Creating Elastic Digital Architectures

To build a foundation for future competitiveness, enterprises need to create an elastic digital architecture, powered by social, mobile, analytics and cloud computing. Doing so will enable them to plug into evolving business ecosystems and create new business capabilities, products and services that anticipate and fulfill customers’ ever-changing needs.
Executive Summary

For the first time in human history, our planet is wired up with powerful social and messaging networks, both public and private, that support instantaneous communication of ideas and events for virtually everyone. In fact, these networks now enable a new digital world that rivals the physical world. The continuing integration of these two realities has spurred dramatic innovations that touch our personal lives, as well as forge new avenues for businesses to operate with unprecedented speed and flexibility to react to and change with the market.

During the last decade, companies such as Amazon, Apple, Caterpillar, eBay, Google, GE Aviation, IBM and others began to capitalize on the new opportunities afforded by the integration and convergence of these networks. They have transformed their businesses into elastic enterprises, a term that defines a new generation of competitive strategies and operating principles that enable timely and effective responses to economic and market conditions. Elasticity has become a powerful competitive differentiator and a key characteristic of a new and successful 21st century business model.

In our view, a variety of business and technological capabilities can be applied, depending on business requirements and conditions, to produce greater levels of elasticity in an enterprise. In fact, many organizations are already eliminating the long-standing rigid structures of the bygone industrial era in favor of an entirely new set of elastic models that give their businesses new advantages.¹

In this white paper, we pose four key questions that companies need to ask today to add elasticity to their businesses. The questions focus specifically on how more flexible IT service delivery and management can power new business structures and generate competitive advantage. In particular, we will explore the underlying elastic digital architecture (EDA), which is powered by foundational technologies that we refer to as the SMAC stack (social, mobile, analytics and cloud).
We will also describe a path forward for any company that aspires to a more flexible and adaptive business model. Unfortunately, we often find that companies fail to see elasticity options in their current business practices and IT systems. Still other companies pursue new digital projects without realizing that a change in perspective and planning can convert an existing project portfolio into a productive path to greater business elasticity.

The key is to understand the elements that contribute to business elasticity and are essential for an elastic digital architecture. Once this analysis is complete, it is a relatively straightforward process to develop an appropriate strategy and roadmap.

In addition, our research and experience suggests that the pursuit of elasticity in an enterprise establishes a new role for many functions, particularly IT. In an elastic enterprise, IT becomes fused with the mission of the enterprise and also streamlines the use of IT in the business. As we will discuss, elasticity transforms the role of IT and, most importantly, the role of the CIO.

Now is a good time to examine whether your enterprise’s current path offers a foundation for the future. Is it positioned to effectively and efficiently take advantage of social, mobile, analytic and cloud innovations? Can your company rapidly capitalize on the fast pace of global innovation? And most importantly, is your enterprise on a path to operate with greater levels of responsiveness and elasticity?
Here are four key questions to explore to help resolve these challenges:

1. What is the best way to structure our enterprise for success in the 21st century?

2. Is our current operating model adaptable or fixed? What could we do with more enterprise elasticity?

3. Does our current IT architecture future-proof our enterprise? Does our technology deliver enough elasticity to compete?

4. What must IT do to ensure the future of our company?

Great opportunities and formidable challenges form the fabric of the 21st century. Science and technology continue to fuel invention and disruption at an accelerating pace. An expanding global middle class is emerging with dynamic needs and wants. Global talent grows each day. With the convergence of the physical and digital worlds, mobility will continue to transform the workplace and the customer experience, as will other elements of the SMAC stack. Business is at a shift point. Infusing elasticity into IT will pay big dividends.
A New Foundation for Success

What is the best way to structure our enterprise for success in the 21st century?

The importance of elastic enterprise structure has become more urgent as industrial-era business models are no longer effective in today’s knowledge economy. By far, the biggest challenge businesses face today is the opportunity cost associated with lost or inadequately capitalized opportunities. In turbulent environments, the most flexible and nimble enterprise wins.

Many companies struggle with the inherent rigidity of their enterprises. The more rigid the structure, the less nimble the enterprise, and vice-versa. Almost every business constituency, including customers, would like to see enterprises adapt swiftly, capitalize on opportunities rapidly, change with less friction and learn faster.

Fortunately, 20 years’ worth of science, technology, economic growth and geopolitical developments provide grist for a new type of enterprise. Some pioneering companies are using the new structures to great advantage. We know how these new structures work, what they enable and how they should be managed. Most importantly, with the right leadership, strategies and starting points, enterprises in virtually any industry can move to the new elastic enterprise model.

