

## Chapter 2: The Five Pillars of the Elastic Enterprise

### A Time for Business Revolution

We are in the middle of a huge and exciting historical transformation. It is comparable with any of the big dislocations and transformations in history, possibly comparable with the origins of agriculture or the beginnings of the industrial economy.

A planet with 7 billion people, limited resources, the near tripling of the global middle class, environmental pressures, new sources of demand, and new learning needs. As we attempt to understand the impact of the new middle class in emerged nations like China and India, newly emerging Africa is powering ahead in mobile applications. There is a new ingenuity emerging from heightened competition; the clash and convergence of many cultures is making its presence felt not only on our TV screen but also in the fragile stability of the global economic infrastructure.

This is an awesome time to be alive and to rethink the way business is conducted. The growth of a new global middle class and a new phase of global competition forces us to rethink how wealth is created.

New skills are needed relative to globalization's latest phase, the highly competitive multi-focal globalization—the ability to interpret and anticipate global demand across heterogeneous markets; the ability to create new supply chains; the ability to market through more social mechanisms online and through mobile devices; the desire as well as the ability to work in these markets without the traditional oligopoly powers that western companies have enjoyed since the 1970s.

The new global market, with a new global middle class, presents us with a radically changing, fast growing but essentially different business environment from what we've experienced in the past.

But what is this new business or changed environment?

We in the West tend to think of globalization's new phase in terms of stock markets, stock performance and shareholder value. Indeed, as *Forbes* reported in September 2011, many companies have been performing exceptionally well, yet markets remains jittery and oscillated up and down randomly. Yet market sentiment is our education and our legacy. We conduct business with one eye on the markets, and we carry the traditional market playbook under one arm.

Yet, the new actors in this transformational world, one where the rules of business are being turned upside down, think of the 21<sup>st</sup> century as a wholly new experience of life.

For them it means, at last, the detachment from rural living and poverty, or an encounter with wealth for the first time, or the unprecedented opportunity to engage with a global community. For the majority of people on our planet, the 21<sup>st</sup> century is their first encounter with the huge wealth-generating machine, entrepreneurship, economic freedom and, in some regions, growing political freedom.

As this new world emerges around us, there are visionary business leaders in the old economies who do things differently anyway; who have anticipated change; who reframe the business landscape in their own terms. They are not neglectful of global trends and emerging populations but they have a singular means of acting, a practice that is all their own, that allows them to reframe our perceptions of how wealth can and should be created.

Steve Jobs is a classic example, a man who has taken his firm from computer hardware and software, a somewhat ailing niche producer at that, to create a new dominant framework for production in smartphones, music, video and software distribution.

The excitement and opportunity of this era stems from the convergence of new conditions and brilliant minds like those of Jobs and Bezos.

Pioneers like Jobs and Bezos are capable of reshaping our understanding of how business can be done. But the corollary of that is also in place: the conditions to do business in dramatically new ways exist right now.

The two coming together, the pioneers and new economic conditions, provide us with huge hope and optimism that humans can transcend their own and the planet's limitations, once again.

As well as pioneers, there are leaders such as those at Walmart who sit patiently and then strike. We see companies like Walmart; Ford Motor Company; Forbes, the global publisher; and GM all taking the first steps along the trail blazed by Jobs and Bezos. They might not have architected the game plan perfectly for the route they need to take but they are changing.

Meanwhile, hungry challengers in Asia, India, Africa and Latin America, companies like Samsung, Alibaba, BYD, Tata, Safaricom and Embraer, need no second invite to emulate and surpass the ingenuity of even an Apple Inc.

The conditions in the new phase of globalization are perfect for pioneers of a certain type, sapient leaders who are knowledgeable about markets, products, IT, the Internet, the web and customers. It is the era *par excellence* for leaders who are wise across multiple disciplines. They have found a "sweet spot," a system or structure that allows them to stitch together new ways of operating.

All this is an evolutionary story, and pioneers of the elastic enterprise have been in a transformational mode for over a decade. Apple is the perfect example.

When Apple introduced its iPod in 2001, Steve Jobs sought to transform the music industry. The iPod had a singular objective: to be better than all the other MP3 players that were the rage at that time but which computer manufacturers were locked out of, simply by their own narrow-mindedness.

