often, data that is siloed within application databases has limited reporting and analytics capability. Public clouds contain as-a-Service data analytics capabilities that can usually be easily integrated with the data sources of most ISV systems to provide additional analytics capabilities (e.g., AWS RedShift and QuickSight). This becomes especially powerful when combining data from multiple siloed applications.

Likewise, public clouds provide easy-to-consume machine learning (ML) capabilities that allow you to add these ML capabilities to extend vendor applications (e.g., Amazon SageMaker). These tools often allow firms without ML specialists or data scientists to add ML capabilities.

The first 3 steps in moving to as-a-Service

Many financial firms have established cloud adoption as a priority but still need to further understand exactly how and why they can accelerate that adoption to achieve benefits arising from it. The first step is to take stock of what your firm has already adopted. Many firms have broad adoption of cloud but usages and understanding vary from department to department.

Secondly, banks and capital markets firms face several adoption challenges. These challenges include regulatory changes, internal governance and compliance, and limited skills within the organization, each having an impact on how a firm charts its acceleration journey. Understanding these and planning for them is critical to ensuring your cloud acceleration goes off without a hitch. As-a-Service offerings, where the hosting, run and change are provided by a MSP who has the skills and expertise to run these applications in the cloud, is an advantageous way of accelerating your move to cloud and removing internal adoption hurdles.

Finally, new market entrants like fintechs have successfully adopted and accelerated with cloud, shifting their focus to greater operational excellence, resiliency and a flexibility that allows them to change rapidly as conditions demand. Financial firms need to review incumbent solution providers, not only of what their direct competitors are doing but also to have an eye directed at those new players that are redefining how the game is being played. Getting to a level playing field with these new point solution and integrated ecosystem providers is important because the longer they have to accelerate, the more difficult it is for incumbent firms to catch up and the financial firms using them to shift competitively. Where systems integrators such as Luxoft are building an ecosystem that is fully open and suited to providing advanced capabilities to existing applications, there is significant scope to catch up with fintechs and close the agility gap.

There's no one-size-fits-all solution for accelerating cloud adoption; what there is, however, are frameworks for accelerating agility and removing impediments and skills gaps, like as-a-Service solutions. These offerings do not need to go against your existing cloud strategy and frameworks — they can align to them, especially when looking at what the cloud is and can do for your firm and marrying that up to your business objectives. It's time to stop thinking about business systems in isolation and consider how as-a-Service solutions deliver strategically on cloud-enabled business services and capabilities, even facilitating entire business unit processes holistically.

Moving to as-a-Service — 5 best practices

Adopting proven best practices and successfully deployed blueprints is the best way to build a successful framework for innovation acceleration. The idea is to learn from the successes of those who have recently gone before.

AWS and Luxoft have helped many financial services firms accelerate their cloud adoption and innovation through as-a-Service solutions. These steps are key to the successful adoption of as-a-Service solutions.

1. Map your cloud strategy to business value

Aligning your cloud strategy to your business objectives is the first step. Putting your business priorities at the center of the decision-making process, rather than an IT-driven, cloud-first strategy, opens the door to a broader set of solutions, including as-a-Service. Rather than viewing these solutions as a challenge to the in-house IT offering, as-a-Service solutions align to business priorities and can be utilized to allow in-house IT to focus on business differentiating activity, elevating them up the business value chain.

2. Understand your key value proposition

Once your cloud strategy is aligned to business priorities, you can begin understanding which functions of the technology landscape are the ones that differentiate your business. Highlighting these business differentiating systems and retaining and investing further into these areas will help your business growth objectives. Taking a view that all other technology systems can be moved into as-a-Service operating models through a partner can further unlock critical funds to invest into those higher value systems. The effects of this can snowball, with greater use of as-a-Service solutions leading to further free cashflow for investment into what sets your business apart from others.

3. Get a partner

Increasingly, clients are turning to partners to assist them in the cloud journey, including setting up cloud business offices, cloud centers of excellence, and the education required on cloud economics and technology. Partners represent a concentration of cloud skills and fill in the gaps that clients have. Most cloud providers have registered cloud competencies that a firm can apply for and achieve. The process of receiving a particular cloud competency is not an easy one — a partner must demonstrate that they have the technical skills as well as a sufficient portfolio of successfully completed projects to achieve a competency. Competencies can include security, application migrations, database migrations, financial services and many other areas. Finally, look for a partner with many cloud-certified technical personnel. All the major cloud providers provide certifications for various technical capabilities — an individual must pass a third-party administered test to demonstrate sufficient technical knowledge to be certified. Certifications are at various levels (beginner to professional) and include the scope from generalist to specialist in various technologies (e.g., database, security, etc.). Partners such as Luxoft have these competencies, technical certifications and resources, as well as the in-depth understanding of the financial services industry and the critical applications that underpin it.

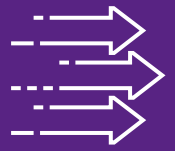
4. Leverage what you already have

As part of your existing cloud strategy, the first thing that was likely implemented was a landing zone. A landing zone is a well-architected, multi-account environment that is scalable and secure. It's a starting point from which your firm can quickly launch and deploy workloads and applications with confidence in its security and infrastructure environment. It will also have required you to set up secure connectivity with your underlying cloud provider. All these valuable controls still apply when moving to as-a-Service solutions, and you can connect to these through your existing landing zone, utilizing offerings such as AWS PrivateLink to connect securely and integrate into your existing secure footprint in cloud.

