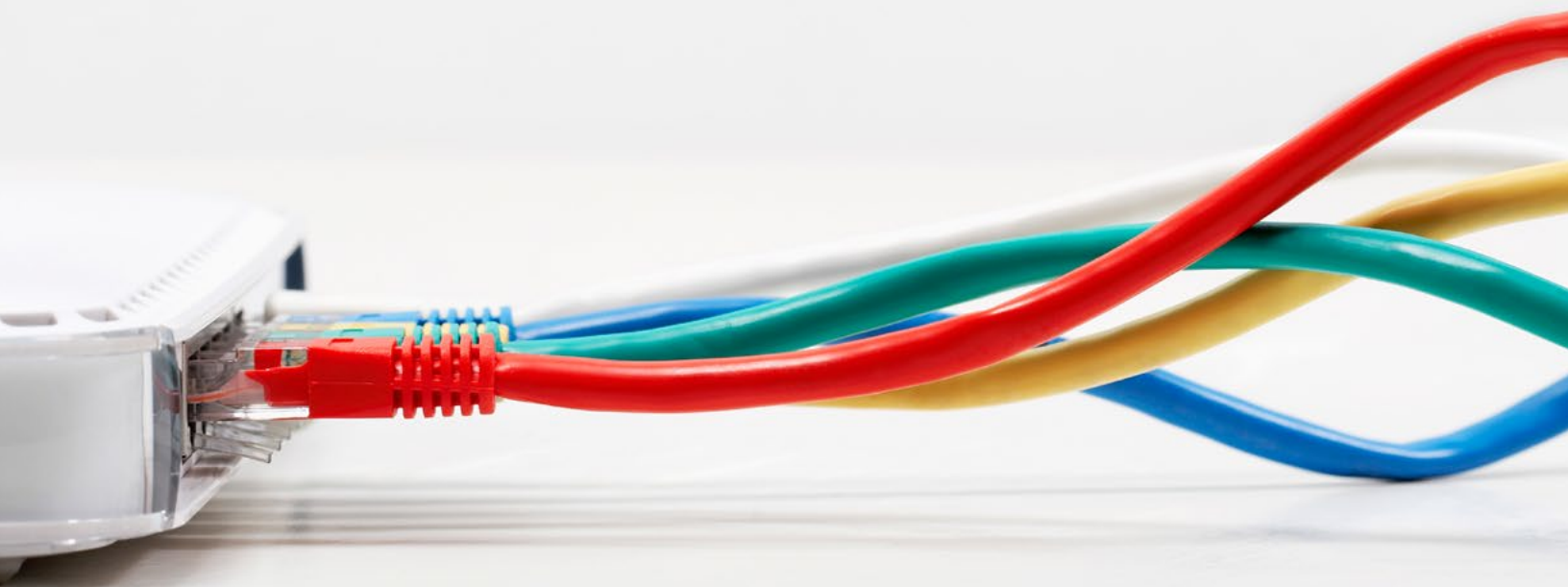**Exponential IT**

IN THE BLINK OF AN I.T.

Increase business agility to innovate at speed, continuously reinvent, and be resilient.

THE PATH TO EXPONENTIAL IT

What if IT systems were agile enough to ride every technological wave? What if those systems could help launch new products and services quickly, improve processes, and execute new strategies? And, what if they could do that repeatedly?

That is the promise of what Accenture calls Exponential IT—a scalable, flexible, and resilient approach to IT that underpins companies like Uber, Airbnb, and Netflix—where technology and business strategy combine to drive industry-leading innovation at unparalleled speed.

Exponential IT is how companies can respond quickly to immediate business needs while continuously evolving for the future. Our process employs new and leading-edge approaches to reshape systems that support the rapid launch of new products and services, while exploiting existing IT investments.

THE BURNING PLATFORM

Why increasing IT agility matters

To achieve the ultimate state of Exponential IT, companies must increase their IT agility—the ability to use new and existing technologies to meet rapidly changing business demands, capitalize on up-and-coming market opportunities, forge new revenue streams, weather macroeconomic changes, and find cost savings. This means mastering leading-edge technologies that enable business innovation at unprecedented levels. And they must do it better and faster than their competitors. There are three reasons this kind of agility is essential today:

The nature of technology is changing.