Elastic Structures Mean Elastic Benefits

Elastic enterprises use new structures. The stories of companies that have adapted this new model are noteworthy, because as these enterprises departed from convention, they found that major trends in customer behavior, technological innovation, social networks, data and business collaboration supported a new and competitively superior operating approach.

Elastic enterprises employ a new generation of strategic, structural and operational processes that together form an unprecedented means to meet marketplace demands, negotiate economic conditions and anticipate and rapidly respond to competitive challenges and opportunities. Elastic enterprises move, stretch and morph in ways not seen before. SMAC stack technologies, when adopted holistically, provide unprecedented horsepower to create new elastic structures, enabling just-in-time collaboration via mobile apps and social networks that optimize core knowledge processes across internal silos and intersect with customers and business partners.

But elastic enterprises are more than just new structures. They also introduce a new form of wealth creation that involves contributors and talent from global labor pools that are the byproduct of vast, emerging business ecosystems. In addition, business ecosystems are important structures that endow elastic enterprises with new sources of innovation, product extension and rapid access to diverse global markets.

Five dynamics form the core for the new elasticity and underpin the operating model of the elastic enterprise (see Figure 1). These five dynamics interact to provide the elastic enterprise with new capabilities and a new operating model.

* Sapient leadership. Smart leaders exhibit six noteworthy behaviors for leading elastic enterprises. For example, organizations cannot use a command-and-control approach for managing a vast global business ecosystem of partners and customers; they must learn to “influence” others through leadership and direct them with policies, standards and contracts – some or all of which is embedded
in the business platform. Sapient leaders also manage risk, scale, strategic options and innovation differently.

- **Business platforms.** Used by Apple, Amazon, Google, Facebook, LinkedIn, eBay, GE, Deere, Caterpillar and others, business platforms enable a range of new business options with all constituencies and are a primary structural element for elastic enterprises.

- **Universal connectors.** Universal connectors enable the assembly of diverse software and hardware components over digital networks (see question 3, page 13). Universal connectors can stitch together different systems of software and hardware that are offered by different vendors and used by different business partners. Due to a growing body of international standards, universal connectors permit assembly for both designed and on-demand systems.

- **The cloud.** Global networks, universal connectors and standardized software components work together to create new schemes for shared technology infrastructure, platforms and services that enable new efficiencies inside and outside the enterprise. In addition, continuing technological developments drive increased standardization and the ability to mix and match virtual resources that create a “global cloud marketplace” of digital business services.

- **Business ecosystems.** Due to the nature and capabilities of the business platform, universal connectors and the cloud, enterprises can productively involve all types of constituencies in their businesses, including customers, suppliers, employees and third parties. The result is a flexible, expansive and scalable economic business community that transforms traditional enterprise boundaries and extends global market reach and sensitivity, while driving new levels of innovation.
While all five dynamics work together to drive elasticity, this paper focuses on the complementary role of the business platforms and business ecosystems. The business ecosystems seen today would not be possible without the capabilities of business platforms. Both are dependent on an underlying elastic digital architecture.

**The Business Platform**

A symbiotic relationship exists between the company's business mission and the business platform. A business platform is a 21st century elastic enterprise structure that animates the business model and provides a foundation on which to conduct business.

A change in business mindset is required to understand a business platform. A business platform is an exceptionally adaptive business structure that expresses the company's aims and interests and supports its operations. When an elastic enterprise sees new opportunities, adds new product features, fixes problems or enters new markets, it uses its business platform or collection of business platforms to take action.

Business platforms are designed and built to evolve. They need to be flexible, adaptive and modular. From an architectural standpoint, business platforms are designed to be assembled from dissimilar parts and services so new parts can be added, unneeded parts divested or new parts created to meet changing business demands.

The business platform is composed of digital and information technology components, including universal connectors that are used to express business rules, contracts, business norms and business processes, as well as host vast business ecosystems of business partners. As more experience is gained with the cloud, companies that have a business platform will further increase their elasticity with an expanding market of interconnected virtual services.

As a consequence, today's business platforms can readily connect to partners' systems (including some legacy systems), rapidly incorporate new technologies, communicate through standardized interfaces (e.g., programs, apps, devices) and add off-the-shelf or specially developed software.

The example of Amazon is instructive. Amazon's entire business was founded on an online Web-based retail model. Its distribution centers and its Web presence marked its identity. However, sometime in the early part of this century, Amazon began to transform its retail platform into a multipurpose business platform, and over the next decade, it added universal connectors to its business platform architecture. The online retail giant innovated through grid computing, virtualization and infrastructure services catalogs to make its business platform more versatile and extensible. In 2007, it launched its cloud services business, Amazon Web Services (AWS), to make its prodigious business platform available as an external service offering. Not only did this create a new business for Amazon, but it also allowed the company to monetize its business platform infrastructure.

