Perspectives

the Digital Enterprise
A Framework for *Transformation*

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Greetings

I have the pleasure of presenting the ideas and insights from TCS consultants as we enter what could be the most transformative period in history.

Several key drivers have positioned the next decade to deliver a staggering—perhaps unprecedented—amount of change. The accelerating pace of business, the growing impact of digital, and several other major indicators suggest that a next generation enterprise is on the horizon.

This digital enterprise leverages digital technology to re-imagine their business, and embraces the key characteristics that enable future success. Innovative, fast, responsive, agile, creative and, design oriented are some of these key characteristics.

We at TCS have embraced this future enterprise vision, and are investing as partners in our customer's transformation journey. I am happy to present a new issue of Perspectives that represents a substantial step forward in that quest.

N. Chandrasekaran
CEO & Managing Director

The magic of thinking the impossible is here to stay with digital, to change all that came before it. Digital capabilities will be fundamental to companies transforming customer experience. Embracing integrated data and processes will help them thrive in an ever-redefined business environment.

The future enterprise will leverage the maturation and convergence of Social, Mobile, Analytics, Big Data, Cloud and the Internet of things to drive this agenda. As commoditization accelerates, companies will differentiate by delivering outstanding customer experiences. Quicker and more informed decisions will be taken in real time as the enterprise turns digital.

To enable those characteristics that drive digital success—organizational policies, practices, systems, processes and structures that worked in silos will change into a unified data structure. When we look back, this metamorphosis will be viewed as the catalyst that enabled the next generation enterprise: The Digital Enterprise.

In this issue of *Perspectives*, we outline the many aspects of digital transformation and a roadmap for getting there. This issue of *Perspectives* exudes the enthusiasm and capabilities that TCS has in supporting the transformation ahead.

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Introduction

The global business environment is being disrupted by the collision of an unprecedented wave of innovation. The combination of pervasive networking, the explosion of big data, the availability of advanced analytics and social media and the fact that mobile technology will become businesses' new face of engagement means that, in the very near future, "digital" and "business" will be synonymous. To grapple with this fact, businesses need a new framework of understanding and action.

Big data, cloud computing, social business and mobility are causing digital disruption across many industries. Social media and mobile technologies have shifted the balance of power and influence to the consumer. Engaging effectively with the ecosystem to drive ROI requires a shift in both technology and culture.

Many business leaders simply see digital as siloed components affecting only certain parts of the organization; this is a critical error. Digital does not impact some parts of your business:

it ripples through it and will change almost everything about your business.

Harnessing the disruptive force of digital requires a holistic view of the enterprise, encompassing both technology and culture. Digital must be ingrained and integrated across sales, customer service, marketing and human resources, affecting the entire universe of business operations. Don't create a digital department. All of your departments will be digital soon.

At some point, digital will impact your P&L enough that you will be forced to change, but if you wait until you see a significant shift to act, you'll already be behind. The key is to predict the most likely and extreme areas of impact, as well as the areas you can leverage for your business and to become a "digital first" mover rather than a reactor.

Drivers of Transformation

Four critical areas of technology are driving the changes in today's enterprises and creating a perfect storm of innovation.

Big Data. Companies, customers, partners and machines are all generating more data than ever before: structured, unstructured and semi-structured. Twitter streams, social media data and more are unstructured data that doesn't fit into neat categories, but if it can be assimilated, it's also more valuable than structured data. The rapid expansion of big data means you've got more data about customers in more places than ever before, but more data doesn't mean it's easier to develop a composite picture of the customer.

Social Media. Social media is largely responsible for a shift in the balance of power from businesses to consumers. It has also created a powerful, two-way communication

between consumers and businesses. As a tool, it has tremendous potential for both business-to-business and business-to-consumer engagement, building loyalty and sharing or "crowdsourcing" solutions among partners and customers in the ecosystem.

Mobility. Enabled by mobile communications, the "anywhere, anytime" culture is pervading and transforming business. Location-based offers to mobile devices target consumers near the point of sale. Productivity increases as workers access corporate resources from mobile devices. Business processes can be rethought, informed by mobility (dynamic rerouting of service calls for example). Mobile apps will ultimately be the face of customer engagement and depending on the app, the traffic could strain your infrastructure.

Cloud Computing. Cloud computing offers new scalability and economy, but also creates shadow IT initiatives, as one department signs up for cloud resources unknown to the IT department. This in turn creates more silos. The fact that cloud offerings are typically paid for by subscription makes them economical and moves capex to opex, but even this indicates that digital strategy must be embraced holistically: Finance must understand the implications of that shift.

The problem is that companies are "doing" big data, social, mobility and cloud. Such initiatives are not holistic or strategic but scattershot and isolated. The digital transformation is not being managed holistically.

Transformation in the Publishing Industry

The publishing industry is grappling with the e-book phenomena, a disruption that is occurring faster than many in the industry predicted. A recent report from Juniper Research projects that e-book sales will triple in 2012 to $9.7 billion. According to the report, by 2016 about 30% of e-books will be purchased on tablets, 15% on smartphones and roughly 55% will be purchased on e-readers. And brick-and-mortar bookstores in general will be under pressure. "Unless bookstores can marry the digital and the physical, they're going to go under," said Dr. Windsor Holden, research director at Juniper Research and one of the authors of the report.

A Framework for Transformation

Faced with massive change, some leaders will struggle simply to stem the tide without fundamentally changing their organizations. Others will look for ways to jump ahead of the curve. The following framework offers executives and business strategists areas where they can exert control and drive a holistic digital strategy in four quadrants of transformation: value ecosystem, product and service innovation, go-to-market and culture and organization.

Value Ecosystem

There are new, often purely digital entrants, disrupting long-standing industry value chains, which are becoming value ecosystems of horizontal, bi-directional relationships. These players leapfrog one another in an attempt to grab market share—witness the bookstore example. Long-standing industry value chains are being dismantled, partly because individual companies no longer compete with each other; instead, entire value chains compete. Companies are also repositioning themselves within their value ecosystems, moving closer to consumers, or pulling back to become the backbone of services for a fleet group of smaller, more nimble

providers. New partner ecosystems will develop in this era of competition— a partner in one channel may become a competitor in another.

The traditional market approach driven by the imperatives of industrial-age thinking—"drive down cost and improve efficiency by owning every part of the value chain"—is giving way to a new, networked market structure. Enterprises will increasingly move away from operating strategies built around vertical integration, effectively reengineering industry processes.

Most successful companies no longer own the end-to-end value chain. They tend to focus on what differentiates them and outsource other activities across an ecosystem of partners and sometimes even customers (using feedback to drive R&D or even replacing paid support teams with "zero-touch" customer forums).

Product and Service Innovation

If digital doesn't change what you sell, it will change how, when and to whom you sell.

The possibilities include digitizing existing products (such as books to e-books), controlling revenue erosion from new market entrants (such as Skype, which has cut into

telecoms' core revenue) and guarding against the commoditization of core offerings (music sales and DVD rentals, for example).

Companies will need to offer premium support for multiple digital services, location-based services, cloud-based offerings, digital wallets and mobile payments. There will be many more machine-to-machine (M2M) offerings, such as smart energy meters that report usage via IP connections and GPS fleet trackers in the logistics market. APIs, which among other things drive mobile apps, will become a fundamental platform of digital information exchange.

Supplementing Systems of Record with Systems of Engagement

Core to a company's success as a digital enterprise are systems of engagement, in addition to historical systems of record. Systems of engagement are the operational/execution manifestation of excellence in collaboration and analytics. Systems of engagement are an emerging trend; Salesforce.com's Chatter takes Salesforce from the realm of CRM to a more engaged model. This blending of systems of record with systems of engagement is a key trend.

Systems of engagement that monitor, predict, prescribe and drive execution in all channels are key to responding and managing your company at pace. Systems of engagement should drive the effective and holistic use of the perfect storm of innovation: Social, Mobile, Cloud and Big Data. They should facilitate the orchestration of processes that include third party services and enterprise services. Systems of engagement offer speed—they help you manage in this fast paced environment, with a focus on delivering optimized outcomes. And with this operational agility you can address challenges in a holistic and effective manner.

Most importantly, systems of engagement leverage the vast amount of information available today to make every interaction a more informed one and when you don't know something, guide you to engage with others to help you collaborate in more effective ways.

Where systems of record were often partitioned and siloed, systems of engagement are transparent and collaborative. This will require cultural adjustments and shifts that will happen in stages (see Figure 1).

Companies will need to develop new product and service delivery channels and experiences. It will mean creating products and services comprised of differentiated internal services and value-added external services. The biggest innovations might come from customers; the best way to obtain them is through social media and crowdsourcing. One example comes from Timbuktu. The designer bag company detected a demand from its online community for a diaper bag that was utilitarian, but also masculine. Through its popular blog and Twitter feed, the company proceeded to test product designs with its community, leaving behind older methods like surveys and focus groups. The Stork ("The diaper bag for people who don't want to carry a diaper bag") became the company's most popular product.

Systems will increasingly learn adaptively from human experience. The emphasis will shift from transactional systems of record to experiential systems—or what Geoffrey Moore has called "Systems of Engagement." Knowledge and information assets will be captured and shared in a way that provides everyone with more relevant information and context for effective decisions and actions. This context will be pushed to the edge of the enterprise so that everyone has more information that can help drive informed interactions. For example, embedded analytics and knowledge-sharing will enrich enterprise applications. Before you might have had to do analysis in a separate tool; now relevant visualizations would be pushed and embedded. You might have had to go and

look at social interactions such as Twitter feeds; now those and other interaction feeds will be part of what you see. As digital becomes more embedded and data is more seamlessly incorporated, much more contextual structured and unstructured information about people, places and products will be available to help drive smarter decisions.

To facilitate this, enterprise software will change from a rigid, centralized model, to applications that are more granular, more task-oriented and better integrated with mobile devices. Delivery will be through near-instant cloud-based "subscriptions" by business users, instead of months-long IT provisioning processes. "People knowledge" will be more tightly embedded into processes, reversing the decades-long accretion of inflexible software that dictates processes at large enterprises, when it should be supporting them.

It also turns certain taken-for-granted assumptions on their heads. The balance of power has shifted from businesses to customers, and as a result, the tendency to keep information within the four walls of the company is overturned with systems of engagement. A new level of collaboration and transparency supplants a tendency to keep information and processes closed to outsiders. Customers will expect to know where they are in any process that involves them. Sharing information and collaborating freely are driving a movement from systems of record to systems of engagement.

Figure 1. The Road to System Engagement

- Communication
- Collaboration
- Coordination

Systems of Engagement

Process: Social embedded in business processes, process embedded in social

Decision: Social data becomes integral part of data for analysis, social becomes tool of decision making (ex: Crowdsourcing)

Integration: Social integrates with other digital assets and channels (ex: video, presentation…web, mobile, chat)

Culture Drives Order

Internalization: Social becomes a medium and platform for internal operations and management.

Functional Expansion: Social programs expands beyond marketing to support and enable other business functions (ex:, sales, service)

Presence: Basic social media presence for brand awareness, expanding social footprint (From Facebook and Twitter to specialized and proprietary networks)

Evolving social from consumer phenomena to relationship platform

Go-To-Market

Go-to-market is the practice of creating engagement and communication with customers before, during and after the purchase. Digital is changing the way enterprises go-to-market. Most organizations began to recognize the potential of digital by the way they opened up new marketing channels. As these channels became a prevalent mode of communicating with customers, the customers' expectation of the experience increased. Companies are relentlessly pursuing new market segments, geographically and demographically. Recognizing the forces of competition, enterprises need to work with existing partners, with the recognition that these partners may compete with the enterprise in other channels. New devices, from smartphones to smart homes, are seamlessly tying the consumer to the digital enterprise.

Here's an example: very soon, consumers bearing a mobile phone will be able to use an app to "look inside" their camera-equipped "smart" refrigerators at home to see what they need to pick up from the grocery store. In this scenario, and many others like it, the digital spring is changing go-to-market strategies. The telecom provider, appliance manufacturer, homebuilder, app developer, grocery store and mobile device manufacturer all play a role in each other's go-to-market strategy; they are all part of a value ecosystem.

Companies will develop business models that reflect the value ecosystem, characterized by flows of information with customers, suppliers and partners— disruptors such as Amazon, Facebook and Google are already well ahead in this game.

Businesses can avoid the hazards of commoditization by using social media, big data, and other technologies to understand customer needs and provide products and services they want. They will be differentiated by their ability to connect with customers, analyze feedback and deliver. Once this happens, they will be able to charge a premium for the value they provide.

Innovative companies will package their strategic processes as services and launch them via new channels. For example, telecom providers may well discontinue offering unlimited internet access as bandwidth capacity decreases and companies place a premium on data use. At the same time, the customer

information constantly collected by enterprises will be used to optimize network performance and drive new services.

Culture and Organization
More radical change is afoot on the culture front. Companies are faced with a highly educated consumer base with high expectations of personalized interactions with a company, informed by a wealth of information available online about a product or service. That same educated consumer, as a representative of Generation Y, also has high expectations for his experience as an employee–and most of them are digital. These expectations include organizational transparency, flexibility of policies and the ability to work remotely at least some of the time.