Everything about IT today—its speed, scalability and capabilities, and potential for innovation—is growing exponentially. New and emerging technologies have improved IT price and performance 2x, 5x or even 10x over previous generations. That increase enables rapid and more effective experimentation. With cloud computing, companies can scale these small experiments to tens and even hundreds of millions of customers. These exponential changes are why 62 percent of CEOs say technology is having a revolutionary impact on their company.

The nature of innovation is changing because of technology.

Today, market-share domination happens in "shark fin" bursts, where companies create new business models, products, and services rapidly (see Figure 1). To survive, companies must adopt the exponential technologies that create those shark fins. Three-quarters of C-level executives believe their organization's existence will be threatened if they fail to update their technology.

Innovation is the key to creating value, and IT agility is the key to innovation.
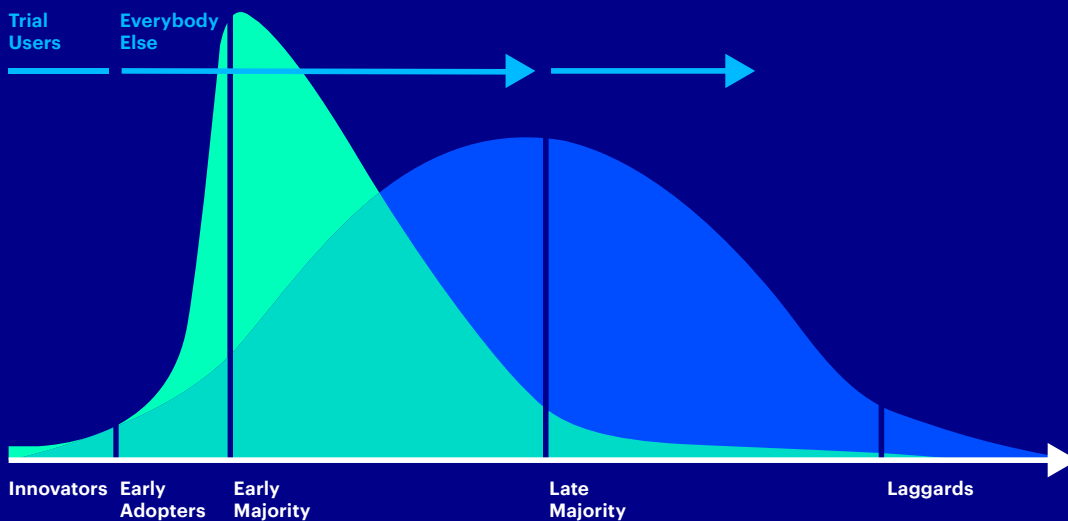
Accenture economic analysis on *Fortune 500* companies found that IT agility is highly correlated with innovation; and that over the past five years, the most innovative companies have delivered 64 percent greater profit margin and 42 percent higher shareholder returns.

Figure 1

The shark fin of technology adoption

In the past, technology adoption happened in much the same way: Innovators and early adopters were in the vanguard, followed by a much larger group of mainstream customers and a small group of laggards. But, as Larry Downes and Accenture's Paul Nunes wrote in their book, "Big Bang Disruption", that bell curve has been replaced by the shark fin. First, an early adopter seizes on an innovator's new product or service. Soon, others follow. The adoption curve rises fast and high and peaks quickly. Then, suddenly, another shark fin burst. The innovator capitalizes on the next opportunity. (This is exactly how companies such as Airbnb built billion-dollar businesses seemingly overnight). Imagine this happening quickly, over and over again. That is the reality created today by the pace of technology innovation.

To survive in this new era, the authors argue in their article "Finding Your Company's Second Act" (*Harvard Business Review*, January-February 2018) that companies must relentlessly pursue second acts—short bursts of success, followed by ever-briefer windows of opportunity. How? With IT agility.

Trial Users · Everybody Else

Innovators · Early Adopters · Early Majority · Late Majority · Laggards

WHAT'S GETTING IN THE WAY

of reaching Exponential IT?

To achieve the promise of Exponential IT, CEOs and CIOs of established companies need to address the technical debt challenge—how to evolve capabilities in an affordable way without business interruption and at a competitive pace. Some companies spend as much as 80 percent of their IT budget on running their existing footprint. High annual run costs and large amounts of sunk capital can seriously tie their hands when it comes to investing in innovation. Some are simply reluctant to move expensive, business-critical legacy applications to the cloud. Many others find themselves with an IT architecture that does not meet today's business needs, through no fault of their own. And, along with their applications and architecture, they need to rotate their engineering processes and organization to new modern approaches.