Today, Amazon's business platform supports multiple industries, a substantial business ecosystem of approved vendors, independent contributors (e.g., authors) and a variety of cottage industries in which companies large and small host their business operations on Amazon's business platform.

As seen in its recent generations of the Kindle and Fire tablet, Amazon's business platform enables the company to rapidly expand into other industries and add new digital technologies and services.
Although Amazon is exemplary, it is not alone. Apple, Google and other successful business platforms at GE, USAA, eBay, Salesforce.com, Netflix and MasterCard derive their structure from a blended architecture that includes existing legacy and proprietary information systems; cloud components provided by third parties (e.g., databases, apps, application services); universal connectors and interfaces to other major business platforms (e.g., Apple, Google, Facebook, Twitter). Moreover, the versatility of these business platforms is remarkable. Startups and established businesses use these platforms to innovate offerings and extend their reach in ways never possible before.

For example, Amazon used its flexible platform to rapidly introduce and extend the Kindle product line and to enter entirely new lines of business via Amazon Web Services. Deere now uses a business platform, FarmSight, to support dealers and farmers with products and maintenance, security and data services. A recent startup, Pebble Technology, raised capital for its smartphone-connected watch using Kickstarter, raising over $10 million and attracting over 68,000 backers. In less than six months, the company deployed its own business platform, built an app developer community and established compatibility with Apple iOS and Android business platforms.

It is important to emphasize that a business platform is more than technology. Embedded in all business platforms are the business rules, self-service capabilities, contracts, policies and “rules of the road” (i.e., business norms, values, protocols) that enable many diverse partners to work together while minimizing the overhead of meetings, negotiations and other administrative burdens common to traditional enterprises and traditional business partnerships.

The Business Ecosystem

The business ecosystem finds its origins in the industrial-era linear supply chain. The supply chain model reached its zenith in the retail, automotive, aerospace, transportation and logistics and shipping industries. But the business ecosystem is a totally different structure. A business ecosystem is an elastic business partnership structure saturated with information and awareness.

The business ecosystem consists of the cornerstone company that leads, sponsors and sustains the business ecosystem and all the business partners. In complex business ecosystems, such as those pioneered by Amazon, Apple or Google, the structure entails the cornerstone company, like Apple, and its prime partners (e.g., AT&T, Verizon, Qualcomm and Foxconn, for components, service provision and assembly, respectively), as well as hundreds of thousands of other partners and co-contributors.

The modern business ecosystem is essentially an economic community that includes all partners: suppliers, customers, employees and other third parties galvanized by a business platform provided by one or more cornerstone firms. Ecosystem members encompass virtually anyone that wants to contribute to and benefit from the base offerings of the cornerstone company.

While different partners may have a different status, a different role and different goals, the business platform enables everyone in the business ecosystem to serve and be served and, at different times, operate in different roles and in different ways. The business ecosystem structure trumps the industrial-era enterprise’s independent structure of demand and supply.
The business ecosystem is elastic, in that it can scale up and down with very low friction because of synergies with the business platform discussed earlier. Its inclusive mindset spurs greater innovation and enables exceptionally fast feedback and action loops, should the marketplace demand it.

Business ecosystems generate prodigious and unprecedented volumes of data that, with the right analytics, can be transformed into information and knowledge (hence the importance of the “A” component in the SMAC stack). Security and privacy policies can be established and proactively monitored, depending on roles. For example, Apple’s hardware supply chain members are completely sequestered from the developer and customer members of its ecosystem. Procter & Gamble has developed a sophisticated executive dashboard, called Business Sphere, that draws information and analytics from its various systems and its community for greater situational and strategic awareness.

The recent launch of the Ford Focus Electric automobile illustrates the trend. Ford views the Focus Electric as part of a business platform. The car was designed with embedded technologies developed by Microsoft, Ford-proprietary on-board software, apps for smartphones and standardized universal connectors that allow a business ecosystem of diverse partners to add apps and other capabilities to enhance the vehicle over time. As a consequence, Ford will garner a deep understanding of product use from operating data, as well as new analytic information that can generate both descriptive and predictive knowledge of vehicle performance and requirements for new features.

**New Elastic Capabilities**

Is our operating model adaptable or fixed? What could we do with more enterprise elasticity?