Only later, first with the introduction of iTunes, and then decisively with the iPhone and the App Store, did Jobs begin to transform business and wealth production.

At the time of the iPod's launch, Apple was a product business, just beginning its rebound

from a strategy overly dependent on the success of the Apple Macintosh personal computer and its variants like the iMac.

Today, based on its powerful global platforms and business ecosystems, Apple has flawlessly executed on a series of radical adjacency moves that have significantly diversified its business, at scale, and set a standard for the new global era.

Remember the term *radical adjacency*? Throughout this book, we will use it often. It means the ability to enter new markets where executives have little experience and to execute exceptionally well.

When Larry Page and Sergey Brin left Stanford University and started Google in 1998, their goal was to index the Internet so it could be effectively searched by anyone.

The search for digital artifacts, whether text, graphics, pictures or video, had stymied the best minds in computer science for decades. Google's rating-based computational approach to search revolutionized the search industry. What did it do? It used the global ecosystem of search engine users to create an evaluation system. Now, the behavior of millions of anonymous content providers creates the system of page rankings that makes search results relevant to all search users.

After establishing page rank, Google introduced AdWords, a system of advertising that encourages content producers everywhere to believe they can build sustainable revenues from the web.

AdWords fuelled the dramatic growth of blogging and web site development. From a standing start in and around 2001, hobbyists and experts all over the world launched themselves onto the web with a QuickPress article and an AdWords sidebar. By mid-decade, bloggers were pushing 1 million posts per day onto the web in the English language alone.

Google was a central feature in blogging's boom phase because it tied production of content to advertising, giving advertisers access to truly niche markets and encouraging content producers to seek revenue.

The intent and aspirations of Brin and Page at the outset were not to revolutionize the computer and information science sector, nor to completely transform advertising, nor to destabilize the news industry, nor to create a Google-plex that would enable it to integrate a myriad of unrelated industries at will and to monetize seemingly unrelated acquisitions like Blogger and Google Maps.

As Douglas Edwards notes in his insider account of Google,<sup>i</sup> "You would have needed uncanny foresight or powerful pharmaceuticals to envision Google's success in 1999."

And by the way, remember that Jeff Bezos, the brilliant and visionary founder of Amazon, also did not intend to revolutionize the publishing industry, introduce the Kindle or restructure the IT services sector with its EC2 (Elastic Compute Cloud) or AWS (Amazon Web Services). He had a more modest proposition: use the Internet to revolutionize the consumer retail business. While broad and ambitious, it in no way accounts for the diversified global business that characterizes Amazon today.

But, regardless of intents and aspirations, all three companies (Google, Apple and Amazon), along with many others like eBay, Alibabi, PayPal, Skype, and lately old industry stalwarts like Ford and GM, are laying new foundations for future success. Some have demonstrated remarkable strategic and operational agility over the past decade. Each of these old hands in the computing and telecommunications arena is an elastic enterprise and old industry like Ford is beginning to emulate them.