Companies can gain from internal collaboration and innovation. Game mechanics can be applied to great effect within all types of organizations. This innovation climate must be fostered by technology and an organizational dynamic that can support it. Everyone in your company needs to be able to understand and function in digital environments.

Figure 2. The 4 Quadrants

Value Ecosystem
- Networked market structures – relationship ecosystem
- Digital participants/ influencers
- Digital transformation of participants
- Alteration in chain linkages/ transactions
- Processes
- Speed of effect/horizon
- Data/insight/outcomes
- New or extended value in the chain
- Competitive threats
- Tools and systems
- Glocalization (Globalization / Localization)
- Digital substitutes

Products and Services
- Commoditization of core offerings
- Innovation process
- New value-added offerings
- Market erosion of core products and services
- Digitization of traditional products and services
- Ecosystem enabled product and service bundles
- Strategic processes packaged and sold as services
- Portfolio management

Go-to-Market
- Pricing
- Channels to market
- Competition from new market entrants
- New markets opened up by digital
- Got-to-market shifts to digital
- Emerging markets
- Access to new market segments
- Direct-to-Consumer
- Competition
- Peer-to-peer

Culture and Organization
- Performance
- Attrition
- Organization design
- Recruiting

Further, many firms think of their struggles in terms of external forces and competitors, when in fact the greatest struggles to adapt, and the greatest resistance to change, is often internal. This will be a greater struggle in more conservative organizations, which think of social media only in terms of employees wasting company time for personal use, rather than its potential for collaboration and innovation.

The notion that information flow effectiveness can only be achieved through ownership will give way to new ways of thinking about information access and sharing. Thus, if "people knowledge" is to make it into digital processes, there is a critical need to capture information and the knowledge in people's heads and place it in computer systems. Corporate social media will be one way this happens.

How to Transform?

The Four Quadrants of Digital Transformation form a framework for the digital enterprise. First, a company must identify—and monitor—the shifts in the four quadrants for their industry. Next, the companies must analyze the disruptions and model the ongoing impacts. Once these are understood, the company can form a digital enterprise strategy and roadmap

covering all four quadrants: value ecosystem, product and services, go-to-market and culture and organization.

Collaboration and Analytics: Key Capabilities of a Digital Enterprise

Sustained competitive advantage derives from excellence in two key areas: collaboration and analytics, which will fuel the next-generation, relationship-based and prescriptive enterprise. If it is true that the future value ecosystem will be comprised of your organization's core capabilities and enhanced by an ecosystem of third parties, this relationship imperative makes collaboration excellence a critical success factor. Yet these relationships cannot be set in stone; those partners may need to be changed out in a rapid fashion if needs aren't met.

Big data will be a key element of success or failure of virtually every enterprise. Those companies that can effectively transform data into insight, in real time, and inform decisions with that insight, will succeed. This puts a premium on analytics, an area where many companies are weak, largely because existing tools require both technical and analytic expertise. As a result, most companies face substantial backlogs of requests for analytics.

The ability to quickly visualize data using emerging data discovery tools that can be used effectively by everyone, not just data scientists, is critical to helping businesses take advantage of the growing footprint of digital information. The ability to quickly develop, share and interact with analytics is a key capability for all business users moving forward.

Digital requires acting with speed. There's no time for annual planning cycles. Companies are pressured to be adaptive, flexible, and collaborative due to rapidly changing business models and windows of opportunity that continue to shrink. These dynamics drive the need for analytic excellence, operating dexterity and an awareness-to-action framework.

Over time, companies will adopt this framework to sense market stimuli (such as a customer about to churn), glean insight from that stimulus and drive action with the speed the market demands. That means automation at every opportunity. If you can mine traffic patterns in real time, then change the traffic signals based on predicted congestion, instead of waiting for the congestion to happen, you're on the right path.

The New Role of the Customer

Digital trends create transparency and interactivity between customers and organizations, allowing customers to play new roles. It's a long term, ongoing relationship and the customer has both insight, influence, and even direct participation in each of the four quadrants of digital transformation. As part of your transformation, rethink your customer experience and contribution in all four areas. Customers can be product innovators, sellers, even technical support. Of course, this means companies must now understand customers' behavior, expectations, innovation, limitations and influence.

Multi-channel coordination requires a true alignment of social and mobile, more holistic personalization of the customer experience, and a seamless integration between channels. When customers call you, they expect you to know that they've just been to the retail store with a complaint, and to acknowledge the email they sent on the way back home.

Characteristics of the Digital Customer

- Interactive, Engaged, Iterative Buyer
- Influencer
- Peer Advisor
- Competitor

- Reseller
- Innovator
- Solution Integrator/Developer
- Competitor

A Comprehensive Digital Strategy

To truly capitalize on the transformation ahead, enterprises must develop a comprehensive digital strategy. Systems and processes must be built with the flexibility to change constantly. Quality must be embedded into processes and the systems that support them, but not in a way that is so rigid that the systems can't change when the definition of quality changes.

Once a characteristic of small software start-ups, agile development principles will find their way into some of the most historically staid organizations. Business units will have the freedom to iterate new experimental solutions with minimal overhead investment, but compliance and a holistic analytical view will be built in. Agility will be embedded into standard operating procedure, regardless of the nature of the industry or department. Human resources, legal, customer service—all departments will be executing on the digital strategy, with powerful digital tools.

Though technology facilitates the disruptive forces of digital transformation, in the end the core of transformation will be human. Resistance to change is the greatest obstacle to digital transformation. To succeed, you must first accept that the perfect storm's power can be harnessed with ingenuity.

The Digital Publishing Enterprise

How to Manage the New Digital Enterprise from Product Concept to Consumer

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Introduction

For the publishing industry, 'being digital' is no longer an add-on to the core physical publishing business, a 'nice to have' element on the periphery. It is increasingly the core business, with implications that reach into every part of the organization's operations. Over the next ten years, the entire environment in which content is used and transacted will undergo a vast change. Publishers need to be adequately prepared to successfully navigate the new environment. They will need to reengineer and reinvent their businesses and will need new systems to manage the new Digital Enterprise from product concept to consumer.

In late March 2012, fifteen years after the first Harry Potter novel was published and five years after the last book in the series came out, J. K. Rowling's hugely popular Harry Potter novels were made available in the e-book format. Ms. Rowling, who for long had been skeptical and resistant of moving to a digital platform, realized that "e-books are here to stay" after downloading and reading e-books herself. The seven novels, which have sold an estimated 450 million physical copies worldwide, saw digital sales zoom past £3 million in the first

month with £1 million worth of e-books being sold in the first three days. While this reflects the pent-up demand of fans of the boy wizard, it is also representative of a much larger phenomenon—the publishing industry's inexorable move towards the digital era.

Unlike other media industries such as music, which went digital two decades ago, book publishing has been a relative latecomer, shielded from the digital onslaught due to the absence of convenient e-readers. All this changed in 2007 with the launch of the Kindle by Amazon. The popularity of e-reading soared, and has only increased with the availability of better, higher-end devices such as the iPad from Apple, the new Kindle Fire from Amazon, Nook Simple Touch from Barnes & Noble and Galaxy Note from Samsung. The recently announced Nexus 7 tablet from Google will no doubt add fuel to this demand. Technology analyst firm, Forrester, predicts that, fuelled by the "compelling user experience of Apple's iPad and the content-focused experience of the Amazon Kindle Fire, and other tablets," global tablets sales will continue to grow sharply, rising from 56 million units in 2011 to 375 million units in 2016.

Similarly Gartner predicts that in 2015, tablet sales will reach close to 370 million while e-reader sales will be around 25 million. Hence it is reasonable to assume that by 2016 the total installed base for both tablets and e-readers could be close to 500 million devices—representing a 7% global penetration level.

Figure 1. Examples of Diversity in Mobile Interactions

Global tablet sales and installed base (millions)

! **375 million** tablets sold worldwide in 2016

760 million global tablet installed base

375 million global tablet sales (one-third to businesses, two-fifths to emerging markets)

A majority of tablets will be retired within three years of original purchase.

2011* 2012* 2013* 2014* 2015* 2016*

1-1 Global tablet sales will rise to 375 million in 2016

The popularity of e-reading soared in 2007 with the launch of Kindle by Amazon and has only increased with the availability of higher-end devices.

Digital Publishing—Crossing the Chasm to a Digital Future

Aided by the proliferation and adoption of high-end devices such as tablets, smartphones and dedicated e-readers, digital publishing has successfully 'crossed the chasm,' going from breakthrough technology to mainstream reality within a very short period of time.

Figure 2. Enterprise Mobility Applications Options

Technology Adoption Lifecycle

50% by Dec 2016 in USA

The Chasm

Relative % of customers

We are here

5% Innovators, technology enthusiasts

10% Early adopters, visionaries

35% Early majority pragmatists

40% Late majority conservatives

10% Laggards skeptics

Time

← **Early Market** → ← **Mainstream Market** →

Customers want technology and performance

Customers want solutions and convenience

For a more extensive treatment of Technology Adoption Lifecycle see "Crossing the Chasm" by Geoffrey Moore 1991.

Another factor driving the publishing industry's move to digitization is 'bytability', a measure of the extent to which a particular process can be broken down into bits or bytes of digital information. The publishing industry is or can be 100% bytable. Let's contrast this with the automotive industry or the oil industry. Here, while some processes can and have indeed gone digital (e.g. invoicing), the bulk remains in the physical world. The end product is also consumed in a physical format.

One industry that has scaled the 'bytability' ladder with ease is the music business, since most of the process of producing and listening to music is digital in nature. However, the physical world does come into the picture while recording music since you need a studio, or a stage and the performers (currently) have to be in the same location.

In contrast, in the publishing business, the author, publisher, distributor and the consumer are not required to interact in the physical world at all. The availability of computers, internet and e-reading platforms have ensured that the entire publishing process, from book writing and production to distribution, archival and consumption can be digitized.

According to Pew Research Center in the US that provides information on the issues, attitudes and trends shaping America and the world, there are four times more people reading e-books in the US on a typical day now than was the case less than two years ago.

Scientific and medical journals and reference books such as encyclopedias have been the forerunners in migrating to a digital format. In 2011, Amazon, the bell-weather for the digital distribution business, announced that e-book sales had outpaced those of printed books. This trend is now evident across the industry.

The Association of American Publishers (AAP) recently reported that, for the first time ever, net sales revenue from e-books exceeded that of hardcover books in the first quarter of 2012. In 2011, e-book net sales revenue climbed 332.6 percent over 2010. In contrast, print sales grew a mere 2 percent over 2010. Reports from other parts of the world too reveal a decline in physical book sales and an associated increase in digital book consumption. The Publishers Association in the UK recently revealed that sales of consumer e-books increased by 366% in 2011, and all digital formats encompassing e-books, audio book downloads and online subscriptions accounted for 8% of the total invoiced value of book sales in 2011, up from 5% in 2010.

Publishers are experiencing the digital revolution first-hand. In 2008, digital revenues at New York-based book publisher Hachette Book Group (HBG) represented just 1% of the company's topline. This year, about 20% of HBG's revenue will come from digital sales. Similarly, at Hyperion Publishing, the book-publishing arm of Walt Disney Co.'s Disney-ABC Television Group, digital revenues grew from 6% of sales in 2010 to 18% in 2011 and are projected to touch 28% in 2012.

Challenges

In the digital arena, every element of the traditional publishing process is being questioned or redefined.

Digitization, the availability and consumption of content in an electronic format, is without doubt, one of the biggest disruptive changes impacting the publishing industry since Guttenberg's invention of movable type and the printing press in 1440. Moreover, the speed at which the digital environment has engulfed the industry has caught several players unaware. In September 2010, the Borders Group, once the second largest book retailer in the US that helped pioneer brick-and-mortar book superstores, liquidated its 40-year-old business, after failing to overcome competition from players that had a well-honed online presence and platform strategy such as Amazon.com (Kindle) and Barnes & Noble (Nook).

The publishing industry faces enormous challenges in the digital age since old rules no longer apply. As content and consumption become increasingly digital, old order business models based on tight control of the distribution of premium content—to the point of scarcity—are no longer relevant. Consumers are increasingly calling the shots, demanding content in multiple formats, across multiple platforms, and at a time that's convenient for them.

Book publishing traditionally followed a time-tested process—contracting an author to write a book, developing the manuscript, copy editing and typesetting, designing, proofreading, printing, distribution, publicity and retail sales. This led to the creation of a quality product released in a fairly predictable time frame. In the digital arena, every element of the process is being questioned or redefined.

Some of the key changes the publishing industry can expect in the future are:

- Publishers will need less warehouse space, if any. Print buying and typographic design will probably be very low on the list of skill sets needed by the publisher's 'production department' ten years down the line but the ability to develop 'apps' internally or through third parties will become increasingly important. Technical fluency will be essential in all aspects of the new digital enterprise.
- Delivering content in multiple forms and contexts will be a far more critical component of success than it is today. Hence the ability for business systems to manage increasingly complex product 'fragments' and 'bundles' will be crucial.
- Skills and capabilities to manage direct relationships with consumers will be key. The shift from B2B to B2C has huge organizational and system implications.
- The capabilities of the digital world will allow for many more products and the bundling of different products. Hence the ability to manage the associated rights and royalties will become much more complex.