Elasticity is a combination of new business structures and capabilities. But elasticity means little without business purpose or advantage. As it turns out, these new capabilities change the rules of the game. Here are five new capabilities that enable elastic enterprises to compete in the future:

- **New-scale economics**: Elastic scale with less cost and relative ease of adding and reducing capacity based on business or market demand.
- **Mass differentiation**: The ability to move beyond market segmentation to meet dynamic local market customer demand and specialized cultural requirements through business ecosystem innovation.
- **Active strategy**: Hands-on management and continuous strategic response to global markets and competitive threats.
- **Strategic options portfolio**: Systematic capture, measurement and evaluation of future strategic business options generated through business ecosystems, experience with business platforms, real-time customer product usage data, R&D, customer ecosystem social data and other inputs.
- **Radical adjacency**: Going beyond core competencies and M&A to enter industries by leveraging business platforms and business ecosystem partnerships.

Each of the above capabilities enables an enterprise to transform just about every business performance dimension: scale, cost, friction, speed (cycle time), responsiveness, customer experience, strategic optionality and innovation.

Let’s look at each of these five capabilities in detail and how they lead to superior competitive and operational advantages.
New-Scale Economics

The business platform, universal connectors and cloud components enable the business ecosystem to easily expand and contract. They also enable each partner in the ecosystem to add to the products and services the company provides. Scale can now be viewed in a fundamentally different way, with radically different economics.

Most of our understanding of scale developed during the industrial era, in which scale was associated with significant overhead for administration, investment in hard assets and, for some industries, significant capital investment for new factories. Some of these scale dynamics changed with business outsourcing.

But with the elastic enterprise, scale economics change radically. By eliminating the capital investment and minimizing the ongoing operating costs for the business platform, the resulting costs of adding new features, business partners or new products and services are significantly lower than in an industrial-era enterprise. The same advantages apply when a new product is launched or a new market is entered.

New-scale economics are derived from the effects of low-cost networks (i.e., global network infrastructure, local broadband access), elastic digital service elements (i.e., standardized components, cloud services, universal connectors), business platforms and business platform-inspired product and service design.

Consider how Apple scaled its entire business ecosystem with minimal problems as sales of the iPhone grew and the iPad was introduced. The architecture of its business platform and business ecosystem enabled Apple to add and swap software, hardware, telecom carriers, component manufacturers and a primary assembly partner (i.e., Foxconn). Amazon, Google and other elastic enterprises have had similar experiences.

USAA, a provider of home and life insurance services to the U.S. military, rapidly developed a new business platform and business ecosystem recently for its AutoCircle service to support customers’ automobile search, loan, dealer negotiation, warranty and insurance purchase process. USAA assembled a business platform that utilized existing internal systems, external data and business services providers, linkages to mobile device platforms (e.g., Apple, Google) and automotive manufacturers.

Mass Differentiation

Traditionally, segmentation was a best practice, and it ruled the way companies approached markets, brands and customers. Mass differentiation, however, focuses on “a segment of one.” It’s important to not confuse mass differentiation with mass customization. Mass differentiation relies on business platform-inspired product design and universally available business platform services, and it is detailed in product use data and analytics.

With mass differentiation, business ecosystem partners can invent and offer specialized “plug-compatible” features to products designed to be augmented and supported within a business platform. Similarly, the cornerstone company (i.e., lead company, Amazon) can add new services on-demand to the business platform, and new versions of products and services can be honed through real-time data analytics on usage (another reason for building out the “A” in the SMAC stack). Moreover, because each partner has a cultural and anthropological understanding
of its local markets, it can provide locally unique and culturally relevant features faster and at less cost.

**Active Strategy**

Active strategy transforms the strategy process through data analytics and more extensive collaboration throughout the business ecosystem. Continuous active strategy is possible when the five dynamics of the elastic enterprise converge. The business platform becomes the nervous system of the enterprise — sensing, collecting and analyzing data that can be effectively distributed and presented to appropriate decision-makers.

- The fusion of real-time usage information, sensor data and intelligence from business ecosystem partners drives the enterprise to function in a completely different manner. In these enterprises, strategy is no longer episodic; it is a hands-on process that engages the executive, strategy and operational teams. Situational awareness and strategic decision-making are joined at the hip. In the process, the enterprise decision-making process becomes intimately tied to customers and the marketplace.

- Consider what Apple, eBay or Google know about their customer needs, wants and behaviors. In a recent interview with Bloomberg TV, eBay CEO John Donahoe confided that 6,000 automobiles were purchased in one week via the eBay mobile app. Apple and Google executives know what features and apps work, don’t work and are popular, as well as when, where and under what conditions they are used. This is more than tactical information — it enables strategic insight and action when coupled with a more flexible operating model.

**Strategic Options Portfolio**

The continuous stream of use data, the vibrant and creative contributions of business ecosystem partners — as well as inputs from R&D, marketing, sales and customers — can all combine to generate a plethora of options for product development, product and service extension, use of new materials, new form factors and special use cases that can inspire entirely new strategic directions. What emerges is a strategic options portfolio that senior management can use to collect, catalog and systematically evaluate all possible move-forward alternatives.