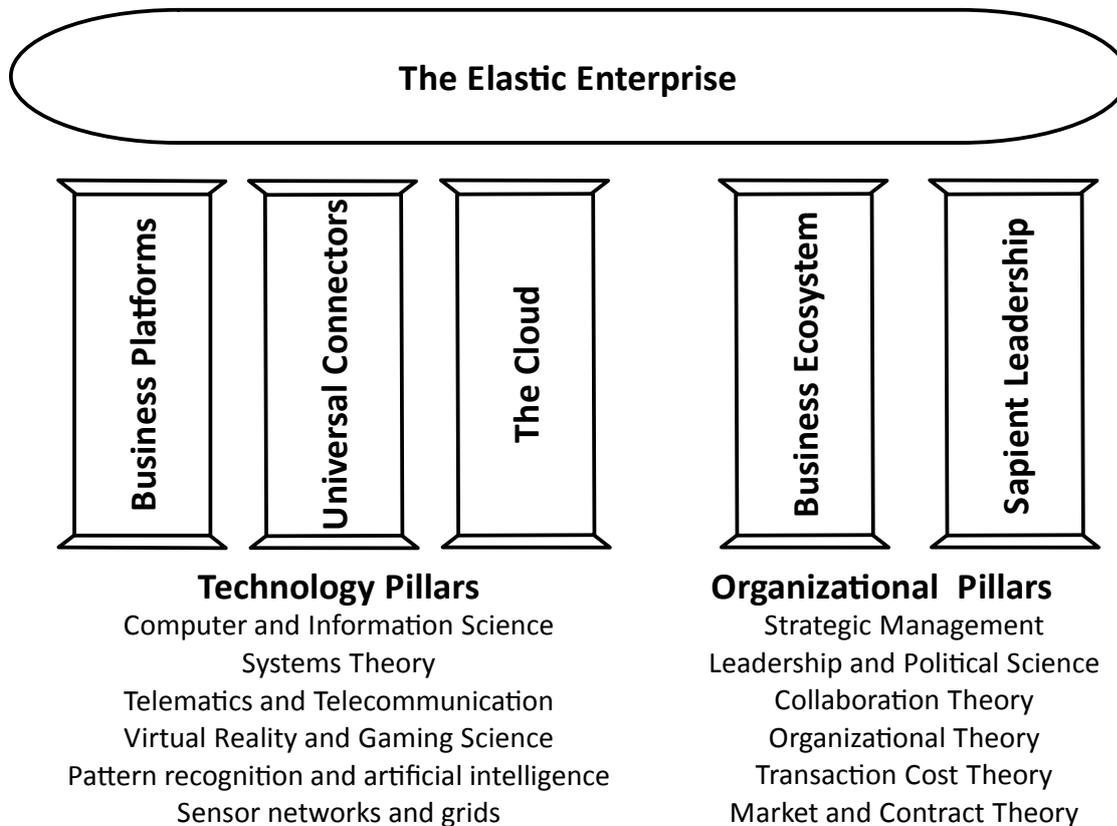
The elastic enterprise rests on five distinct capabilities that are so fundamental to success that we call them pillars.

Taken together, the five pillars establish a new and superior way to conduct business. The new way departs significantly from 19<sup>th</sup>- and 20<sup>th</sup>-century business models. These pillars provide an enterprise with new options and capabilities, powering new levels of performance from strategy through execution. Most significantly, they offer a new way to scale at low relative cost.

Early experience indicates that the process of moving to these five pillars dramatically assists existing corporations to develop next-generation business models. As the subtitle of *The Elastic Enterprise* suggests, we think of this as a revolution in business. But it is not just about re-engineering business processes. It is about re-conceiving how we scale businesses.

We want to illustrate now how the five pillars transport the enterprise to a whole new level of scale, efficiency and effectiveness. Coming up in subsequent chapters—more detail on the pillars and case studies to illustrate their impact. We divide the five pillars into two broad categories: 1) technology pillars and 2) organizational pillars. For the rest of this, chapter we will discuss the three technology pillars. In the next chapter, we will look at the remaining two pillars, business ecosystems and the nature of sapient leadership in the elastic enterprise.

**Figure 2-1: The Five Pillars of the Elastic Enterprise**



### Technology Pillars

The relationship between technology and business strategy is an uneven one, sometimes complementary and sometimes not. Computing technology is no exception, sometimes finding itself at the forefront of strategy, sometimes strategically marginalized.

The first use of computerized information technology in business was at the General Electric Appliance plant in 1954. Information technology progressed rapidly through the 1950s and 60s, dominated by large mainframe computers with systems oriented to financial and accounting applications.

The minicomputer emerged in the 1970s, giving large corporations the opportunity to expand and diversify their use of information technology beyond finance and accounting.

In the 1980s, the personal computer transformed business operations by empowering employees with individual computing power and specialized applications. In the 1990s, the Internet became a major force for business transformation, pushing hardware into the background.

In the 2000s, the Internet dramatically expanded the uses of computing on a global basis.

Two distinct developments, though, altered the computational landscape for corporations. These two pivotal developments are still relatively new. Their implications are still in the works. We know they are hugely powerful but the extent of their ultimate impact will not be known for decades. These developments are powering the new phase of globalization and business transformation.