At one end, the logistics of printing and shipping do not play any role in e-book publishing, while at the other, authors are taking the lead and opting for self-publishing, putting a question-mark on the previously all-important role of publishers themselves. Amanda Hocking for instance, used Kindle's self-publishing platform to publish her novel after being rejected by all major players and achieved best-seller status. In the digital space, the sales and marketing process is also being redefined, since publishers now need to reach out directly to customers, not necessarily through retail stores.

Print-on-demand is another element that is changing the dynamics of the print process since publishers no longer need to plan for a minimum print-run. An important aspect for e-books is that the entire publishing cycle can be cut down to a few weeks as against months in the traditional print medium. Notably, both costs and revenues are typically lower for e-books, and they often enjoy higher profit margins than their print counterparts. At Penguin Group, revenue from e-books was up 106% in 2011 representing 12% of worldwide revenues. However, while overall revenues were up by a mere 1%, profits grew by 8%. Simon & Shuster, another big-six publisher, showed a similar pattern in its results where,

with digital sales more than doubling from 2010, the company's operating income was up by 31% despite overall publishing revenues being down by 1% .

The old order is being replaced by a new one where different attributes are valued. As we shift from a distribution paradigm to a consumption paradigm, companies have to rethink their strategies. The balance of power is shifting from the content owners to platforms—and from producers to consumers. We are moving from a B2B (Business to Business) environment to a B2C (Business to Consumer) and potentially a C2C (Creator to Consumer) environment. The implications of the shift from a distribution 'push' to a consumption 'pull' paradigm in an entirely 'bytable' world are truly revolutionary.

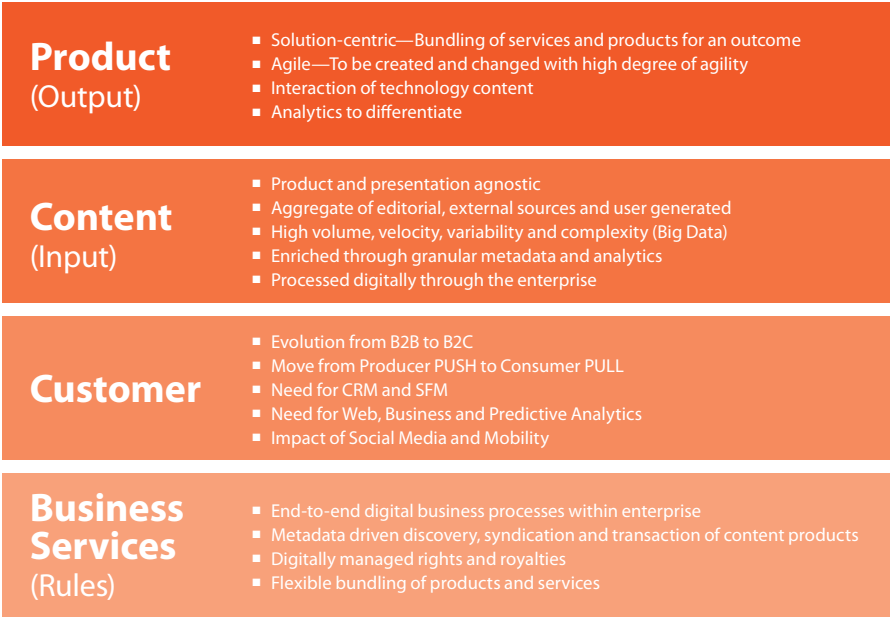## Successfully Navigating the Digital Age

Arguments about the ultimate role of the e-book in publishing are likely to remain unresolved for some time to come, but few can doubt that in many, if not all, sectors of publishing, the future is digital. In some areas, such as journals and learning management systems, that future has already arrived. The Encyclopedia Britannica for instance, which for long enjoyed

the status of being the oldest print-based English-language encyclopedia, recently announced its intention of going completely digital after being in existence for 244 years.

How far will the digitization of the publishing industry go? It is difficult to make accurate predictions given the dynamic nature of the industry; however based on current trends, we believe that by the end of 2016, 50% of all books sold will be consumed electronically.

Faced with massive change, some leaders will struggle simply to stem the tide without fundamentally changing their organizations. Others will look for ways to jump ahead of the curve. Leaders need a framework for Digital Enterprise transformation. The following framework offers executives and business strategists areas where they can exert control and drive a holistic digital strategy in four quadrants of transformation: product and service innovation, value ecosystem, go-to-market and culture & organization.

Figure 5. Evolution of the Digital Enterprise within Publishing and Information Services Firms

Product (Output)	■ Solution-centric—Bundling of services and products for an outcome ■ Agile—To be created and changed with high degree of agility ■ Interaction of technology content ■ Analytics to differentiate
Content (Input)	■ Product and presentation agnostic ■ Aggregate of editorial, external sources and user generated ■ High volume, velocity, variability and complexity (Big Data) ■ Enriched through granular metadata and analytics ■ Processed digitally through the enterprise
Customer	■ Evolution from B2B to B2C ■ Move from Producer PUSH to Consumer PULL ■ Need for CRM and SFM ■ Need for Web, Business and Predictive Analytics ■ Impact of Social Media and Mobility
Business Services (Rules)	■ End-to-end digital business processes within enterprise ■ Metadata driven discovery, syndication and transaction of content products ■ Digitally managed rights and royalties ■ Flexible bundling of products and services

How far will the digitization of the publishing industry go?

Based on current trends, we believe that by the end of 2016, 50% of all books sold will be consumed electronically.

Product and Service Innovation

As discussed earlier in this article, digital has impacted products and services across many industries—but in publishing, digital is the product. This is the most critical quadrant to address for this industry, and the timeline to do so is shrinking on an accelerated pace. Some key areas of consideration when creating a strategy for this piece of the quadrant are:

Content Storage and Metadata Management

It is essential to create and store content in a format that provides enormous flexibility both in terms of delivery formats—whether conventional print on paper or digital—and for reworking for future reuse. This requires publishers to put in place a digital asset management capability which allows them to store and manage the product workflow from 'concept to consumer.' Notably, a storage system which has no mechanism for retrieving the content that has been stored in it is clearly of no practical value. Therefore the content itself has to be supplemented with metadata, data that describes and defines both the content and the files that contain it, and is essential for "searchability" and "discoverability" in the online arena.

However, metadata management in a digital context, where a one-to-one equation of product (distributable item) and content (or the 'work') is increasingly untenable, is not very simple. Whereas in the physical world, a book is published in limited formats (typically hardbound and paperback), in the digital world there are myriad options for formats—some of which no doubt are yet to be invented.

Similarly, individual elements of content (e.g. 'learning objects') may be used and reused in many different combinations and contexts. As the opportunities for using and reusing the content become more complex and more granular, the familiar structure of published content begins to break down in many different directions.

While it provides the potential for many new publishing opportunities, this new granularity complicates the business of storing and managing assets—not least, because of the unavoidable explosion of metadata.

Additionally, metadata creation and management can be time consuming—and costly. Therefore, it becomes critical to 'do it once, do it right'. Metadata needs to be captured once and at the earliest opportunity in the publication workflow, and then (just like the content itself) used and re-used wherever it is needed within the publishing process.

With an extensive, flexible and well-managed master metadata management system (MMMS) in place, a publisher's primary asset—content and the rights to use that content—rightfully take center-stage. All other systems which create or require content metadata—from production workflow to fulfillment and accounting—should feed and be fed by the MMMS.

Compelling Content

Despite strong and growing consumer demand for digital content, many content offerings fail to meet customer requirements. This is typically because of one or more of the following: they do not match specifics of consumer demand, they do not provide a compelling experience, they are not well optimized for the platform or technology, they do not deliver sufficient added value or they are not correctly priced or packaged.

Most media companies have largely replicated their traditional analog products—books, magazines and newspapers—in digital forms. While this is a good start, they will not complete the digital transition until they have created entirely new digital media products that leverage the promises of the new medium. While digital efforts

of 'old school' companies remain mere imitations of traditional media products, it provides an opening for new age companies, unencumbered by the past, to provide truly original products. Traditional publishing companies may be able to get a jump over these new entrants by establishing formal organizational priorities for product innovation.

Content Usage Rights

Any publishing asset is more than just content. Certainly, an asset is content (or at least has content in it); but content by itself has no value as an asset unless one also has the right to use it; publishers therefore need to know not only about the content but also about the rights they have to use that content in any given context. These are the rights that have been acquired under a contract.

Open Standards

Open standards in three critical areas— numbering, metadata and digital rights management (DRM—are an essential requirement for achieving the potential of new media. The current inability of most media companies to adequately describe their potential product offerings stems from the 'constraints' of existing ERP data structures. This severely limits their ability to capitalize on new product opportunities.

Publishers are literally unable to sell what consumers want (and will pay for) because they cannot uniquely identify these new "products" or their rights to sell them.

Value Ecosystem
Innovative Business Models

As the value chain evolves, more power will shift from content creators to the platform on which content is distributed. Many solution providers, especially in publishing, are developing their own products that optimally leverage the technology capabilities of their platforms. Content owners will invest in and/or partner with these platforms to stay in the game. Publishers, likewise, should look to develop and extend their interest in these platforms to retain as much control as possible within the new value chains.

Simultaneously, publishers will need to rationalize as they re-focus on their core strengths. As the ecosystem evolves, they will need exit strategies for the sections of their business that are no longer core. Companies trying to become Digital Enterprises should aggressively seek ways to shift the responsibility for these functions to specialists.

Go-To-Market
Pricing and Payment Models
In a digital environment, publishers and media companies must consider a variety of new pricing and payment models for their content. They will need to build a portfolio of new digital revenue streams, some of which may be only loosely related to their current business. Replacing declining revenues from physical media will be challenging but retaining profitability may be less so if they aggressively cut costs and outsource activities which are not core.

Social Media
Social media capabilities are enabling communication and collaboration on a scale never seen before. Socially enabling the enterprise is an initiative embraced by a growing percentage of companies—this will be a sustained trend over the next several years. It is critical to recognize that we are at the beginning of this revolution not the end—indeed, the iPad will one day be seen as the Model T Ford of tablet technology.

Mobile Environment
As smartphones, e-book readers and tablets become pervasive, publishers need to anticipate rather than react to how mobility will affect their business in the years to come.

To understand how game-changing mobility could be, consider what is happening in the education area. Many educational institutions are now 'going digital' and allowing students to purchase digital versions of textbooks. In a class-room context, students will require their digital versions to support capabilities for note-taking, sharing or updating notes with others over wireless networks. They will also expect content updates (such as new sample tests for those purchasing tutorial material for competitive exams) in the same way they update their software operating systems and

business productivity applications. Such requests will have to be serviced on-demand and independent of the devices that request them.

Business Analytics

Digital distribution is driving the transition of business models from traditional B2B towards B2C. With products that can now be 'pulled' by the consumer, and not just 'pushed' by the creator, it is critical for media companies to have a clearer understanding of their customers.

The key to this is data and learning how to use the data to take faster and smarter business decisions. Business intelligence and analytics platforms are therefore critical and can make key tasks—from planning, production to channel management and contracts management—far more efficient, and ultimately boost profitability of an asset within its 'use-by' date.

Culture and Organization

Culture differentiates an organization. If a business withstands the test of time, it does so due to its culture. Culture has no metric; a successful business identifies with its culture in a manner no other business can. If a company has learned to run its processes by simply imposing regulations it may very well continue that way. Whether or not this is an ideal way to function, we need to accept it.

How a business accepts or reacts to the digital environment depends on its culture. Developing a digital transition strategy without considering culture can easily create a hostile environment.

Digital will remake employee-enterprise connectedness in the same way that it is revolutionizing customer-enterprise relationships. Digital enables more collaborative and comprehensive employee engagement, which in turn drives higher levels of employee performance. If social and mobile are the best ways to reach customers, logically, they're also the best way to reach employees. Making social networking and collaboration available internally allows all employees to learn from one another and collectively problem solve.

Conclusion

Digitalization, mobility, changing media consumption patterns—we live in a time of technology acceleration, the like of which has never been seen before. The good news is that while technology changes have created some of these challenging situations, they are also responsible for delivering solutions. These have to be skillfully leveraged to create a new framework for media product innovation that can deliver content assets that are aligned with 21st-century consumer behavior and demand. The process of product innovation and rebuilding that this entails may well be a publishing company's ticket out of the media meltdown.

Publishers need to reach audiences, know where they are, and understand which products to target them with. Partnering with suppliers and other parts of the new supply network to build operating dexterity and scalability will be critical in building a new ecosystem. Alliances with telecommunications companies, technology companies, device manufacturers and system integrators, will be key. Together, we may actually be able to see around the bend, shift gears and accelerate to win.

Any Customer, Any Channel, Anytime

Building the Digital Insurance Enterprise for the Era of Engagement and Collaboration

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Collaboration, Analytics, and Channel Transformation:

A Step-by-Step Journey

Already under pressure to modernize and rationalize the insurance company's information technology foundation, chief information officers, marketing heads and other leaders in the insurance enterprise now confront accelerating technological, social, and economic disruptions.