More options, however, means more decisions. The strategic options portfolio also becomes an input for building a living executive playbook. Coupled with a systematic and collaborative decision-making process, the strategic options portfolio can become a springboard for executive discussion and decisions. The strategic options portfolio is not static. Properly managed, it increases in value as it is amplified and refined through the strategic decision-making process.

**Radical Adjacency**

Traditional companies expand their businesses either through organic growth, mergers and acquisitions or through investment in new entities. So do elastic enterprises. But whereas conventional wisdom suggests that companies stay within their core competencies when expanding into adjacent markets or industries, elastic enterprises can do more. Elastic enterprises can move quite far from their core competencies and into entirely new industries because of their capacity to scale and adapt.

Typically, adjacency moves fail. For example, in 2009, Cisco acquired Pure Digital Technologies, maker of the portable Flip Video device. The computing network giant wanted to move into media inside the home for consumer and SOHO customers.
However, the company soon shut down its Flip video camera division in 2011. Cisco was unable to leverage the acquisition to drive product success and challenge existing incumbents, like Skype, Apple, Google, Sony, Canon and Citrix.

On the other hand, elastic enterprises can move quickly into new markets and submarkets because they can rapidly build new business ecosystems that have the required domain, cultural or industry expertise. Once in the new industry or market, the business platform and active strategy elements amplify and accelerate the learning process, sometimes allowing them to learn much faster than industry incumbents.

Apple and Amazon, in particular, have used radical adjacency to extend their business scope and reach with great success. Apple has moved from PCs, to smart devices, to music players, to phones and — in the process — into content and media industries, as well. Amazon is a master of radical adjacency, moving from books, to multiple retail categories, B2B retail services, IT cloud services (AWS), robotic-coordinated order fulfillment (e.g., its 2012 acquisition of Kiva Systems) and end-user devices, with the Kindle and Fire tablets.

### An Elastic IT Architecture: A Core Capability

#### Does our current IT architecture future-proof our enterprise? Does our technology give us enough elasticity to compete?

No architecture is without its limits. Any formalized human artifact — whether a building, an automobile, an information system or a smartphone — has a useful life. But careful planning, complemented by strong, modular design principles, can result in significant degrees of freedom. It also helps anticipate innovation and the competition, which is our goal with an elastic digital architecture.

Nonetheless, many companies are laboring under non-elastic IT architectures. As a consequence, it becomes a tedious and expensive process to build new business platforms and business ecosystems, not to mention new business capabilities. In addition, the consumerization of IT places demands on the IT architecture, with rapidly advancing mobile business platforms, business ecosystems and proliferating devices. Particular industries feel acute pressure, such as healthcare and medical devices, automotive, energy, transportation and retail. Continuing under such conditions is neither tenable nor sustainable for any enterprise.

So, a key component for any enterprise is an elastic digital architecture (EDA). As we have emphasized, technology alone will not guarantee elasticity, but it is a major contributor. Enterprises need a powerful EDA to meet the demands of the combined physical and digital worlds — both within corporations and their emerging business ecosystems — and to keep pace with employee requirements for technology that neatly resembles their personal devices in look, feel and capabilities.

EDA is possible as a result of a series of technological innovations, advanced IT service management practices and continued maturation of the IT industry. But make no mistake: EDA is real, and it is transforming the role of IT. Most importantly, it is providing enterprises with unprecedented new business capabilities.

One way to understand the underpinnings of an elastic digital architecture is to think in terms of the SMAC stack, a set of four critical technologies that have emerged and achieved prominence in the last decade. Each technological area uses common tools and technologies to create basic capabilities that must interconnect and seamlessly interoperate, on-demand, with other systems, platforms and devices.
Here’s how each SMAC component contributes to the enterprise’s elastic digital architecture:

- **Social** technology enables real-time collaboration, the fast formation of new relationships and management of massive social graphs (i.e., networks of social relationships). It enables businesses to leverage these relationships to accomplish very targeted social media marketing, for example.

- **Mobile** facilitates anytime, anywhere interactions, transactions, location-aware services, geospatial knowledge (e.g., maps, layered multi-mode cartographic contextual data, on-ground, below-ground, above-ground) and sensor-based knowledge.

- **Analytics** takes advantage of the big data generated by mobile, social, corporate Web sites and other data sources to enable fact-based decisions and predictive insights based on the latest statistical and heuristic algorithms and data science techniques rather than historical reports and gut instinct.

- **Cloud** reduces Cap-Ex by shifting investments from services to platforms to infrastructure to Op-Ex. Cloud is a source of new services, capabilities and specialized components for business platforms. Cloud innovations in data center management and server architectures are also restructuring private data centers in large enterprises that need private cloud networks, server, storage and owned (private) data center facilities.