First, the emergence of mobile devices and related telecommunications infrastructure extended individual access to computing and Internet-related services to virtually every location on the planet. By 2010, children in the sub-Saharan desert had access to more computing power and information than a CEO of the largest Fortune 500 company in the late 1980s.

Second, the proliferating interconnections among computers and computing infrastructure led to the emergence of Cloud computing. Cloud computing became a catch-all term for making computational power, capacity and related services available to anyone, anywhere at any time.

These two developments set the stage for a completely different type of computing infrastructure and a new computing services infrastructure available to companies of all sizes today.

Many companies find it difficult to make a transition to this new computational era. But to understand why the elastic enterprise is possible requires a deeper examination of this technological landscape.

For most of the last 50 years, corporations were forced to make private investments in large-scale information technology projects to meet their business objectives. Often these IT projects required significant customization or new code written from scratch. For example, Walmart spent over \$300 million in 1990 to create its vaunted logistics system, most of which was written from scratch by employees at its HQ in Bentonville, Arkansas.

Even where existing commercial software packages might meet business objectives, most companies were forced to engage in an arduous and often dubious effort to customize “out-of-the-box” software to meet their unique needs and then continue to modify the code over its useful life as business requirements evolved.

As the 21<sup>st</sup> century debuted, following billions of dollars that organizations of all sizes were forced to spend on the “Millennium Bug,” many IT departments were viewed as a “business prevention department” rather than a strategic resource. Commentators like Nicholas Carr argued<sup>iii</sup> that IT didn’t matter any more because information technology had become a commodity and would soon become a generalized utility lending little to no competitive advantage to most firms.

Over this same period, an alternative approach to information technology began to emerge. This one was inspired by an old notion of interchangeable parts and modular assemblies. It was more of a craft industry, a craft approach to computational power. This approach was sometimes called object oriented, which simply means the focal point is a re-usable component of software rather than the large enterprise package.

This approach was very much driven by the Internet and its needs, and it grew in significance as the web replaced the Internet as the main platform of online activity.

Today, we have gone beyond object oriented computing. There are virtually no barriers to any business or individual participating on the web if they have software development capabilities, participating in global platforms and creating content or objects on remote servers in collaboration with many thousands of people. The web, with its new apps, can function as a business infrastructure for many business purposes.

In the second decade of the 21<sup>st</sup> century, this “web approach” to building systems, using an interchangeable part or modular architecture, has deeply influenced the way business systems are designed.

Global software standards now support global software markets and a highly interconnected infrastructure across many cultures and locales.

As a result, systems capabilities for businesses can be assembled from a variety of components. Components are increasingly giving way to apps whose purchase and use is not controlled by IT departments but by employees. Each part, whether small or large, can be interconnected in a myriad of ways to create adaptable business solution frameworks.

The need for custom code has been reduced significantly—and a major source of entry cost, rework and ongoing cost of ownership has been sidelined. What’s more, the employee as customer is now bringing apps to work, bringing to the IT department yet one more transformation.

In practical terms, this means that IT organizations can now assemble business solutions rapidly from a growing inventory of software and only when necessary contract to create customized components rather than entire customized systems. A global marketplace of vendors, developers, and integrators has emerged to create systems on demand, and alongside it is a new panoply of platforms such as Google Apps or various mobile app platforms that provide enterprise productivity software at a snip.

This change in the technical architecture of business has given rise to a radically different model of digital business systems. It is behind what we call the new business platform and it is the heart of the five pillars of the elastic enterprise.

### **Pillar One: Business Platforms**

Business platforms are by far the most important technological pillar of the elastic enterprise. A business platform is a package of interconnected digital components (hardware and software) that together deliver a set of business services. The primary objective of those services is global interaction, the scaled interaction we talked about in Chapter 1, between people anywhere, the information they need to be effective, and the commerce engine that accrues revenue to the platform owner and its partners.

Think about that long legacy of software that Nicholas Carr talked about, the massive investment in standing still that IT has at points in history represented. Now think of the

ability to coordinate many thousands of partners all on one business platform or to integrate relationships with many millions of customers. That is the new IT.