Instead of merely reacting with a "mobile strategy" or "social strategy" and piecemeal modernization, insurance companies have an opportunity to reinvent their relationships and their operations as part of a step-by-step journey towards the "digital insurance enterprise." Along this journey:

- Initial investments—such as communications channel integration and web based solutions supporting intermediaries—will drive the immediate returns in the distribution channel through enhanced agent/intermediary support that creates a virtuous cycle for continued modernization and integration.

- Collaborative system transformation will reduce administrative burden on agents/intermediaries and customer-facing employees and enhance key components of the sales and service process, from recommendations, quoting, applications and underwriting to service, claims and settlement.
- Longer-term, the insurance company will find itself increasingly empowered to engage and collaborate with all customers—both intermediaries and end customers—while leveraging all the sources of knowledge and innovation represented by connected stakeholders and "big data" analytics.
- Leveraging enhanced analytics capability and integrated systems of engagement and collaboration, companies can deliver the differentiated experience that customers increasingly demand as comprehensive, real-time knowledge is increasingly at the fingertips of those who touch the customer

Customers call frantically but can't reach agents in the aftermath of a catastrophic storm. Fortunately, their smart phones still connect to Twitter. More fortunately, your customer service representatives see tweets for help, engage customers on Twitter, provide immediate assistance if appropriate, transition those needing further support to a voice channel and take steps to resolve their various issues. Subsequently, agents get a web-based handoff from the contact center and use a combination of SMS text messaging with video and photos along with personalized, mobility optimized web portals to communicate with customers and complete the service loop. Moreover, insurance company personnel deployed locally keep up-to-date via contact with CSRs and agents. Along the way, CSRs and agents have access to customers' histories across products and policies—all the knowledge needed to deliver the best possible service under the worst possible conditions.

From Organizational Disruption to Creative Disruption: Preparing for the Era of Engagement and Collaboration

Are your insurance company and distribution channels ready to succeed in this scenario?

In this scenario, you're a P&C insurance firm dealing with commercial or residential customers—but tweak a few details and the technology-enabled scenario applies equally to life or health insurance companies. Likely, your company is developing capabilities for one or more of these activities, with some of your agents and end customers—but are you prepared for a world in which this scenario of digital engagement and collaboration becomes the new baseline for your enterprise's performance?

Welcome to the opportunities and challenges of the "Era of Engagement and Collaboration":

- Informed, mobile, social media-empowered businesses and consumers—as well as intermediary partners and even your employees—increasingly in charge of how they interact with you and others and no longer willing to be "just another policy or ID number."

- Digitally empowered competitors—organizations that somehow know what to do with more data (and connectivity) than others know what to do with.
- Collaboratively empowered innovators—those that find the best ideas wherever they can be found then become your unforeseen new competitors.

If you're a chief information officer, a strategist, marketer or any other leader in the insurance space, by this point you know all too intimately these and other sources of almost continual upheaval. Accelerating disruptions define the world we work in today. Though insurance is arguably one of the most unique and differentiated of the world's mature industries—and historically swift to harness new waves of technology—we are hardly immune to technology-powered forces of commoditization, marginalization and overnight displacement that sweep across other industries. As a leader, you know your job is to face these disruptions head on—and turn them to your advantage. But how?

Consumers expect service across digital and mobile channels. Agents, brokers and employees expect to be able to provide it and will use tools at

hand to do so, regardless of permission from your IT organization. And thanks to unprecedented digital and mobile innovation, insurance companies—like most industries worldwide—are discovering a wealth of opportunities to engage across all channels and deepen their customer relationships.

Yet your ability to capture these opportunities and commercialize new innovations is constrained by traditional approaches that segment and solve challenges in silos, not holistically. Fresh approaches and solutions on a different scale of thinking are required, because data onslaught and consumerization of technology have created the "Perfect Storm" intersection of social, mobile, big data and the cloud. It is uncommon and perhaps even unique, to have so many emerging forces—all rapidly evolving, all technology centric, and each buffeting every business with gale-force winds of change.

Business consultant and author Geoffrey Moore introduced the "Engagement Era" concept in his book *Escape Velocity,* which explores how established technology companies, finding themselves in this Perfect Storm, must free themselves from "the pull of the past," seamlessly innovate, collaborate, engage and thereby reinvent themselves and the solutions

they provide customers. In a similar way, but tugged backwards by years, decades, or even centuries of history, forward-looking insurance companies must manage the complexity created by unprecedented disruptive forces and harness those innovative changes that enable the success of the digital enterprise in the "Era of Engagement and Collaboration."

A Holistic Approach to Grappling with Complexity and Change

Every insurance carrier today recognizes the transformative forces that impel the emerging digital enterprise—but with some notable exceptions, most companies to date have grappled with these changes in a siloed, exploratory, piecemeal solutions manner. After all, most IT organizations are still dealing with legacy systems and the evolution of IT infrastructure. As a stopgap, we deploy our "social strategy", "mobile strategy" and "data center strategy"—but we struggle to weave these strategies together into overarching, enterprise-and-beyond digital strategies that take us step-by-step into the "Era of Engagement and Collaboration."

A holistic digital enterprise strategy confronts the disruptors and harnesses the enablers at every step along the

journey. To confront key disruptors—including social networking, gamification, mobility and cloud—you leverage key enablers—including big data, geospatial visualization, digital identities and business architecture. To be clear, we're not talking about technologies—fundamentally, we're talking about business and people enabled by technologies. Specifically, businesses and people need to be enabled to collaborate and innovate, to reinvent relationships with customers (distribution channels and the end customer) and to manage systemic complexity with operational dexterity.

Innovation is no longer about the periodic breakthroughs arising from your research and development efforts. Innovation itself is increasingly commoditized.

It's about harnessing ideas wherever they can be found and rapidly commercializing them. It's about collaborating and co-creating solutions with customers. It's about the audacity of "supply chain hopping" to overcome historical barriers to new market entry.

Reinventing customer relationships also requires collaboration, because the customer is much more in charge. There are also different relationships to reinvent. Despite more and more direct-to-consumer plays, insurance remains predominately a business-to-business-to-consumer industry. So your insurance company must reinvent the way it relates with more empowered intermediaries—agents and brokers—as well as with end customers (businesses and individuals). All these relationships have their own unique demands. How do you simultaneously cede yet maintain control? How do you systematically meet constantly rising and changing expectations—on an individual basis?

Fundamentally, insurance companies must develop a new level of operating dexterity to manage systemic complexity that will only increase from here. This means going beyond IT—moving from information technology to business technology that holistically enables the digital insurance enterprise.

Path to the Digital Insurance Enterprise
Channel Integration and Systems of Engagement

Clearly, transforming your insurance enterprise for the era of engagement and collaboration will be an ongoing journey. Insurers must take practical steps that increase their immediate returns, even as we embrace and pursue over time the ultimate vision of an engaged digital enterprise.

A key step toward the ultimate social business model—something entirely within reach today—is to evolve your social media presence to deliver an integrated multichannel experience. In other words, building out "systems of engagement" enables your shift from disconnected social media and mobile strategies to a much more comprehensive, integrated, multichannel relationship platform. As integration becomes increasingly seamless, the "digital engagement center" makes possible the scenario outlined at the beginning of this discussion.

Again, technology plays a central enabling role. But ultimately the challenge involves using all communications channels to reinvent the customer relationship—and to drive the associated cultural and organizational evolution that makes this reinvented relationship possible. To do this well, your company must combine collaboration excellence with analytical excellence. Collaboration excellence entails both a collaborative culture and collaborative systems that support true partnering with employees, intermediaries, and end customers. Analytical excellence means grappling with big data and gleaning the insights you need to anticipate and influence customer needs.

In this emerging context, often described as "consumerization at the edge of the enterprise," the core of your business shifts outward to the customer, and

systems of engagement become increasingly crucial to your overall operational management. Systems of record traditionally at the core of your insurance company—enterprise resource planning, customer relationship management, legacy and modern policy systems—remain relevant, but with an evolving role.

More and more systems of engagement come to the forefront, and over time manage all channels in a more and more integrated fashion.

What does this consumerization mean concretely? Think of it this way: a smart phone or tablet computer is the new front door to your business—superseding the PC that used to be the new front door to your business. About six in 10 people now use their mobile phones for banking and about the same number use handhelds for social media. What does this tell you? Perhaps the mobile channel is a good place to start the digital enterprise journey.

So start from mobile—and clean up your web strategy as you evolve to an integrated multichannel customer experience. (Working within the constraints of mobile invariably reduces the sloppiness of user experience that is typical of today's "everything but the kitchen sink" corporate web sites.)

Then build on channel convergence to take the next steps toward the digital enterprise vision.

In this way, you can start to leapfrog over incremental improvements. Remember, this isn't your "mobile strategy" in a vacuum—this is you using your mobile strategy to begin the transformation of customer experience and drive toward integrated systems of engagement. With mobile and web converging, you have taken a step forward towards multichannel convergence. It's then just an extension to integrate other contemporary and traditional communications channels.

The enabling power of these integrated and transformed channels then will depend on increasingly tight integration—including integration with systems of record that will enable further automation of business processes and case management. These in turn will reduce administrative burden and increase productivity of customer service representatives and other employees, as well as agents and other intermediaries that you support. Ultimately, productivity will be enabled not only by automation of more and more business processes, but also through transparent access to, and rapid analysis of, structured and unstructured data.

Caselets

A Life Insurer Prioritizes Investment

A large life insurance leader dove into dozens of social and mobile projects and proposals—before realizing that these efforts were occurring in disconnected silos, without an overarching strategy for this growing investment. Employing a "rationalization framework" and workshops provided by Tata Consultancy Services, the company assessed these myriad initiatives, scoring them based on their alignment with CEO strategy, contribution to strategic outcomes, business insight value and technology leverage. A social-based group benefits platform designed to drive social up-selling and cross-selling earned the highest score—and the opportunity to be prototyped. Now all proposed digital initiatives are prioritized in this manner—ensuring that each one pushes the company forward on the path toward its ultimate vision of a digital center of engagement.

Product-to-Customer Shift Increases Product Density

Thanks to its commitment to innovation, a large financial service firm decided to make a shift from product to customer orientation—and ended up driving greater product density per household. The company developed a holistic social media strategy encompassing listening, engaging, relationship strengthening, and innovation. Four product-focused websites were consolidated into one customer portal with full service, including electronic signatures and innovative services for mobile devices. In parallel, the company enhanced its contact center infrastructure with virtual assistant, multichannel integration and transaction sharing capabilities.

Unified Platform Drives Infrastructure Efficiencies

Thanks to its long history of successful mergers and acquisitions, a global financial protection leader needed to rationalize its infrastructure into a single architecture allowing for reduced support teams. A unified portal platform provided all stakeholders with sign-on access, personalization and customization of information and content across web and mobile channels, and a search engine to access product, policy, compensation and benefit information. Other capabilities include group rebalancing, which allows the broker to save multiple contract lists and investment models. Other advanced materials, tools, and quick links generate illustrations and views of product performance, helping clients make quick, informed decisions.

Bringing It All Together in the Digital Insurance Enterprise

There is no question that senior insurance industry leaders—especially CIOs and marketing heads—are on the hottest of hot seats today. Historically, given its maturity and the regulatory fabric that envelops it, insurance companies of all types have enjoyed remarkable predictability and stability, even as we provided crucial services to a world that needs us because it's always been unpredictable and chaotic. Today—thanks to a myriad of technological, social and economic disruptions—insurance companies are compelled, by forces out of their control, to reinvent their relationships and their operations.

The ability to defend, create and/or sustain your competitive advantage hinges on excellence in two critical areas: collaboration and analytics. Collaboration excellence addresses the growing need for relationship-based enterprises that re-invent customer relationships, leverage the collective knowledge and talent of employees, and partner to facilitate operating dexterity. Analytics gives you the power to find pattern and meaning in more data than all enterprises heretofore in human history have created, captured and stored. Moreover, integrated systems of engagement and collaboration create other benefits— improved IT governance along with the streamlining and automation of processes. Process efficiencies, in turn,

improve service by giving CSRs, agents and others more time to focus on engagement with the customer.

What's not different? Results matter, now and always. And innovation still delivers the goods. The insurance industry has reached its biggest-ever tipping point—we stand on the cusp of the Era of Engagement and Collaboration. As in the past, the industry has the potential to truly innovate and transform itself by embracing the disruption and creating a new paradigm of sustainable competitiveness. There will be inevitable losers—some possessing great vision, yet failing to achieve immediate returns, others too focused on past and present to reimagine their future. Will your company end up in the winners' column?

Five Mobile Fails

*How Banks and Financial Services Institutions Can
Avoid Pitfalls in Mobile Strategy and Execution*

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Introduction

At this point, every major enterprise recognizes the need for a
mobile strategy. But where do you begin when you don't have
years of experience with the data, processes and use cases
of mobile?

To give you a head start, we present five common mobile
"fails" we have observed. We focus on examples from the
banking and financial services (BFS) industry, but the bulk
of our insights apply across all industries. Whether you're
designing mobile applications, producing mobile promotions,
or mobile-enabling your website, you need a mobile strategy,
so we offer a proposed framework for devising a holistic
strategy that embraces mobile's transformative potential.