In sum, the SMAC stack reduces technology costs, creates new levels of operational efficiency and effectiveness, provides access to business platform components and unlocks additional value by enabling a more extensive and adaptive business-IT architecture.

**Progressing Toward an Elastic Digital Architecture**

The vast majority of enterprises operate on multiple generations of technologies that have been accumulated over the last 10 years. Each generation of technology has its own architectural assumptions, values and limits.

Until the industry-wide adoption of Intel x86-based computer systems, most digital technologies were designed for proprietary or customized applications, often with one purpose in mind (e.g., financial reporting, factory automation, inventory control, sales analysis) and without any intention of interoperating with other environments. In fact, a whole set of middleware and messaging technologies were created to perform this integration among disparate systems and applications. Today, many companies survive in this mode by using powerful enterprise report generation systems or literally thousands of spreadsheets that extract, restructure and distribute data for decision-making.

The good news is that in the last 10 years, the continued maturation of open systems and service-oriented architectures (particularly those built around Web services) have led to a better plug-and-play environment for business systems and set the stage for an elastic digital architecture. Recent developments in common data interchange standards, Web applications and open source projects and operating systems have established new levels of interoperability among different software and devices. The global marketplace demands this and compels all software, hardware, networks and service providers to build systems components for standardized interconnectivity.

As a consequence, enterprises should form their EDA strategies based on the expectation that any of the SMAC stack components will evolve and benefit from the aforementioned standardization trends and will, over time, be incorporated as elements in enterprise business platforms and interoperate across a global network.
EDAs, however, are already taking form. One example we have encountered is at a global investment bank. With Cognizant’s assistance, this financial institution recently migrated its legacy application services to a new compute, storage, network and security services platform that is highly available, tightly integrated and private cloud-based, replete with the latest business service management systems. The EDA transformation ensured interoperability between private and public clouds, investment in business analytics and enablement for employees to engage in BYOD (bring your own device) to enhance their productivity and promote cross-business collaboration. More specifically, this transformation enables the delivery of secure virtual desktop images to employees anytime, anywhere to access corporate systems.

As this example shows, an EDA must be supported by and include the following:

- **An IT infrastructure that is dynamic and adaptive enough to flex with the needs of the business.** From functional users through line-of-business owners, most people do not care much about whether support is delivered in-house or by a service provider. They only care whether their services and applications can be persistently and seamlessly supported, regardless of the delivery channel or method. Enterprises will need to develop an ongoing, adaptive and transformational roadmap to drive how their IT systems and services will continually evolve – from network, compute, storage, middleware and application services – to a true utility model, where virtual resources are predicatively allocated based on business needs and managed by business, not IT, policies.

- **A business-oriented services catalog that offers a wide range of services to the enterprise, from applications to basic computing.** The services catalog offers tools with a well-defined service definition cost assessment, as well as how to enable these services for the business. It abstracts the details of the underlying complexities of how and where IT is enabled. The services catalog is also elastic – services must be added or deleted as required.

- **A strong and mature IT service management support structure to drive successful EDA implementation and ongoing support.** Controls and defined business and IT processes are critical to allow the enterprise to approve and monitor all changes that are enabled by an EDA. Inattention to service management will make it difficult, if not impossible, to manage an EDA.

- **Differentiated access, zones of collaboration, data and decision rights, and user privileges.** This requires the ability to classify users into different profiles and categorize their needs for access to and sharing of business-critical information. The EDA must be adaptable to support both external and internal users. The latter will include both ends of the spectrum: “power” users who require a rich and uninhibited user experience, as well as applications and local data, and “task” workers, who have a well defined and known set of application access needs, limited data access requirements and no need to store data locally.

- **Address all elements of security and privacy concerns.** All architectural elements of an EDA must be secured in their own right, from the “bare metal layer,” through the asset/content layers, perimeter layer, external cloud layers and all business ecosystem layers. Privacy and content safeguards must also extend throughout the entire digital architecture, including points of sharing and collaboration across entire business ecosystems. Most importantly, data needs to be classified and specific controls implemented to ensure required levels of protection and privacy for each class of data.

Over time, SMAC stack components will be incorporated into enterprise business platforms and interoperate across a global network.
By following the above recommendations, organizations can design, implement and manage an EDA that enables IT to drive rather than merely support business (see Figure 2).