Since the business platform is essentially a web of interchangeable digital components, it has the capacity to be augmented and extended by adding or substituting new components. That's simple enough. It is adaptable to changing business needs or a new business strategy. In most cases, it can now be designed to drive business strategy. In fact, it must be. It is a rule of the new manifesto that IT creates platforms of globally scaled interaction because that is the way business will be done in the future—via large scale interactions between people who do not know each other, who never meet but who somewhere share a common interest or experience.

A business platform is the basic collection of software solutions that provides the setting for these new business relationships, new employee relationships and critically for friction-free business. These largely anonymous business relationships are special because they work without a handshake or even an introduction. They function without social and traditional frictions.

Platforms reduce business friction while they scale business opportunities and processes at low cost relative to past business processes.

The platform in the future will define the capabilities of the enterprise and provide the setting where new rules of business can evolve.

There are self-built enterprise platforms and customizable platforms and they exist for: promoting customer ecosystems, managing large developer programs, capturing employee commitment in enterprise social networks, e-commerce platforms, and telemetry and telematics platforms for organizing machine-to-machine data services, to name a few.

Some examples will help to illustrate the generic power of the new business platform. Let's look at Google's Android platform, Apple's IOS and Salesforce.com.

In all cases, business platforms lie at the center of a set of extensive business relationships with software or apps developers, equipment providers, and customers.

Apple first.

Apple's developer platform is the infrastructure and rules that let Apple interact with 300,000 developers. These developers are neither employees nor close partners.

iTunes, which manages the transactions, sales contracts and customer contracts, as well as enforces property rights and operates the marketplace for media and apps, is also part of Apple's platform.

The platform is like a global meeting place for ecosystems on both sides of the demand and supply chain. That might be its most ingenious character. Whereas in the past the platform has served a supply chain and a supplier community, today's business platforms pitch suppliers (developers) and customers together.

Android is an almost identical concept, though with multiple rather than one single device manufacturer involved. Where Apple is in sole charge of the iPhone and iPad, Android involves OEMs like Motorola (since purchased by Google), Samsung and Sony Ericsson.

These multiple vendors have agreed to a structure that effectively means they share the ecosystem of developers around Android and to a lesser extent the ecosystem of customers for Android apps. They are both collaborative and competitive around the devices and the optimization of apps and components for those devices. It has been hugely successful in the sense that Android smartphones have been the fastest-growing product class in mobile smartphones over the period 2009–2011.

This is a very novel business relationship. As yet it seems not to have set many precedents for similar projects but we're watching it with intense interest.

Salesforce is another platform player. It has expanded its business by turning its Cloud-based customer relationship management software into a business platform that now includes an entire marketplace of developers, third-party service providers and hardware providers, called Force.com. Borrowing somewhat from Amazon, it became the platform for CRM software not just a platform for its own immediate needs.

In the process, Salesforce has been able to expand into a range of sub-markets that support different stages of the customer lifecycle and it has been able to enter new markets that provide other software capabilities to business such as its shared contacts database Jigsaw.

Not all examples are found in high tech.

USAA began operations in 1922 as an insurance company devoted to the risk management needs of U.S. military servicemen and -women and their families. Today, the company is a fully integrated financial services firm that serves 7.7 million members that include non-military members as well.

In 2009, USAA wanted to create a new car buying service for its customers and prospects. USAA envisioned a service that would provide detailed information on automobile features, deals, prices and trade-in values, real time loan origination services, preferred services via prequalified auto dealers and customers, and a mobile app to support customer inquiries.

In the past, USAA would have developed an in-house custom system to deliver these services, as did many companies. That system would have run entirely in a USAA data center, requiring significant investment in new technology and software and considerable time for development. One more thing: USAA was not known as a car-buying resource in the general market when it started to think about its new auto-information service.

In 2009, USAA had the option of taking a business platform approach—an approach, as you will see, that provided it with new capabilities, credibility and the ability to extend its existing and new business rapidly into *new markets* with *new customers*.

Auto Circle, the brand name for the car buyer support service, is built on a business platform that USAA assembled through a combination of its existing information systems (i.e., financing, auto insurance) and a series of external platforms supplied by Vast (marketplace

platform—research, search, inventory, matching, dealer connections), ZAG (auto transaction services), CARFAX (used car evaluation), Chrome Systems (auto dealer data platform) and the Apple mobile App platform.