Mobile Fail 1: Not Everything Moves

A mobile strategy can't simply consist of creating a mobile
application and then waiting for downloads to begin. Let's
face it: not everything (or everyone) moves. There has to be a
business case for the mobile app and its use.

Mobile Fail Case: Not Understanding Mobile in the Context of Hedge Fund Managers

Our case in point is a hedge fund. The typical hedge fund

manager spends close to 14 hours at his desk, handling trades on one screen and monitoring financial data feeds on another. Wanting to be at the competitive forefront, one company created an app that essentially replicated desktop functionality for traders' iPads. To the company's surprise, the app was rarely used. The reason? There was no use case for traders using the iPad app. After 14 hours in front of screens, the last thing they needed was the same app on a mobile device. The company had based its assumptions on general trends rather than specific trends observed among its user population or specific objectives for the business.

Mobile Save: Lessons from Television's 'Second Screen' Approach for Hedge Fund Managers

Possible mobile save: Given the propensity of hedge fund managers to toggle between screens to make investment decisions, read email and effect trades, one possible use case could be to use the iPad for ancillary, second screen functions, such as a news feed or SMS updates about trading activity in foreign markets. Second screen is a digital model from television/entertainment where viewers are watching a program but viewing secondary content on second or even third screens on a mobile device to enhance their experience. Moving fact-response or view-only activities to the iPad could free traders from distractions while performing core work at their desks and provide them with valuable information to consider when they leave the office.

Lessons Learnt: Don't rely on general trends to make investment decisions about mobile apps and technology. Instead, your mobile strategy and execution must be based on outcomes and a deep understanding of your particular users. And, don't forget that mobile has to be evaluated in context, and that by introducing mobile devices, apps and technology the context will alter.

Mobile Use Case Checklist

- Assess both current and future mobile device preferences. Mobile device preferences are fast-moving and unique across cultures, generations and socioeconomic groups. Assess not only what your target group uses now, but what they are most likely to use in the future. It may seem that everyone has an iPhone but an older segment may rely more extensively on Blackberries now and their next upgrade may be to a Microsoft device within 18 months.
- Assess current and potential usage. How, when and why is the user population

using mobility at home and at work now? What are the apps and uses most adopted; even outside the industry? How are these likely to change over the next few months and years?

- Conduct field studies to define use cases. Ensure that mobile use cases are well understood in context (user, interactions, process, environment). Evaluate the need or potential of mobility by monitoring the users in their actual environment, asking questions such as: How will processes change with mobile? How will the mobile solution affect not only users but also those who interact with users? For instance, does a mobile application enhance the interaction between a financial advisor and a client or does the client feel alienated by a perceived lack of focus from the advisor?

- Small trials. Try a test case with a small, representative group of users and iterate quickly vs. rolling it out to entire teams or segments.

Mobile Fail 2: No Mobile Metrics

According to Forrester Research, 47% of financial ebusiness managers say they don't know how to measure mobile ROI[1]. Typically, the lack of precedent for measurement prevents most organizations from developing mobile-specific KPIs. Many organizations just take traditional KPIs and apply them to mobile initiatives. Others merely measure what is easy to measure or what they already measure, often copied from web measures, such as "downloads" and "duration." Very few organizations have realized that the nature of mobility on-the-spot, multimedia data capture—offers entirely new information that can bring unprecedented insight to the company.

Saga: An Example of Unique Use Cases Based on Unique Mobile Data
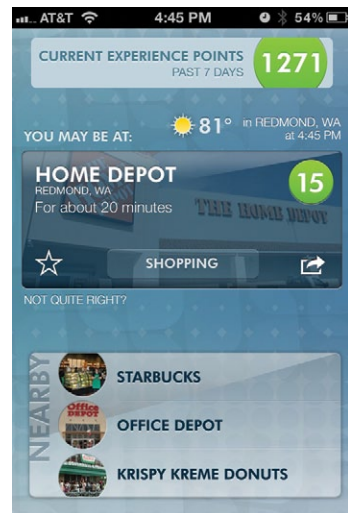
Saga is a tool only possible with mobile. It collects persistent, ambient data from your mobile device and uses analytics to help you decide what to do next.

[1] 2010 Q2 Global eBusiness and Channel Strategy Professional Online Survey, Forrester Research, Inc

New Measures from Mobile: The Power of 'Where'

The most obvious unique metric from mobile is 'where'. Consider how geolocational information from mobile changes how you might measure and analyze transactions and other customer behavior. Just as the rise of ecommerce created new metrics such as 'shopping cart abandonment', mobile adds another dimension, 'where'. Now you can know the customer's location when he or she is abandoning the cart or failing to complete an online account transfer.

A bank trying to determine whether to retain an ATM or branch location has powerful decision-making insight with mobile data. What is the timing, location, frequency and type of financial activity completed on a mobile device, e.g. electronic check deposit at home using a mobile device camera vs. the ATM two blocks away? Knowing that customers are more inclined to conduct certain transactions at home, as opposed to at a Starbucks for example, is valuable information that could affect the design of an application, the location of a branch, a business process or advertising placement.

Besides geolocation, there are other types of new data from mobile phones to consider: audio, video and social sharing. A simple exercise to help you understand the value of the new data and insight from mobile is to mix and match the new data types with the traditional data types.

Lesson Learnt: Understand the unique data opportunities with mobile and develop mobile-specific metrics. Map the value of mobile insights across the business from timing online promotions, to placing print ads to determining where to put branches.

Unique Mobile Data Offers New Opportunities for Analysis

Mobile Data	Traditional
Banking Location	Account Type
Transaction Timing	Lifestage
Previous Transaction	Transaction History
Mobile Types	New Services
Mobile Profiles	Demographics
Mobile Banking Sharing	Financial Goal and Progress
Social Banking Content	Account Consolidation
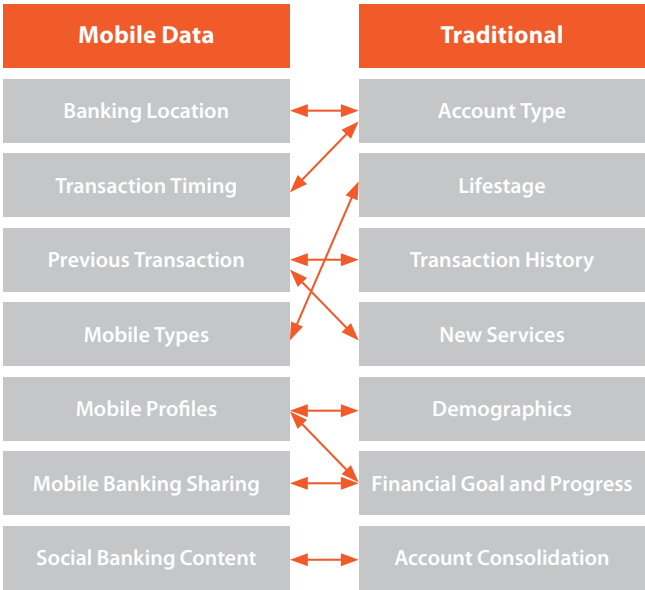
Combining the new data types from mobile devices with traditional data can drive new insights from analytics

Mobile Measurement Checklist:

- Align mobile targets to support strategic outcomes.
- Map the mobile actions and behaviors that drive your outcomes.
- Understand the insight needed from mobile in order to take the action.
- Document the mobile data that can drive the analytics insight, you'll find that more insight can be uncovered because more or better data can be collected.
- Set KPIs and objectives, even if you're not sure they're the right ones.
- Make sure data architecture, storage, and analysis can incorporate mobile device information, including persistent location data, audio, images, and video.

Working from Outcomes to Define Mobile KPIs

Outcomes › Mobile Action › Mobile Insight › Mobile Data

Begin with your outcomes and work through mobile actions, insight and data to get to those outcomes, taking into consideration the unique data provided by mobile.

Sample KPIs for Mobile Banking

Objectives	KPI
Customers Adopting Mobile Banking	■ Number of downloads ■ Type and frequency of mobile transactions ■ Time spent on the app ■ Location and time the app is used ■ Social recommendations for the app
Mobile and Customer Acquisition/Retention	■ Number of new customers ■ Number of new customers from new segments ■ Rate of customer attrition
Mobile Sales and Marketing	■ Promotion responses via mobile ■ New services sold (such as credit cards) ■ Annual revenue per customer or account ■ Number of accounts consolidated ■ Social and peer engagement
Mobile and Service	■ Reduced support calls ■ Reduced support costs ■ Faster issue resolution ■ Issues resolved via mobile versus other channels
Cost	Mobile cost per user

Mobile Fail 3: Competitive Cloning

Rushing a mobile offering to market just because competitors have one is not a mobile strategy. According to Javelin Strategy & Research, more than 70% of American Banker Executive Forum members cited 'competitive pressure' as the main driver for their mobile initiatives.

Fail Case: Equal Opportunity Mediocrity in Mobile

A large number of mobile investment research applications hit the market as competitors scrambled to float competing products. Most delivered the same content, in the same format as their websites, without added functionality that leveraged the mobile device, format or use case. Unsurprisingly, adoption was disappointing.

The top 20 banking apps in the Apple App Store are virtually indistinguishable, using similar icons and colors and providing little differentiation in user experience. But boring interfaces aren't the only issue. Neal O'Farrell, director of the Identity Theft Council, said that there was a rush of mobile banking apps to capture market share. Now people realize security is as much of a priority as convenience.[2]

Launching a low-value mobile solution means users review the app poorly and it becomes that much more difficult to lure users back to a new or revamped app.

Mobile Save: Making the Most of the Device

A Citibank iPad app launched during the race to get mobile account apps into the market, but it was a notable exception because it continued where the competition left off. The app had several advantages, but the most striking was its use of the iPad visual interface for high impact graphics that display spending trends and provide helpful budgeting and financial planning advice. The Citibank app has swept awards, monopolized press coverage and even lured the leery online: at one point, more than 5,000 Citi customers who previously had no digital accounts with the firm had downloaded the app. This well-designed app created a new channel of engagement for the bank and set the industry benchmark for more than a year.
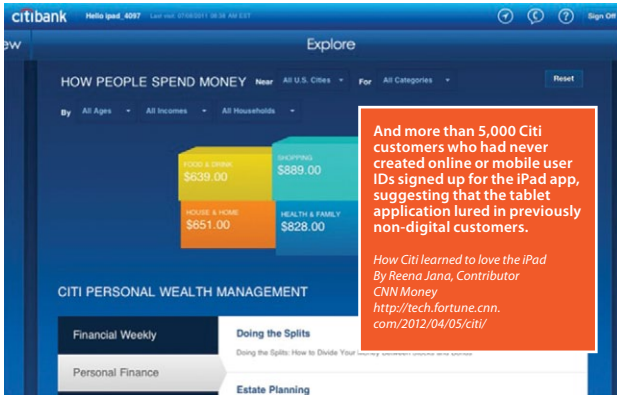
[2] Eileen Courter, "Mobile Security Still a Race Between Bad Guys and Good Guys," Credit Union Times, August 5, 2012, http://web1.cutimes.com/2012/08/05/mobile-security-still-a-race-between-bad-guys-and.

Citibank's Banking iPhone App Delivered Functionality Unique to Mobile

Citi's iPad app attracted 5,000 customers with no prior digital relationship.

> **And more than 5,000 Citi customers who had never created online or mobile user IDs signed up for the iPad app, suggesting that the tablet application lured in previously non-digital customers.**
>
> *How Citi learned to love the iPad*
> *By Reena Jana, Contributor*
> *CNN Money*
> *http://tech.fortune.cnn.com/2012/04/05/citi/*

The Next Copycat Trend: Gamification

Recently, many companies have become enamored with game mechanics, which can drive behavior and loyalty among customers, if correctly applied. We fully anticipate a rush of financial games and gaming functionality to hit mobile in the next year. But we caution the reader: gamification is powerful but game mechanics must be aligned to your goals and users, not just plugged in because your competitor has a game.

Just consider the boomerang behavior a California energy company experienced after they tried scoring and comparing neighborhood energy use. Households that previously scored higher on conserving energy, noted they were saving more energy than their neighbors, and instead of continuing, began to relax their conservation efforts.[3] So, in this case, using game mechanics triggered the opposite of hoped-for behavior. The team adjusted their approach and even continued using some game concepts to better effect—a simple smiley face badge helped reverse the boomerang effect. Gamification must reflect a deep understanding of user behavior, psychographics, and behavior theory in order to provide business value and drive engagement and loyalty.

[3] Michael G. Pollitt and Irina Shaorshadze, "The Role of Behavioural Economics in Energy and Climate Policy, " ESRC Electricity Policy Research Group, University of Cambridge, December 2011.

Lesson Learnt: Don't follow the crowd when developing your mobile apps, unless it's a crowd of customers. Make your own assessment and understand the needs of the user, along with the outcomes you hope to achieve. Keeping up with Jones Co. is not a strategy.