Moving Into the Future with Confidence

4 What must IT do to ensure the future of our company?

Given what we’ve seen so far, the 21st century will continue to offer a turbulent mix of great opportunity, dramatic scientific and technological advances, and economic volatility. So, moving into the future with confidence requires the ability to operate with new levels of speed and flexibility. Given the pace of global competition, future success also requires business architectures that can be rearranged on-demand and grow in unanticipated ways. IT will play a central role, but it must transform.

The elastic enterprise and the evolving EDA have numerous implications for IT. Ultimately, we see IT in a pivotal and vibrant new role in the enterprise. Companies that already operate with an EDA provide important clues. As explained below, as business activities and process become more intertwined in the digital world, the role of IT will become more intensely fused with the primary mission of the company, as enacted in a more active strategy process and day-to-day operation. However, to do that, IT must also diverge more significantly than ever from its traditional role.

The new structures that give the elastic enterprise its elasticity fundamentally transform the role of IT. The focus of IT changes dramatically, as do its optics. The focus becomes the success of the overall business ecosystem, from the core of the enterprise, to each and every partner, to each and every global market, to each and every customer, large or small. For the IT staff, its perspective is shifted to the enterprise’s marketplace. The new optics provided by business platforms, business ecosystems and data analytics enable the IT staff to see how the enterprise goes to market with its partners and satisfies its customers. Anticipation and “optionality” for the enterprise and its mission are the new watchwords for IT.
Our work in the field and ongoing discussions with IT leaders has taught us much. Experience suggests that, if anything, the role of the CIO and the IT leadership team must be turned inside-out. The IT team experiences a vastly enhanced and vital connection to customers and competitive markets. As the architecture becomes more elastic, so does the role of IT, as it becomes the lead architect and prime mover in ensuring that the business can flex with business and competitive demands.

A New Role and Optics for IT

What do IT leadership teams that operate in elastic enterprises today know about the new role of IT and its future? Here’s our summary view:

- **IT emerges as a key player with business ecosystem partners, customer communities and product and service development.** IT becomes less about the nuts and bolts of the technology, less about internal users and more about the architecture of business competitiveness and performance.

- **IT and the business become one.** The flexibility and fluidity provided by an EDA means that execution moves to multidisciplinary teams, each of which are galvanized around a customer or market-focused activity. Elasticity turns the enterprise inside-out. The new-found flexibility naturally drives virtually all eyes to the market. Why? Because the customer experience, the value of the offerings, the reputation of the company and the contribution of partners depends on reliable performance of and continuous adjustments to the business platform and its ongoing planned and unanticipated innovation in the face of competition.

- **IT becomes vigorously customer-centric (with real customers).** With increased instrumentation, data analytics, mobility, social networking and customer communities, the IT team becomes acutely aware of changes in customer preferences, the quality of the customer experience, the impact of product changes, the performance of product launches, customer problem areas and customer satisfaction. And it receives these valuable insights many times before anyone else in the company.

- **IT optics shift outside the enterprise, and IT effectiveness is measured by success in the marketplace.** Traditional IT tends to be consumed by internal users and measures of internal service delivery and the degree of alignment with internal business partners. However, new optics measure the performance of IT and business teams as they work with business ecosystem partners, assemble the right set of capabilities that deliver timely and exceptional value to customers, and ensure business platform reliability.

- **IT becomes strategic, by necessity.** IT and the EDA become embedded in strategy formulation and execution as business platforms and ecosystems become primary vehicles to flex business capabilities to meet changing business demands. With active strategy, strategic latency dwindles, but only if IT is intimately involved in the process.

IT “house skills” become more strategic but also radically more high-tech. Competitive advantage depends on strategic insight, a deep understanding of technology trends and the ability to identify proprietary (patentable) capabilities that can mix with market-provided capabilities to maintain differentiated and competitive offerings.

As the architecture becomes more elastic, so does the role of IT, as it becomes the lead architect and prime mover in ensuring that the business can flex with business and competitive demands.
The bottom line: Given the rise of the digital world, the SMAC stack and the need for elasticity, IT intensity gravitates to the customer, competition and collaboration. The IT mindset changes as the IT optics change and IT skills evolve accordingly.

Key Recommendations: Extracting Value from an EDA and Transforming IT

So, what’s the prescription for designing, building and extracting value from an EDA? For starters, the enterprise must determine what can be sourced vs. built in-house. From there, a capabilities assessment should ensue to determined which services can be purchased that incur cost vs. those that may take time to build (and that impact opportunity cost). Specifically, the CIO and management team need to:

- **Stop thinking “from the bottom-up”** about IT and start thinking “from the top-down” about how to solve business problems.
- **Stop defending** turf and ensuring control over every IT initiative and start fine-tuning which “core” services to keep in-house. Then, turn over everything else that’s non-differentiating (the context) to trusted partners so their teams can focus on innovating or adding value to the business core.
- **Stop being consumed** by internally focused service delivery and begin to expand the focus to customers, partners and markets. Ask, how can we extend products, reach new markets and build flexible business platforms?
- **Stop thinking about the cool apps and services** the team could build internally and start thinking about how to “broker” what the business needs from inside or outside of the organization.
- **Stop thinking nuts-and-bolts** and start to think strategically about how technological trends can enhance the company’s strategy, value proposition and offerings.