The combined business platform offers an unprecedented level of service and convenience for the consumer. In fact, it established a new benchmark for auto buying services in the U.S. and possibly the world.

Remarkably, USAA was able to assemble Auto Circle in less than a year. It did so by integrating existing platforms and by capitalizing on prior experience in developing iPhone apps. USAA was able to assemble the business platform for Auto Circle at a fraction of the cost required only a few years earlier because it could integrate third-party platforms and because of the growth of Cloud-based services.

USAA launched the service in August of 2010. By all measures, it has been well-received and customer satisfaction is high. In the Fall of 2010, USAA saw a 77% increase in visits to the Auto Circle car-buying site, a 15% increase in auto loans, and a 23% year-to-year increase in automobiles sold.

Immediately after the introduction of the Auto Circle service, USAA exploited the power of strategic adjacencies by using its experience in business platforms to introduce Home Circle. What Auto Circle did for car buyers, Home Circle does for real estate. It provides a combined range of services for home buyers and renters.

The Auto Circle business platform provided the ability to reuse and rapidly enter adjacent markets to extend product and services. The business platform brought new agility to the enterprise and new options for business growth.

Three key lessons are worth noting in the USAA business platform experience.

First, the recent growth in standardized interfaces and the entrance of third-party providers of platform-based services enable any company interested in initiating a platform business to do it quickly and at a much lower cost than before.

Second, USAA built upon and transformed existing assets and core competence, using IT strategically without the waste of the past.

Third, in less than a year, USAA rapidly used its success with the Auto Circle platform business to move into an adjacent market with Home Circle, further leveraging its business platform, establishing a larger customer and partner ecosystem, and potentially disrupting existing players in the residential real estate industry.

We are seeing a small but growing rate of adoption of each of these capabilities in corporate America, Europe and China. And that's what underpins our optimism for the future. This is great business, cleanly, quickly executed.

## **Pillar Two: Universal Connectors**

Think back to the early days of the World Wide Web. Suddenly a small symbol or acronym began appearing on websites, particularly those that hosted original content. The acronym was RSS and for many people it is still a mystery.

RSS is one powerful example of anonymized business relationships at work. RSS stands for *really simple syndication*. It means that with a few mouse clicks, people can access your content in a stream directly from the content host's servers.

Why was this important? Because it meant content owners could suddenly make a permanent connection with readers. Once a reader clicked RSS, the content creator's content would automatically be sent to the reader upon publication. This was a new form of syndication, pulled initially by users.

It had a few other characteristics.

The content was free—forcing content creators to think how they should monetize their work or what alternative value they could derive from an interested audience.

The server delivered the content at no cost to either the creator or reader so both publishing and syndication was taking place free of charge.

The reader and creator would never meet each other and the creator might never know who the reader was. The relationship was anonymous even though they had a contract with each other.

The contractual basis of the relationship was real and important. By taking the feed, the reader agreed not to misuse the information and the creator agreed to relax his or her copyrights.

Gradually, feeds were used to incorporate content into new products such as *The Huffington Post*. A new class of companies grew that used other people's content to create new information products, strictly speaking in contravention of copyright. Just as the web represented a modular form of software at work, content too became modular, re-usable and widely re-used. The product of a writer's imagination, the result of research, a product of painful reflection or whatever, it went into the pot and became a component that other people could and did use. Distribution of ideas in some sense replaced the origination and production process.

Companies stuck in the origination and production phase would lose out—they would stay in print or they would create firewalls. And very few such companies would find global audiences.

RSS is a universal connector. This short history of content illustrates something vitally important. Universal connectors radically change the industries where they are introduced.

The characteristics of the universal connector have gradually become entwined in a range of web-based activity. Connectors have evolved. There is a veritable software industry driving this capacity to abstract business through universal connector mechanisms like RSS—think of status updates, a ubiquitous messaging system that people use to distribute thoughts, ideas and content. Status streams are revolutionising the workplace—just ask users of Salesforce.com's Chatter.

The broader ability to offer unique content or a piece of functionality to the market that might

later be combined with other parts is the role of *universal connectors*.

The universal connector stems from the Internet-inspired tradition of “*interchangeable parts*” and modularity.