According to our survey, C-suite executives say technical debt— the cost to rework IT to ensure the business thrives—severely limits their IT function's ability to be innovative (70 percent), greatly limits their ability to migrate to new technologies (72 percent), and makes their IT function much less responsive to changes in the market (69 percent).

Yet, there is still tremendous value in legacy IT systems. After all, those systems keep operations humming, services available, and processes enabled. And they are brimming with valuable data—collected over the course of months, years, or even decades.

It is no wonder that 70 percent of the executives Accenture surveyed want to keep their core systems as long as possible —they are chock full of value. The challenge is how to strike the right balance.

70%
of executives surveyed say they want to keep their core systems as long as possible.

DECOUPLING DEFINED

The approach to Exponential IT

For the past several years, Accenture has been working with clients to successfully master three application strategies which are essential to the Exponential IT journey: liquid, intelligent, and connected (see Accenture's view on the **Future of Applications**).

Liquid applications are assembled leveraging reusable components and modular architectures, and enabled by modern engineering techniques and a cloud-first mindset.

Intelligent applications leverage the latest advances in artificial intelligence, machine learning and analytics to maximize the business value of data.

Connected applications provide the technical means for partners, suppliers and customers to interact with each other and the Internet of Things and to change the nature of these interactions with AR/VR.

Begin the journey with digital decoupling

Companies that pursue these strategies need answers to a range of questions: what to bring into the New and when; what to keep and modernize; how to transform talent; how to evolve processes, applications and architectures; and how to build, use, and deploy software.

To help clients define how to execute their transformation and when, Accenture advocates a digital decoupling approach that turns a major reinvention of the application portfolio and a transformation of the core components of the IT stack on which they are built into a series of manageable steps over the short and long term— eliminating technical debt and leveraging value in older systems in the process.

DECOUPLING FUNDAMENTALS

How? For starters, by taking advantage of three fundamentals: new approaches to architectural design, modern engineering practices, and talent that evolves at the pace of technological change.

1 Architectural design

In the past, a company's IT often kept everything together in big, monolithic systems. By adopting a digital architecture, they can approach building out systems with greater flexibility. Companies can shift to liquid applications by separating out and delivering those same business functions, using application programming interfaces (APIs), cloud-based service platforms, microservice architectures and real-time data lakes, leveraging essential parts of the core with greater agility. Moving away from monolithic design is one step to faster development, when adopted in tandem with modern engineering practices.

2 Engineering practices

The value of architectural change accelerates when companies also embrace newer ways of working that speed up development and delivery tied to agile approaches, DevOps, design thinking, automation, and data and analytics. This enables them to rapidly launch new applications and processes that were once hard to build and scale.

3 Talent evolution

A third element needed to support this massive shift is evolving talent. Companies need to upskill their people at greater speed and scale than ever. And they need to think ahead to ensure the talent is Exponential IT-ready. What's needed tomorrow are full-stack, multi-skilled engineers who know infrastructure, development tools, languages and machine learning, and are business savvy. Companies should start planning for machines being part of their workforce and use them effectively to supplement people. They'll also need to create an environment where IT and business professionals at every level are incented to partner with one another.

This is not just theoretical: Using these approaches, Accenture has collaborated with over 100 large organizations across industries to help them overcome technical debt, execute their strategies, and make the organizational changes necessary for the long-term.

TAKING ACTION

Short- and long-term decoupling actions on the journey to Exponential IT

Historically, organizations have greeted major IT challenges by launching large-scale, multi-year transformation programs.

The only problem was, the new systems these create were often out of date before they even went live. Why? Business requirements and technologies change constantly. The following decoupling approaches offer an immediate workaround while setting companies on the right long-term path.

In the short term, companies can increase their IT agility by:

- **Decoupling data from legacy IT systems.** Companies can replicate data and move it to data lakes in real-time, glean insights from it using technologies such as machine learning, and make it available to customers. In its widely reported mission of becoming the Google of Wall Street, Goldman Sachs used this principle to create a new banking platform. That platform, Marquee, pulls data about transactions, markets, research, and e-mails instantly into a data lake and applies machine learning algorithms to derive insights and solutions. Putting a data lake at the center of your architecture allows you to untrap valuable data from legacy systems and gives all your applications access to a continuous stream of intelligence.