Mobile Experience Checklist:
- At a minimum, read the reviews of competitors' apps so you don't repeat their mistakes.
- Express your brand in mobile. Which unique and valued brand aspects can you recreate and reinforce via mobile capabilities? More choice? Friendly service? Helpful information?
- Get into the field—yes, field studies again. Truly impactful mobile use cases seldom reveal themselves while you sit in a conference room or a usability lab. Go see what people really do and want to do when they are mobile.
- Even if you're providing basic functionality, leverage the innate and unique capabilities of the mobile device to meet customer needs in new ways and differentiate yourself from the competition. Consider 'what if' scenario calculators and supporting information that help customers make smarter financial decisions.

Mobile Fail 4: Watch Out for App Bunnies

Mobile apps have a tendency to multiply. A line of business or functional department can easily hire a mobile development firm to create an application for a nominal fee. But that application may have very little regard for corporate security and governance and could wind up generating a huge total cost of ownership (TCO). An organization with just 10 mobile applications, built for three platforms, with two updates per year is an organization with 60 mobile projects per year.

Mobile App Math: Exponential Costs

$$10 \times 3 \times 2 = 60$$

10	**3**	**2**	**60**
Mobile Apps	Mobile Platforms	Annual Updates	Annual Mobile Projects

App bunnies multiply and so do their costs.

Siloed, disconnected applications indicate the company is not thinking holistically about the customer experience. Uncoordinated customer mobile applications create new customer touchpoints that are not integrated into the larger customer experience. Mobile often disrupts existing business processes. Without a central management approach or enterprise standards, the customer experience is uneven, security holes are opened and money is wasted.

It's best to catch this fail early, because weeding and consolidating mobile apps later can alienate your early adopters. It's better to get a mobile strategy and a Center of Excellence in place as early as possible rather than creating apps scattershot and incurring the expense of consolidating them later.

Note that the problem is not necessarily having multiple mobile apps. For example, Spanish bank La Caixa has taken advantage of the enormous appeal of the Apple Store to create its own App Store where it offers more than 40 applications, each targeted to a different segment according to its demographic profile and financial needs. This is part of a strategy based on extensive customer research, not a lack of planning and governance.

Lesson Learnt: Mobile applications can be relatively cheap to build, but without planning, are expensive to secure, govern and maintain. More importantly, uncontrolled app growth creates a disjointed customer experience. Rolling back functionality later or combining mismatched apps doesn't endear you to customers. A collection of mobile apps needs to be managed centrally, with firm-wide governance and data and integration standards.

Mobile Experience Checklist:

- Create a Mobility Center of Excellence

A Mobility Center of Excellence centralizes program management, research and development and prototyping while ensuring the priorities of audience, governance and security.

TCS Mobility Center of Excellence Model
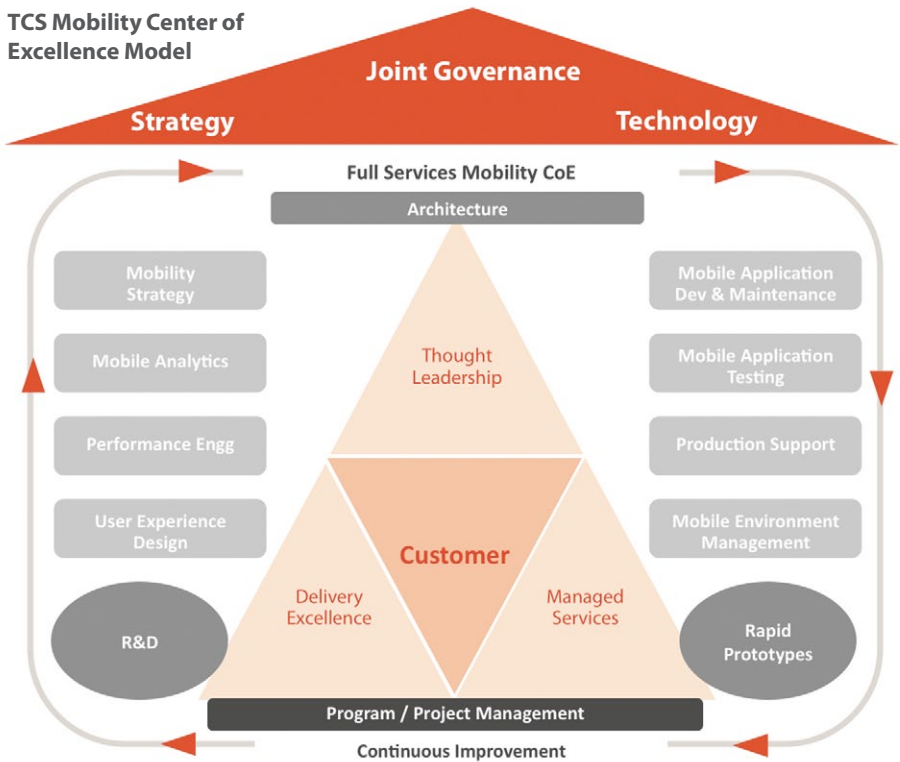
A Mobility Center of Excellence helps stamp out 'app bunnies' without hindering Innovation

Mobile Fail 5: Mobile Myopia

In the rush to meet the mobile expectations of consumers (as well as management, press and analysts), many companies make the mistake of focusing on mobile in isolation, separate from other channels, programs and business processes. We see a distinct lack of integration with both traditional channels such as branches, advisors and call centers as well as emerging channels such as social media. Companies also

have a tendency to see mobile as a point solution, without seeing the impact of the value of applying mobile capabilities to a process from end-to-end.

Fail Case: Failing to See the Combined Power of Mobile and Social

Very few banking or financial services institutions, as of this publication date, have integrated their mobile and social channels much further than 'share' or 'like'. Banking and social are both in the top 10 of mobile activities, so it only makes sense to integrate your institution's banking and social activities on mobile. However few institutions have adopted this approach. One notable exception is Australia's Commonwealth Bank, which has launched an iPhone application that allows customers to perform banking transactions, such as paying others and receiving payments, via Facebook contacts.

"The bank (Commonwealth) has demonstrated a beta Facebook banking application that will allow customers to do all their banking transactions, including paying others and collecting money without leaving the social network." Social banking on the way July 6. 2012 The Age Lia Timson http://www.theage.com.au/itpro/business-it/social-banking-on-theway-20120705-21jrh.html#ixzz20nsll3Xm

Integrated Mobile and Social Banking
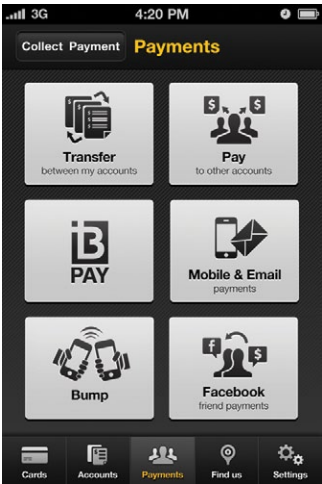
Commonwealth Banks' CommBank Kaching iPhone application integrates payments to Facebook friends.

The industry's social myopia is as prevalent as mobile myopia, most mobile to social integration efforts are concentrated on Facebook and Twitter, overlooking richer more established financial conversations. Social Media Explorer's Conversation Report: What Consumers Are Saying About Banking noted forums as the runaway favorite for banking social engagement: "90% of the (banking) conversations studied (during the 2011 calendar year) took place on forums and message boards—not Facebook, not Twitter, not blogs."[4]

Mobile Rejuvenation of Traditional Channels and Processes
The other 'blind spot' of mobile myopia is failing to see or map the full impact of mobile on traditional channels and processes. Combining mobile capabilities with these areas can unlock value. This fail, like Fail 4, creates disjointed customer touchpoints as well as disjointed processes.

Multichannel: An integrated approach can make great improvements in customer experience, such as integrating mobile with in-person channels. Mobile can keep branch staff and advisors informed without sitting at a computer, allowing them to serve and interact successfully with more customers.

End-to-End Process: Consider the potential mobile has to offer for well-established processes such as fraud. The first mobile projects were mobile customer alerts of potential fraud and mobile location data to trigger an improper transaction flag if a customer suddenly heads for Switzerland, for example. But consider the value of applying mobile—and other digital capabilities—to the end-to-end process. Evaluate the entire set of users and processes in the fraud function. For instance, the fraud investigation personnel have many mobile use cases from mobile case alerts and suspect location data, as well as mobile data collection power to improve prosecution (recall the Saga example mentioned in Mobile Case 2).

Lesson Learnt: Make sure you're thinking about mobile holistically across traditional and emerging channels, across the entire customer experience and across end-to-end business processes.

[4] Jason Falls, "Bulk Of Social Conversations In Banking Aren't On Facebook And Twitter," The Financial Brand.com, August 29, 2012, http://thefinancialbrand.com/24881/social-media-banking-engagement-in-forums/.

Mobile Experience Checklist:
Consider these combinations as examples of the multiple dimensions that must be considered when formulating a mobile strategy.

- **Mobile + Social:** 60% of mobile users access social media from their smartphones. Mobile and social cannot be governed by separate strategies.

- **Mobile + Cloud:** The proliferation of data generated by mobile devices, as well as the management of the devices themselves, necessitates a cloud approach.

- **Mobile + Big Data:** How will you capture, store, and manage the mobile data, such as location and unstructured information? All must be considered as part of a broader data-management strategy.

- **Mobile + Analytics:** What new insights can be gained from collecting data from mobile devices and apps?

- **Mobile + Traditional Channels:** How does mobile impact traditional channels, such as call centers or branch banking?

- **Mobile + End-to-end Processes:** How does a mobile project affect process? How can an entire process be improved though digital and mobile capabilities?

How to Succeed: A Holistic Mobile Strategy

Developing a holistic mobile strategy means aligning and integrating mobile into the enterprise digital strategy. The Framework is designed to prevent siloed, isolated digital approaches and instead ensure that digital innovation and benefits are realized across the entire organization: all functions, processes, channels and audiences.

TCS Digital Enterprise Strategy Framework

Value Ecosystem	■ Mobile enables cross-ecosystem engagement ■ Mobile enables ecosystem reengineering ■ Relationship ecosystem on Mobile Platforms ■ Mobile enablement of linkages/processes ■ New insights from instrumented channels	■ Mobile providing new or extended value within the ecosystem ■ Competitive threats—mobile lowers barriers ■ Glocalization (Globalization/Localization)—Mobile creates a stakeholders
Products and Services	■ Digitization of traditional products and services—Mobile as a delivery channel, an offering, and packaging ■ Mobile opens the innovation process to all stakeholders	■ Smart technology expands product/service opportunities ■ Integration of customers in service delivery ■ Mobile as a differentiator ■ Mobile data and analytics to manage portfolio
Go-to-Market	■ Go-to-market shifts to mobile and expands channels to market ■ Access to new market segments—Generational shift of buyer ■ Rapid competition from new market entrants	■ New markets opened by mobile—fast access to emerging markets by segment or country ■ Peer-to-peer influence
Culture and Organization	■ Employees transforming too ■ Social/mobile-based recruiting ■ Mobile crowd/game mechanics for performance drivers anywhere, any time ■ Attrition—early indicators in mobile data	■ Operating models shifting to high engagement ■ Mobile as an enabler of next generation efficiency

Holistic, Integrated Innovation

This framework also ensures that mobile strategy and efforts align and leverage efforts in other digital areas: social, mobile, big data and cloud—and that all channels are in alignment.

Align Mobile with All Channels and Outcomes

Outcomes

▪ Personalization context	▪ Customer issues	▪ Customer preferences	▪ Customer needs analysis
▪ Customer behavior	▪ Service request trends	▪ Cross/up-sell opportunity	▪ Crowd-sourced ideas
▪ Social influencers	▪ Sentiment trends	▪ Attrition insight	▪ Product/Service feedback
▪ Social leads	▪ Service channel trends	▪ Propensity to buy	▪ Competitive intelligence
▪ Individualization insight		▪ Social leads	
▪ Sentiment trends		▪ Customer advocates	
▪ Market research			
▪ Loyalty/advocacy drivers			

Insight

Web Presence

▪ SEO	▪ Chat	▪ Online shopping	▪ Product communities
▪ SEM	▪ Email	▪ Ecommerce	▪ Idea exchange
▪ Augmented reality	▪ Branded Forums	▪ Recommendations	
▪ Campaign microsites	▪ Automated agents	▪ Chat	
▪ Newsletters	▪ Contact forms	▪ Contact forms	
	▪ Support communities		

Social Business

▪ Social SEO (SMO)	▪ Facebook Page	▪ Social prospecting	▪ Idea communities / Crowdsourcing
▪ Facebook Page	▪ Twitter Handle	▪ Social lead qualification	▪ Social listening
▪ Twitter Handle	▪ Monitor Forums	▪ Social commerce	▪ Ideation tools
▪ Polls, Rating and reviews	▪ Peer-to-peer support	▪ Social listening	▪ Social customer councils
▪ YouTube Channel	▪ Video help content	▪ Social networking	▪ Web 2.0 enabled teams
▪ Social listening	▪ Social listening	▪ Rating and reviews	
▪ Customer Community	▪ Social customer lifecycle		

Mobile - Location

▪ Mobile search	▪ Mobile surveys	▪ Mobile search	▪ Idea generation App
▪ Mobile advertising	▪ Payment alerts	▪ Mobile shopping / QR codes	▪ Mobile ideation websites
▪ SMS campaigns	▪ Call center interactions	▪ Mobile commerce	▪ Point of Sale ideation
▪ Mobile website	▪ Mobile self-service Apps	▪ Mobile payments	
▪ Mobile Promotions	▪ SMS messaging	▪ Ratings and reviews	
▪ Augmented reality	▪ Location-specific recommendations		
▪ Games			

Marketing and Communications — **Customer Service** — **Sales** — **Research and Development**

Rationalization of Digital Programs and Initiatives

The framework includes tools and techniques for both strategy definition and rationalization. The Digital Strategy Rationalization Tools score potential and proposed initiatives across three critical areas:

Strategic Alignment: How well do the mobile initiatives align to the business strategy?
Business Outcomes: What business value can be gained through the mobile initiative?
Business Insight: What business insights can be gained through the mobile initiative?