At a technical level, when it comes to areas like APIs (application programming interfaces—we’ll talk more about them later), this capacity depends heavily on mechanisms that enable diverse creators and dissimilar software producers using different software tools and architectures to connect their parts together. APIs are great connectors. They provide a uniform way of interfacing software functionality, which means all kinds of software can work together, even though it is not necessarily intended to.

The reason we use the term “universal” is because APIs are not tied to any one operating system, company or software package. They are a result of a new philosophy that accompanies the world of free: interchangeability.

Universal connectors took a long time to develop. Early computing architectures were proprietary and closed and hence incompatible and isolated.

Each time a company had to connect dissimilar systems, it had to modify each system and then create custom code to connect those systems. The Internet and its architecture marked the beginning of the trend to universal connectors. Apple, Google and USAA would not have been able to develop and deploy business platforms without the emergence of universal connectors.

Universal connectors are built upon standardized software architectures that specify rules to identify how connections will be made, how data must be packaged for transfer, requirements for security, and other details to enable proper coordination and timing.

For example, consider how each individual app has to behave on Apple’s iPhone in order to properly operate within Apple’s various platforms, the telecom carriers’ platform and the specific apps server platform that goes into apps delivery.

Each part must operate according to specifications packaged by the universal connectors. Because the specifications and operation of each universal connector are published and known, each party knows the rules and requirements that are necessary to operate successfully as a partner with each respective company and platform in the chain.

Universal connectors represent a new process in the enterprise. They are born of a new philosophy. They support openness and speed. They allow business to be conducted in an increasingly frictionless and automated way so that costs are dramatically reduced, and the overhead of expansion is minimized.

Examples of universal connectors include RSS feeds that power the web’s automated content distribution or syndication channels, Application Programming Interfaces or APIs that connect businesses multilaterally, GPS, sensors and telemetry automating machine-to-machine business models, as well as status and data streams that power collaboration.

Connectors enable companies to work together via their systems, and to transfer and share data and link together with a minimum of effort.

It becomes essentially frictionless to initiate a strategy of collaboration at will through these connectors.

For example, most major entertainment, broadcast and news organizations moved to a digital production model over the past decade. As a result, any news organization can acquire data feeds of news information in any format from any other news organization around the world in real time.

That information can be packaged with unique content, repackaged, distributed and offered back to the market. Companies like Reuters, NBC Universal, Disney, Netflix, Al Jazeera, AOL, Google, BBC, CBC and virtually any other organization can connect their platforms to provide an infinite variety of news sources and services on demand.

Durable goods and heavy industrial manufacturers also use universal connectors. APIs allow Apple, Google, Android, Best Buy, Ford, Caterpillar, GE and many more companies to connect with and interact in an open way with tens to thousands of partners and their respective products. The sensor network that powers GE's aircraft maintenance and performance improvement services rests on a variety of universal connectors.

These are the connectors that bind innovators and allow them to establish scaled interactions and to conduct all manner of transactions in a frictionless way.

You too might use a universal connector. Twitter has established a standardized format of short messaging that allows content creators and marketers to amplify their messages across the globe, in real time, at zero cost. Though it doesn't fulfil all the requirements of a universal connector—it doesn't establish business contracts—it is still some megaphone.

### **Pillar Three: The Cloud**

The Cloud is the *pervasive digital infrastructure* that allows a frictionless business economy to grow and thrive. It provides unprecedented opportunities to innovate, implement and create wealth. Among other things, Cloud services allow connectors to work, linking business platforms from different enterprises into new services and allowing new service providers to set up shop with little capital cost.

The Cloud is essentially an elastic infrastructure of storage, processing power and services that can be turned on and off like a tap, giving customers more of each when they need it, or less if demand peaks and goes into temporary decline. It is the ultimate business driving machine.

Billions of dollars are behind the Cloud and billions of dollars will be invested annually for the foreseeable future to grow and enhance its capabilities.

The Cloud means many things. But for our purposes, the Cloud is a common and public infrastructure that seamlessly enables business platforms and their globally scaled interactions.