- **Decoupling applications from the legacy infrastructure.** This decoupling creates the flexibility to scale offerings and accommodate different application workloads. Such was the case with a leading insurance company. Accenture helped the company increase visibility and insight into end-to-end operations, launch new products faster to outperform its competition as well as reduce application management costs. We created a roadmap to move to Cloud PaaS and infused automation across the application lifecycle. In addition, we institutionalized end-to-end cross-functional Agile product teams and implemented DevOps for 1200+ applications across multiple lines of business. The company can now roll out new products in half the time it used to take while realizing reductions in run cost and incident volume by 60% each. Most importantly, they've realized a 350% increase in incremental auto policy sales.

For the long term, companies can start on a path to Exponential IT by:

- **Decoupling tightly integrated systems into loosely coupled systems.** Companies can layer and modularize systems using APIs, microservices and containers, while continuing to decouple data and infrastructure. In doing so, they use service decomposition to break apart dependencies that make systems vulnerable and create rigidity, yet still combine functions when they belong together. For example, companies can merge systems that contain pricing logic and sales data to drive value and efficiency or break apart a monolithic enterprise resource-planning system that is used by too many unrelated departments to differentiate where needed. In this future, applications are more "assembled" than built, a shift from traditional approaches.

350%

Increase in incremental auto policy sales realized after a leading insurance company moved to cloud and embraced modern engineering.

- **Decoupling organizations from traditional departmental structures and measures.** Companies can focus on metrics that track business outcomes, rather than metrics that just track IT performance. This enables executives to create the right incentive structures. By reorganizing staff into cross-functional teams of specialists that mirror the decoupled systems, organizations can position themselves to meet those key performance indicators (KPIs). For example, a team of data scientists, pricing specialists, and developers can be assigned to create differentiating price-optimization systems together. For a non-differentiating area, the organization could have just one team that maintains similar systems in different lines of businesses. Line and IT executives partner together to develop strategy and operationalize it.

- **Decoupling investments from individual projects.** Companies can invest continually in evolving and improving systems rather than on one-off projects, making spending predictable and preventing technical debt. Spending on so-called maintenance and upgrades is treated as ongoing investments to ensure IT agility, not diversions that siphon money from projects.

- **Decoupling essential differentiation from unnecessary differentiation.** Companies need to identify when and where they would benefit from strategic differentiation, as well as when systems will not. They can use commercial, off-the-shelf systems for non-differentiated activities and avoid needless customization and duplication—that saves money and avoids technical debt.

THE FUTURE OF SYSTEMS

Looking ahead

The steps that companies take now on their Exponential IT journey will prepare them for a future where technological and business change is the only constant.

Accenture predicts that the nature of systems will continue to evolve—transformed by AI and profoundly different human interfaces, altering how companies conduct business. This future of systems will be defined by three characteristics:

- **Boundaryless:** Applications are evolving into systems, blurring the boundaries of the conventional IT stack. The distinct layers of infrastructure, data, applications, and architectures are giving way to more componentized, decentralized and therefore boundaryless systems that increasingly reach beyond the four walls of the enterprise.

- **Adaptable:** Adaptable systems use data and intelligence to minimize the friction that hinders business growth by fostering flexible, trusted decision making. At the heart of these systems is a cooperative, transparent partnership between humans and machines.

- **Radically Human:** Radically human systems talk, listen, see, and understand the way we do. As interfaces "disappear"—through the adoption of voice recognition, smart hardware, and visualization tools—systems can finally be designed for people, rather than expecting people to adapt to systems.

These changes underscore why Exponential IT must be a way of life, not just an endpoint. Systems built today will be disrupted tomorrow. Companies simply cannot expect static investments to continue returning value. Being mindful of how the future of systems and, consequently, future of IT itself is evolving will help companies successfully ride new technological waves and sustain business agility.

EXPONENTIAL STARTS NOW

Each company's Exponential IT journey is unique, tailor-made for its strategic vision and current state.