Here are some initial steps to begin the process of building an EDA:

- **Assess the current architecture of your core systems.** Are any of the core systems candidates for becoming business platforms? To what extent does the current architecture of your core and ancillary systems support new standards for interoperability? Examine any current re-architecting efforts in process for their ability to enhance elasticity.
- **Assess the current IT project portfolio in terms of the SMAC stack.** How would you rate each project in terms of its support for an EDA? For example, many mobility projects may provide an avenue for EDA, since most mobile providers must support global standards and operate in various mobile industry business ecosystems. The same is true for social and data analytic initiatives.
- **Form a team to begin outlining the elements of an EDA for your company.**
- **Consider educational activities so that staff becomes familiar with elastic concepts and the structure and function of EDA elements.**
- **Resist the temptation to create a big bang architectural project.** The key to EDA is to build on existing strengths and assemble the EDA with a combination of internal and external components and capabilities.

At the strategic level, it is important to socialize and communicate the benefits of increased elasticity in the context of the state of your industry, the state of global competition and customer demands. This requires the following actions:
• Begin discussions with key stakeholders to explore what new levels of business flexibility could be provided to the enterprise and, specifically, particular business lines, products and markets.

• Consider broadening the discussion to include some specific strategic workshops to surface new ideas for competitiveness. Experience shows that companies are often already thinking about forays into new markets, redesigned and enhanced products that enable new levels of partner involvement or participation in business ecosystems. It is important to get these discussions started.

• Use the architectural assessment results to identify current architectural limits to the business strategy. How urgent is the development of an elastic digital architecture? What are your competitors doing? Is your industry undergoing transformation?

• Given the architectural and strategic assessments, what must IT do? To accomplish this, IT needs to develop a plan of action and roadmap.

To remain relevant to the business, IT must create a new “master” elastic EDA comprised of social, mobile, analytics and cloud services. An EDA enables and drives innovation by virtue of its extensibility and flexibility to meet changing business needs. It produces powerful and immediate change when the IT organization can say “yes” instead of “no” to possible business-changing initiatives, such as new business capabilities, products and services.

The development of an EDA is hypercritical to 21st century competitiveness. The time to get started is today. Don’t wait for others with more elasticity in their strategies, tactics and operations to visit an industry near you, or begin to chip away at your own markets. As you build more elasticity into your company, your strategy, your products, your intrinsic business model and day-to-day operations will gain greater flexibility and new options to compete.
Footnotes


2 Ibid.

3 Friction includes many elements. For example, manual paper- and meeting-based approval processes introduce friction into a traditional partnering process. Friction can also be introduced when adding new capacity to meet new demand or when new contractual terms or policies need to be propagated. Business platforms can radically reduce many elements of friction, depending on the industry and type of business.


6 For a more detailed discussion of the five new capabilities, see The Elastic Enterprise.

7 Business platform-inspired product and service design is a new and emerging practice driven by the experience of elastic enterprises. Because elastic enterprises operate with an extensible business platform and a business ecosystem of partners, the elastic enterprise designs its products and services to be enhanced, a priori. Customers choose those features and add-ons that fit their needs on-demand, during use and in a self-service mode. Business ecosystem partners can provide apps and components based on their intimate understanding of the needs of local customers. Each customer experience is unique, appropriate and nuanced without central planning. The active nature of the business platform, the related data and the creativity of the business ecosystem partners conspire to engage each customer in a deeper relationship than mere segmentation.


9 The strategic options portfolio has many implications for product design, brand enhancement and market strategy. It also has implications for financial management and modeling, as strategic options can be evaluated as real options and used for internal evaluations of future enterprise value, price earning valuations and growth models for the firm. For further discussion, see Chapter 6 of The Elastic Enterprise.
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Cognizant’s IT Infrastructure Services (IT IS) Business Unit offers a comprehensive portfolio of managed services, consulting offerings and transformational solutions that span enterprise computing, end-user computing, infrastructure security, network and convergence services, mobility and application performance management. With extensive industry domain expertise in transformational Remote Infrastructure Management, which includes Cognizant’s industry-leading OnTarget ITIL-based platform and unique Operations Maturity Model, Cognizant’s IT IS Business Unit helps clients reduce infrastructure management costs, mitigate risk and improve business performance.

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