Because the Cloud is public and accessible it becomes a common business infrastructure. It also sets standards for operation for so-called “private Clouds” that may be built and deployed for private or proprietary purposes. For example, the U.S. Federal Government uses a combination of private Clouds and the public Cloud to deliver services, some that are secure and private and others that share the Cloud with many others.

Because the Cloud is shared, the cost of infrastructure investment and operation is also shared and hence is less expensive than a private Cloud or an alternative closed and proprietary infrastructure.

The impact of shared economics for the Cloud infrastructure is not trivial. The low and elastic cost of the Cloud means individuals and smaller companies can offer services to larger companies. Start-ups can get out there looking the part. That means a larger set of talent and services are available to everyone. And in fact the effect of that has already been felt.

From 2010 onwards, large corporations began noticing their employees were using third-party applications to conduct some of their work. They might use Box.net for sharing documents with agencies or Huddle for online meetings or Basecamp for project management.

Each of these is a Cloud-based service. Each from its start-up phase onwards immediately began penetrating the large corporate software and services market. Employees have embraced Cloud-based services—so much so that Box.net claimed in 2010 that it had over 75,000 corporations as clients, even though its IT department might not know it.

Cloud is dramatic.

Shared economics reduce the cost of each transaction and each interconnection. The overhead cost of business partnerships and business alliances is reduced.

In addition, temporary business relationships are also more feasible. In the past, the cost of establishing a business relationship required a long payback period to make it feasible and productive. No longer!

Even ERP giant SAP is looking to exploit this capability of apps in the Cloud to establish immediate friction-free partnerships with its StreamWork project, a site that collates existing successful apps like Box.net. SAP now offers a Cloud apps store bringing the flexibility of apps to its installed client base. This is a huge change for old BIG ERP. Amazon is collaborating with SAP to sell enterprise apps. It’s all happening!

The shared economics of the Cloud contribute significantly to the friction-free elements of this new approach to business formation, business models, business operations and, in the process, contribute to making enterprises of all sizes more elastic.

Amazon.com is a powerful example of the Cloud.

For most of Amazon’s history, the company utilized internally developed proprietary systems and infrastructure to conduct its business. Its proprietary systems are legendary and

contribute greatly to its success. However, those systems require significant investment. Amazon knew early on that there was significant demand for its know-how. Amazon has a unique experience of *scale*.

Early in the 2000s, Amazon began to make its systems available to other companies for a fee.

One of the most public and dramatic examples was its agreement to support Target Stores. Target adopted critical portions of Amazon's systems and infrastructure to power its retail and online business.

Amazon also offered its systems to small businesses and individuals to see products through an online marketplace. In the process, Amazon began to externalize its systems and make them publicly available.

Eventually, this led Amazon to offer its infrastructure, that is, its servers, data storage, connectors, and most recently support services, based on a completely variable pricing model. In this later incarnation, Amazon made its infrastructure, services and systems part of the Cloud. In the process, it monetized some of the investment and operational costs of its systems, its infrastructure and its expertise that had traditionally been captive to Amazon alone.

Today, Amazon is a player in the Cloud Services market and it also uses other company's Cloud offerings to power its growing non-retail businesses, particularly Kindle.

Since almost everyone is connected to the Internet, it is now feasible to communicate with anyone on the planet and hence offer, sell, service and include anyone in any activity or venture. The advent of cheap mobile devices has accelerated the number of connections. But the Cloud is what makes service creation and sales globally possible and efficient.

In turn, that means markets become more efficient. Any company and any person has access to financial markets, labor markets, retail markets, as well as formative and emerging micro-markets—anywhere and any time. For example, the development of micro-financial services in Africa and the Middle East has created entirely new financial markets with entirely new financial institutions and providers that companies in the West are only belatedly learning about.

Cloud, as it develops, will spawn further innovation as it connects more diverse parties and their ideas.

Most importantly, the availability of the Cloud is one of the critical elements that supports the development and operation of the modern business ecosystem.

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i Douglas Edwards, *I'm Feeling Lucky: The Confessions of Google Employee Number 59*. New York: Houghton Mifflin Harcourt Publishing Company, 2011.

ii Nicholas G. Carr, *Does IT Matter? Information Technology and the Corrosion of Competitive Advantage*, Boston: Harvard Business School Press, 2004.