5. Start with a pilot

Now you're ready to start, pick one application and select a small group of user champions to work on the project. They will act as the beta testers within your organization. Typically, during a proof of concept with your MSP, they will migrate your data and customize your as-a-Service solution for their needs. These user champions can then validate that the solution meets the needs of the business and will provide a platform for the future. Very often, your on-premises system will remain active while your user champions are testing your as-a-Service version. The MSP can often set up continuous replication between the two instances to keep them in sync. This parallel-run approach allows for maximum availability and confidence.

After a sufficient test period, the proof of concept can be moved to full migration, where the on-premises version is retired and your MSP can work with you to migrate fully. Be sure to measure the service adoption through KPIs to ensure you're achieving the benefits expected. The MSP should provide you with service reporting against your KPIs, alongside other management reporting, to satisfy your ongoing outsourcing governance and third-party vendor performance obligations.



Delivering value

Now that you have a framework to follow and guidelines on how to get started, the process of moving to a world where as-a-Service solutions can benefit your business and enable you to extract more value from your internal IT teams can begin. Fully aligned cloud providers, like AWS, alongside MSP partners like Luxoft, can bring as-a-Service solutions to even complex business applications. Ecosystems of ISV partners aligned with this vision enable entire business unit processes to be onboarded to a single as-a-Service solution, providing you with end-to-end value across a business process or problem, all whilst enabling capacity in internal IT teams to drive further differentiation, top line revenue growth and enable innovation and agility for your organization.

Luxoft's 360 partnership approach with ISVs

Systems Integration

Luxoft is a leading systems integrator across the Banking and Capital Markets industry. Luxoft partners with high quality and innovative software providers to the financial services industry and has a excellent pedigree in delivering the largest and most complex projects.

- Top tier global partner to multiple premier FSI ISVs
- 20+ years of experience delivering IV solutions for clients
- Proven methodologies for delivering complex change projects across buy and sell side institutions

Embedment

White labelling of Luxoft delivery resources through ISV partners to provide flexibility and scalability to their professional services.

Provides a platform for cross training of new and closely aligned skillsets with Luxoft and brings alignment of delivery methodology to both ISV delivered and Luxoft delivered implementations.

- Leveraging Luxolt's global scale and experience
- Nearshore and onshore resourcing

Co-Development

Luxoft's specialist engineering practice for Co-Development brings deep expertise in software engineering to accelerate modernization, functional development and reduce time to market for new solutions.

With an extensive history of building, maintaining and enhancing complex software solutions for financial services, Luxoft can help deliver your product roadmap.

- 9+ years jointly developing ISV solutions

XaaS - As a Service

Luxoft's as a Service solutions provide a way for ISV's to scale their client deployments rapidly without loosing focus on what they do best — design, build and sell their software solutions.

Leveraging Luxoft's framework and platform, which already supports critical and heavily regulated workloads through client deployments and EarlyResolution, can reduce time to market for SaaS solutions significantly.

- Proven security frameworks and design patterns
- 24/7 support can be leveraged or dedicated depending upon client demands

Luxoft
A DXC Technology Company

If you'd like to find out more, visit **luxoft.com/capital-markets/**
or consult one of our experts at **financialservices@luxoft.com**

About Amazon Web Services

Since 2006, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud. AWS has been continually expanding its services to support virtually any workload, and it now has more than 200 fully featured services for compute, storage, databases, networking, analytics, machine learning and artificial intelligence (AI), Internet of Things (IoT), mobile, security, hybrid, virtual and augmented reality (VR and AR), media, and application development, deployment, and management from 99 Availability Zones within 31 geographic regions, with announced plans for 15 more Availability Zones and five more AWS Regions in Canada, Israel, Malaysia, New Zealand, and Thailand. Millions of customers—including the fastest-growing startups, largest enterprises, and leading government agencies—trust AWS to power their infrastructure, become more agile, and lower costs.

To learn more about AWS, visit **aws.amazon.com**.

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Intel put the silicon in Silicon Valley. For more than 50 years, Intel and our people have had a profound influence on the world, driving business and society forward by creating radical innovation that revolutionizes the way we live. Today we are applying our reach, scale, and resources to enable our customers and partners to capitalize more fully on the power of digital technology. We continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. Intel and Amazon Web Services (AWS) have collaborated for over 17 years to develop flexible technologies and software optimizations tailored for the widest variety of applications and use of AI. This collaboration with our partner community, across industries, helps customers migrate and modernize their cloud or edge applications and infrastructure to manage cost and complexity, accelerate business outcomes, and scale to meet current and future computing requirements.

To learn more about Intel's innovations, go to **newsroom.intel.com** and **intel.com**.

About DXC Luxoft

DXC Luxoft is a trusted partner in global digital transformation and a leader in delivering competitive advantage in the software-defined world.We engineer and deliver innovative services and products that shape the future of industries by leveraging our extensive partnership network and deep industry-specific expertise.

For more information, please visit **luxoft.com**.