Score Each Mobile Initiatives for Strategic Alignment
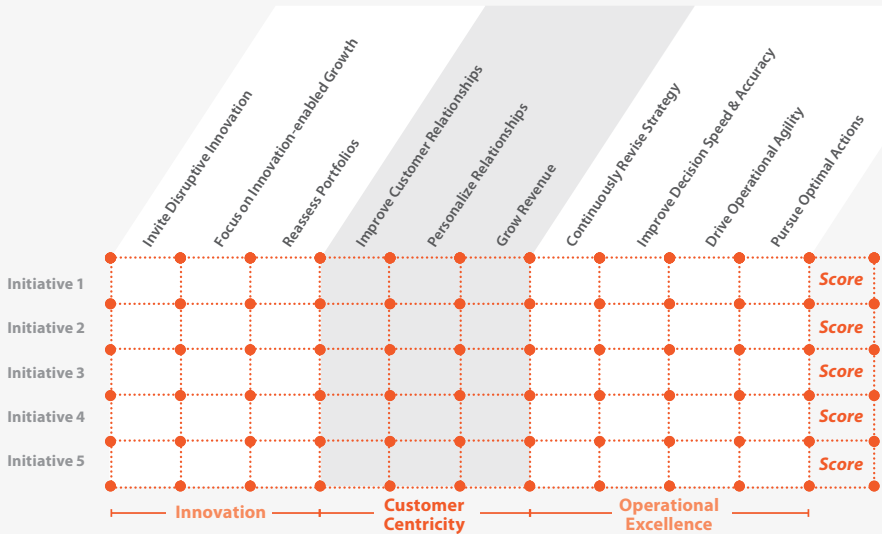
Scoring mobile initiatives can help prioritize efforts

Conclusion

As with anything, there are no guarantees of success at the outset of an enterprise mobile strategy. This is a new field, with new KPIs and no pre-determined outcomes. However, when compared to 'safe' initiatives, such as website re-platforming and ERP and CRM refreshes, embarking on a holistic mobile strategy can propel an organization far past incremental gains into truly transformational events. With a healthy amount of research, strategic thinking and a willingness to 'fail forward' in small iterations, combined with an appreciation of unexpected discoveries, benefits will accrue.

The Digital Guestlist Expands

Driving Digital Transformation
Across Lines of Business

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Introduction

At most organizations, marketing has been the visionary and champion for digital strategy, projects and investment. But, digital is changing more than how we buy and consume—it's changing the way we work, play and live. It's time to take digital beyond marketing.

As digital technology continues to mature and evolve, we can apply digital capabilities—social, mobile, cloud and big data—across the organization to improve profit, reduce costs and make both customer and employee happier. At a minimum, an enterprise-wide digital strategy will help you leverage current and planned digital investments across all functions.

So, expand the guest list at the next Digital Strategy meeting. Bring Sales, Service, HR, Legal and Finance to the discussion.

Digital Transformation: Beyond Marketing

Organizations readily see the advantage in digital marketing. Now imagine your market advantage if you digitally enable your entire company. The business case for social collaboration to better engage with customers holds true for product launches and even contract negotiations. If cloud-based applications give Marketing speed and savings, why not HR, Legal and Finance? If mobile makes eCommerce more efficient, why could it not improve procurement processes with partners? Much of what we aspire to externally, is exactly what we need internally: communication, collaboration and coordination.

Unquestionably, the digital universe significantly impacts marketing. But the public perception and customer reception of a company's brand affects the success of every department in the company—not to mention the organization's bottom line. And companies that can use technology to learn and engage with their current and future customers as well as their fellow employees can dramatically outpace the competition.

Every enterprise function is, and will undergo, dramatic change due to digital advances, even if you're not planning and guiding that change. Enterprise functions that leverage these digital capabilities will experience efficiency and bottom line benefits. The question is, will you be reactive or proactive? Will your digital transformation lurch forward in discrete silo's? Or leap forward with an integrated, coordinated strategy?

Leveraging Digital Marketing Investments

Marketing is, and will remain for some time at the leading edge of enterprise digital strategy. Programs
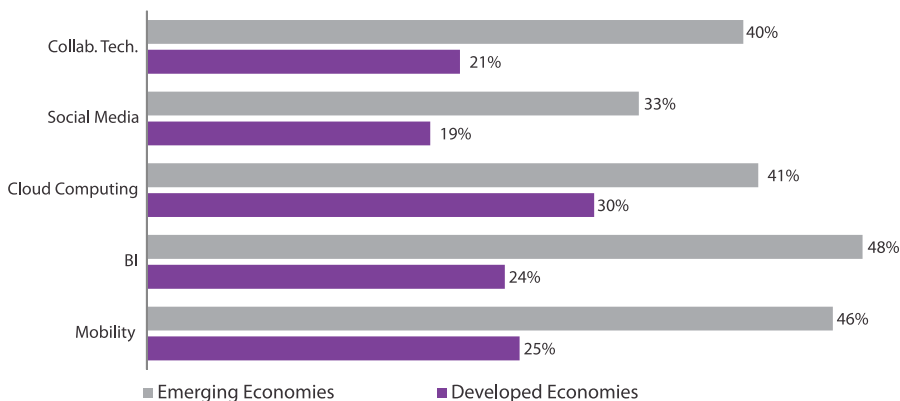
and plans for social, mobile, cloud and big data analytics are common in marketing. Many marketing groups are out of the experimentation stage and are operationalizing digital efforts.

Indications of this maturity include the following:

- Templates for digital marketing strategy and methodology are readily available
- Digital marketing processes and activities are being automated
- Measures and KPIs are moving towards broad acceptance
- Digital marketing solutions have already proliferated and consolidation is underway
- Software, tools, and platforms are reaching enterprise performance, scale and standards
- Enterprise software packages—such as SAP and Oracle—are providing basic digital features and functionality

Investments in Digital Technologies Should Be Leveraged Across the Entire Enterprise
Propensity of Org. to Spend (20% +) on Digital Tech. in Next 5 Years (% Surveyed)

Category	Emerging Economies	Developed Economies
Collab. Tech.	40%	21%
Social Media	33%	19%
Cloud Computing	41%	30%
BI	48%	24%
Mobility	46%	25%

■ Emerging Economies   ■ Developed Economies

(Source: Oxford Economics)

Marketing is progressing in all four dimensions of digital transformation—social, mobile, cloud, big data, making investments and gathering best practices that can lead the rest of the organization through their digital transformation.

Social. Social network engagement, social promotion, company communities and social listening are becoming commonplace. As we noted in "The Digital Enterprise: A Framework for Transformation" in this issue of *Perspectives,* operationalizing digital capabilities means creating systems of engagement, and digital marketing will be the first to reach that maturity with tools and applications that offer real-time, enterprise level monitoring, automation and analytics of social engagement. As more enterprise applications embed social capabilities into their applications, any organization will have a minimum level of social engagement. In each of the sections that follow, we explore how other functional areas can apply the social tools and techniques that marketing has pioneered.

Marketing will also be the first to find business value in human dynamics areas of social networking—game mechanics, crowd behavior and crowdsourcing. These advanced approaches in driving and harvesting behavior hold the promise of fostering customer relationships of previously unimagined intensity, integration and loyalty. And, as Marketers crack the consumer behavior code via analytics and social engagement practices, other areas of the organization will have the business case to adopt these practices as well.

Mobile. Most marketing websites are mobile these days, and many marketing teams have experimented

with mobile applications including games. And who hasn't seen a QR code? Mobile coupons tout wild success, and mobile search will be a no-brainer for any industry with a physical presence. Some of the most innovative ideas are coming from the intersection of mobile and traditional channels. Retail has already started melding their store experience with mobility, creating an entirely new engagement landscape for shoppers. Certainly, "Second Screen"—the intersection of television and mobile devices—is reengineering our viewing habits.

Cloud. Marketing has been an early adopter of Cloud applications focused on enabling different aspects of the Marketing function. As more companies move towards Systems of Engagement (which are primarily Cloud-based), the Enterprise portfolio will increasingly reflect a higher percentage of Cloud-based applications.

Big Data. Marketers are at the tip of the iceberg here. As social and mobile programs increase, the amount of unstructured data will also. While quite a few companies have recognized and begun tapping the power of unstructured data (Best Buy, poster child of text mining), not many have taken the steps to integrate social and mobile data into their current data architecture.

Fusing the data together will allow marketers to begin leveraging more advanced Big Data analytics approaches and drive those new insights into their marketing programs. The big question in Big Data and Marketing is, what don't you know?

Still, for now, marketing leads most companies' strategy and investment in digital capability. The next question is, how else can you leverage those investments?

Digital Marketing Investments Have High Value Across The Organization

Customer Service: Lead Player in Customer Experience

Close on the heels of Marketing in terms of digital strategy and engagement is customer service and support. Certainly you can't leave customer service out of a digital customer experience initiative (an effort usually led by marketing). In fairness, customer service was a fairly fast adopter of digital tools for engaging with customers: online chat, cross-channel integration, voice interfaces and analytics for routing. The problem is that customers are choosing their own tools and channels. Instead of calling their customer representative or popping up the handy-dandy chat window from the website, they're tweeting complaints and asking questions, Facebooking their

friends about how to use your product and Yelping that you're not meeting their expectations. Further, they actually expect you to know they're on those non-company channels and respond.

Digital Trend	Marketing Investments	Sales	Service	R&D	Legal	Finance	HR
Social	Social Ads/Offers	X	X				
	Social Multimedia Sharing	X	X	X			X
	Social Collaboration/Co-creation	X	X	X	X	X	X
	Communities/Social Networking	X	X	X			X
	Crowdsouring	X	X	X			X
	Social Reviews and Ratings	X	X	X	X		X
	Social Listening/Monitoring	X	X	X	X		X
	Social Entertainment/Gaming	X	X	X	X	X	X
Mobile	Mobile Enabled Web	X	X	X	X	X	X
	Mobile Computing/Applications	X	X	X	X	X	X
	Mobile Platforms	X	X	X	X	X	X
	Mobile Security and Governance	X	X	X	X	X	X
	Mobile Commence	X					
	BYOD	X	X	X	X	X	X
Cloud	SaaS, PaaS, IaaS	X	X	X	X	X	X
	Public, Private, Hybrid Clouds	X	X	X	X	X	X
	Cloud Providers/Vendors	X	X	X	X	X	X
	Cloud Data and Security	X	X	X	X	X	X
Big Data	Unstructured, Multimedia Data Management	X	X	X	X		X
	High Volume Data Analytics	X	X	X		X	X
	Social and Mobile Data/Analytics	X	X	X	X		X
	Big Data Storage and Environments	X	X	X	X	X	X
	Advanced Analytics Techniques	X	X	X	X	X	X
	Big Data Visualization	X	X	X	X	X	X

Extending Digital to Customer Service Social. Initially social queries were handled by Marketing, but more and more companies are transitioning the handing of issues and complaints to customer service and support groups. Customer services software vendors have recognized this need and are adding more digital channel tracking and management capabilities. This is essential, because no matter what channels customers choose, they want seamless engagement across them all.

Customer Service and Marketing will need to coordinate strategy and tools for engaging directly in social media and networks and change these statistics for social service:

- 72% of companies have not yet integrated social media into their business customer service operations *(source: www.fourthsource.com—Social Media has to be integrated into Customer Service)*

- Only 16% of organizations currently see social media as a key customer service channel *(source: www.fourthsource.com—Social Media has to be integrated into Customer Service)*

- Over 58% of people who have tweeted about a bad experience never received a response from the offending company *(source: www.customersrock.net—Customer Service Through Social Media: The game has changed)*

- 55% of consumers expect a response the same day to an online complaint—yet only 29% receive one *(source: www.customersrock.net—Customer Service Through Social Media: The game has changed)*

- 43% of consumers say that companies should use social media to solve customers' problems *(source: www.customersrock.net—Customer Service Through Social Media: The game has changed)*

Mobile. After we mobile-enabled our websites, a second mobile to-do was allow customers to enter issues via mobile devices. Next steps are to truly leverage mobility to improve customer service using the real-time, in-context data provided by Mobile devices. Mobility gives organizations the opportunity to support field service personnel and even users as they directly service and interact with your product. For instance, using mobile devices plus product instrumentation (HVAC, Automobiles, Electronics, etc.) to improve support and service calls.

Cloud. Customer service was an early frontier for software-as-a-service vendors. Cloud-based offerings that combine Big Data and workflow will grow in importance, as companies react to the need for real-time response to customer issues.