But the goal is the same: to increase IT agility in the short term, and evolve the core to a state of world-class IT agility in the long term. This will prepare an organization's technology and people to create industry-leading innovation at a shark fin pace without technical constraints.

There is no finish line in the journey to Exponential IT. The finish line always moves as technology changes. Exponential IT is a means, not an end. Companies who start now on their transformation will increase their business agility with a scalable, flexible, and resilient approach to IT.
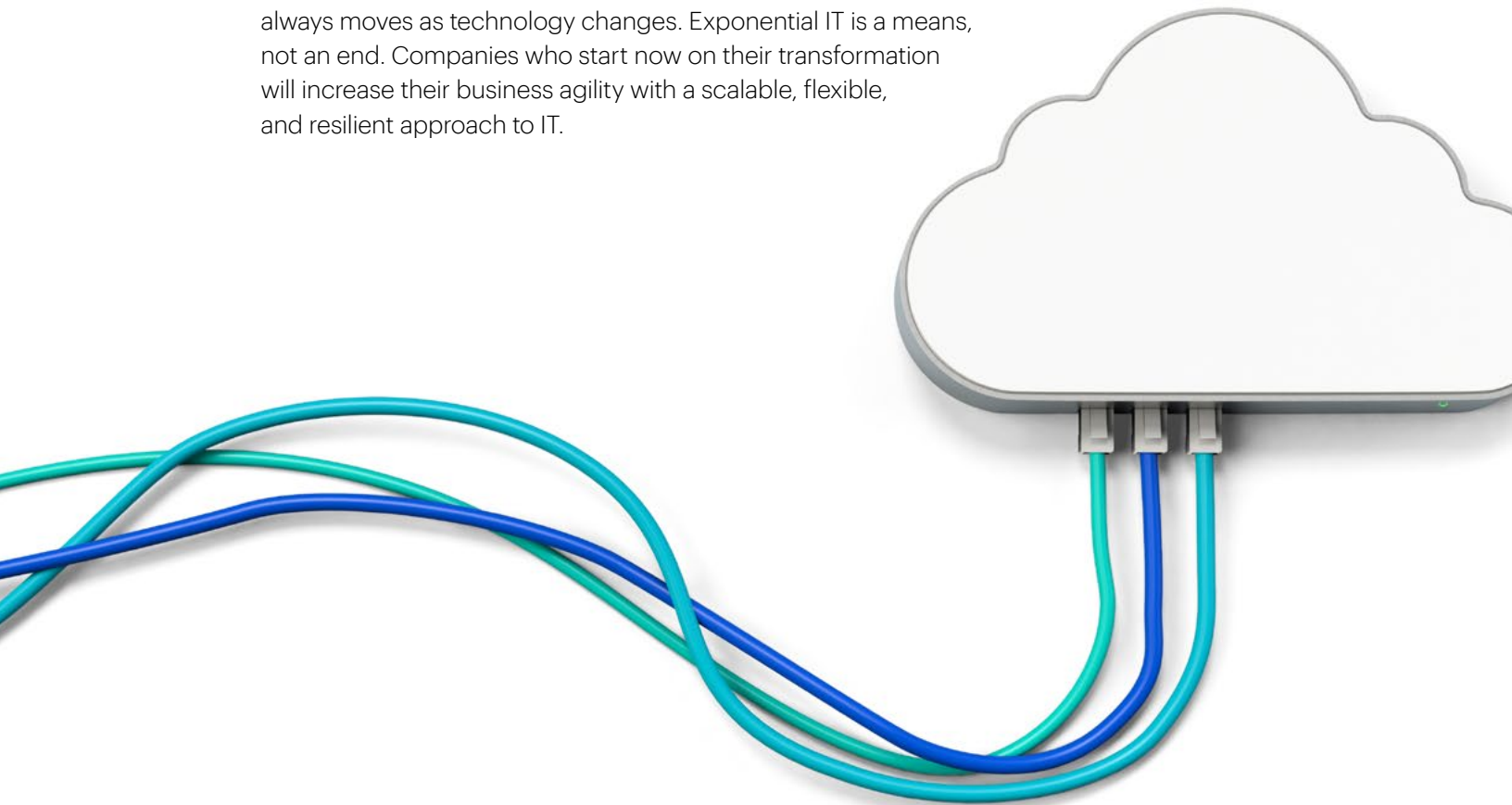
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