Big Data. For quite some time, to avert risk, most call centers have recorded calls. Big Data techniques give you the power to incorporate this rich, variable, unstructured call data into daily operations.

Case In Point: The ROI of Peer-to-Peer Problem Solving

This May, The Economist reported that TomTom, a maker of satellite-navigation systems, deployed peer-to-peer social support. Within two weeks, participating customers handled 20,000 cases, saving TomTom approximately $150,000. The Economist cited Gartner estimates that social support communities could save companies as much as 50% on support costs, but cautioned companies to keep an eye on customer satisfaction.

http://www.economist. com/blogs/babbage/ 2012/05/future- customer-support

(The future of customer support: Outsourcing is so last year, The Economist, Babbage Science and Technology, May 11th 2012, 16:34 by M.H. | SEATTLE)

Customer Service Outside the Phone Box: Customers Helping Customers

Each functional area will find their own unique value in digital technologies and trends—providing diversity and ideation to the digital strategy development. For Customer Service, a form of crowdsourcing is proving to be a core source of digital ROI: peer-to-peer support and service. Peer to peer support primarily developed outside the walls of the organization as customers took advantage of open social networks and sharing to connect and help one another. Customers' answer each other's questions and solve problems with no support or expenditure from the enterprise.

Your customers and non-company experts often understand problems better than your official company representatives. Certainly, they understand products in different ways than the company itself. And, credibility and trust is higher among customers than with the company.

Customer Service Future in Digital Strategy and Execution: The Digital Hub

As a critical customer touch point, Customer Service is essential to any customer experience strategy, both as an execution point and as a source of data and feedback to guide strategy. Customer Service may have a still bigger role to play in the entire digital enterprise strategy as an integrated, omni-channel Digital Engagement Center. While digital can enable the entire organization and push engagement to the edges, a centralized hub that monitors, analyzes, automates and manages all channels would be a definite competitive advantage. And, establishing a digital engagement center can be a helpful, if not permanent, stage in your roadmap to deploying and maturing digital systems of engagement as well as developing internal engagement skillsets.

Customer Service is a logical candidate for centralized digital engagement:

- **Multichannel:** Already functioning across several online channels.
- **People:** Already staffed with core skillsets for customer conversations—just need to develop digital skills.
- **Technology:** Already using and integrated to systems from which customer engagement will be managed or data stored, such as CRM. Already using automated workflow and routing to manage queries from traditional channels.

Certainly, Customer Service teams and call centers can no longer remain static, responding to customer complaints during limited hours in a select, few channels. Your call centers can, and should, transform into digital engagement centers: hubs of omni-channel, digital interactions using web, chat, social media, big data insights, mobile/SMS, and of course telephony and email as well.

Sales Leverages Digital

Sales has been an area of high promise but unrealized ROI for digital efforts. Sales is certainly involved in, and a consideration for, digital strategy. Social CRM emerged as an early theme in social networking, but sales staff has not taken advantage of it to date. A contributing factor is sales' continued reliance on face-to-face interactions. With today's technology, in-person sales meetings are no longer a necessity and can even be a hindrance. Digital is second nature to customers who have been raised on social media and virtual communication. By recognizing that sales can take place just as effectively (if not more so) without the burden of in-person meetings, enterprises can expand their customer base while shrinking travel expenditures.

Where are the wins for sales and how can digital strategy both enable and engage the Sales organization?

Social. Contacts were often the key to B2B sales value. Salespeople were often hired for their contacts, but now everyone knows who you know. It's more important how you influence others than simply connecting to them. Social listening and analytics can help Sales teams understand the most right, most influential contacts to engage with in an account. And, internal

application of social collaboration has had some uptake recently, especially with the launch of Salesforce.com's Chatter tool.

Mobile. Mobile is the number one digital demand for sales teams given their mobile work style. Much investment and progress has been made. All leading CRM systems have mobility, and companies are moving to extend and integrate more back-end systems that Sales people rely on. Companies are also making it easy for Sales people to get sales materials and even some training via mobile. Next steps will involve bringing more customer knowledge, product and service training, and marketing content right to the mobile salesperson, in real-time, suited to the context.

Cloud. Salesforce.com is the much-touted success story of SaaS cloud technology, disrupting CRM and dislodging the CRM behemoths. The drive for mobility drove many sales-related apps into the cloud. Expect continued investment in mobile tools for sales teams.

Big Data. It's always been a challenge to capture the unstructured data common to interactive sales activities. A lot of effort has been expended on trying to get sales people to structure

sales data and input it into systems of record. Big Data approaches could actually free Sales people from high overhead data entry into CRM systems because it can capture and analyze the free-form data of common Sales engagement.

Everyone's in Research & Development

Most digital strategies and initiatives are focused on the go-to-market strategy and benefit marketing, sales and service, but research and development is a perfect example of the value of extending digital capabilities into other strategic areas.

Social. As companies mature as social businesses, and out of the four digital trends, social is the foundation of engagement-social capabilities will be welded into decision making and business process. For research and development, digital provides the means to fully engage customers throughout the product lifecycle. Digital capabilities can bring customers out of the focus group and into almost every stage of product management and development from ideation and design to testing and launch.

Mobile. The best product feedback is collected in context-when and where a product is used. Mobile and instrumentation enables R&D to get real-time product feedback data.

Companies Incorporate Customers in Innovation and Ideation

http://social.ford.com/your-ideas/

http://mystarbucksidea.force.com/

http://www.shell.com/home/content/future_energy/innovation/game_changer/what_is_gamechanger/

Big Data. Product teams want and need to know how customers are using and responding to their products. Traditionally, this data and insight is gathered through research, surveys, focus groups, customer councils and some direct observation. Most of these methods have significant lead time on insights. Applying big data analytics to research and development can provide an almost continuous feedback loop, which overcomes one of the major causes of innovation/project failure—delayed feedback.

(Sengupta, Kishore, Tarek K Abdel-Hamid, and Luk N Van Wassenhove. 2008. The Experience Trap. Harvard Business Review 86)

Q&A
TCS Q&A with CNA on Digital Enablement for Legal Teams

TCS Head of Digital Strategy, Tonya McKinney has a Q&A session with CNA's Becky Nelson, Vice President—Client Executive, Information Technology

CNA's digital strategy is focused on ensuring all digital investments—web, mobile, video, social media, etc.—are aligned to the organization's vision, goals, opportunities and initiatives. It encompasses a broad, long view of the opportunities and risks that digital potentially creates and harvests customer insights through advanced data management. It includes customer intelligence, on-line collaboration, new product/market exploration, sales and service optimization, employee productivity, enterprise technology architectures, innovation and governance. CNA's digital strategy was sponsored by Chairman and CEO, Tom Motamed to "ensure that enterprise technology and process investments are connected, deliver improved efficiency and effectiveness and provide a superior customer experience." Executing digital strategy will create a consistent, cohesive, measurable and distinctive experience for employees, producers and insured's who interact with CNA digitally. In partnership with all business leaders, CNA's Chief Information Officer, Ray Oral has developed an execution roadmap designed to "take small or big steps toward creating a connected enterprise with use of every digital channel we offer."

Tonya Q: Becky I understand you recently undertook a review of how digital capabilities might improve productivity for legal teams… any surprises?

Becky A: iPad and other mobile devices have changed the way people work. Mobile applications are easier to navigate and use than traditional corporate applications. The result is that we are already seeing our legal teams wanting to leverage mobile capabilities and applications for things like dictation, document annotation, contract reviews/approvals and video conferencing/recording for depositions without the need to travel. CNA's digital strategy will drive the foundation needed to be successful in these spaces as well as improve productivity of our corporate workforce by making these subsets of these services from traditional enterprise applications available to a mobile workforce that can be accessed anytime or anywhere.

Tonya Q: Given your early insight, what types of solutions would you recommend to your peer IT leaders as the first wave of digital enablement for legal teams?

Becky A: Make email, calendar, instant messaging, video conferencing and access to corporate intranet sites including news feeds available via mobile. Then engage your IT Security/ Risk teams to look at document/ data security policies and appetite for opening other areas being requested like document management capabilities like annotation, dictation, etc. discussed above.

Tonya Q: What use cases do you see for application of Big Data Analytics for Legal departments?

Becky A: Big data could help identify trends or patterns around our use of legal services. The areas of focus that might make sense to explore would be eDiscovery and external legal costs to see what patterns can be derived that might be able to help increase productivity or lower our operational costs.

Tonya Q: How can the executives leading Legal departments ensure their teams are not left out of when digital strategies and investments?

Becky A: Build an operating model that consists of business and IT representatives to drive digital strategies and govern enterprise investments to ensure they are

advancing digital needs. Communicate the operating model/strategy and seek feedback/participation from other business departments, so they know who to get involved. It is rapidly evolving world. To stay current, we must stay connected—to the businesses goals and the latest technologies while adopting a test and learn mentality that is more nimble and responsive to user needs than systems of the past.

Legal Team: Digital Strategies Beyond Document Management

At first glance, Legal seems perhaps the last functions to apply digital. The tools and capabilities that improve operations in other units can also be used by Legal, although we believe Big Data analytics will provide the greatest value as these teams mature their adoption of digital. Analyzing big data has already proved effective in reducing fraud, theft and corruption. For instance, fusing and analyzing disparate data sources including social media content makes it easier for insurance companies to detect and eliminate fraud.

Inviting Legal to help form enterprise digital strategy serves two purposes:

a) Share marketing's digital best practices and help educate legal on how to apply digital capabilities to their functional/operational needs.

b) Keep in-house legal informed about these emergent digital opportunities and activities, so they can better calculate risk and guide decision-making in fast-changing and uncertain regulatory environments.

Legal and Social

Legal departments are less dependent on technology than other functions, so it's not surprising adoption of social by legal professionals has lagged other professions. LinkedIn is the preferred social network by a wide margin (helpful for recruiting of legal staff) and recent research shows adoption picking up and the gap between generations of legal professionals closing in social media.

Legal Professionals' Use of LinkedIn: Generation Disparities Narrow

LinkedIn Usage in Past 24 hours+ Past Week (Professional Reasons)

Age Group	2012	2010
60+Age Group	50	35
50-59 Age Group	58	42
40-49 Age Group	70	57
30-39 Age Group	65	84

■ 2012   ■ 2010
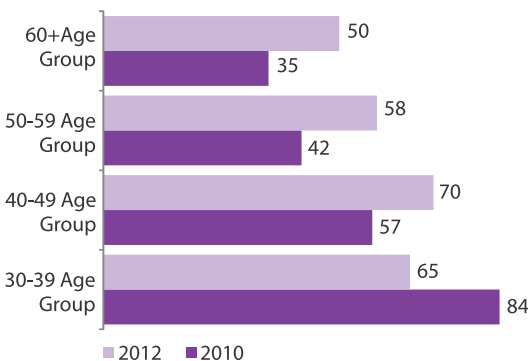
(Source: Greentarget Strategic Communications, InsideCounsel, and Zeughauser Group—2012 In-House Counsel New Media Engagement Survey)

LinkedIn Usage in Past 24 hours+ Past Week (Personal Reasons)

66   69   56   48   49   48   26   17

30-39 Age Group   40-49 Age Group   50-59 Age Group   60+ Age Group
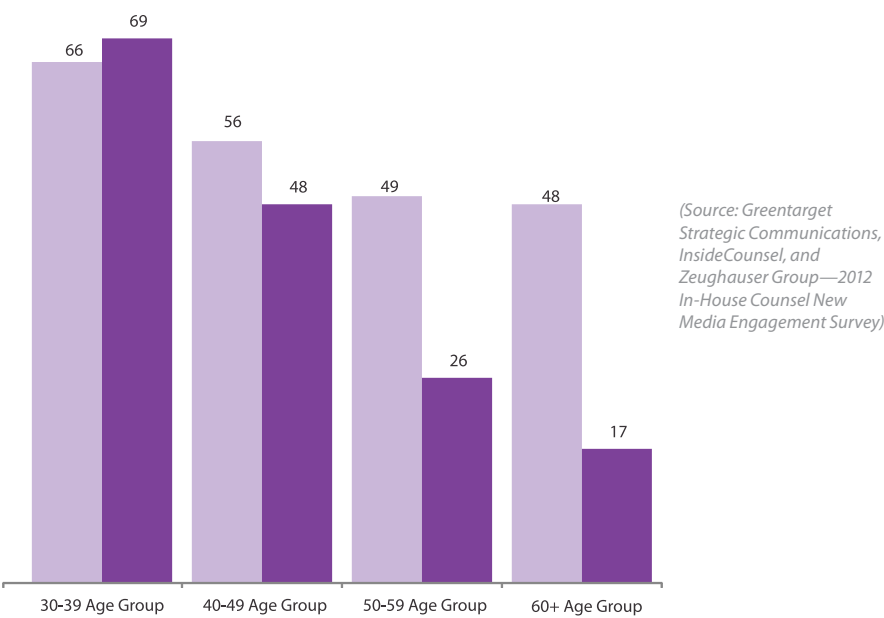
In-House Legal Staff Should Improve Their Social Acumen

One concerning trend for companies is the fact that in-house legal professionals are less engaged in social than external legal professionals. It's incumbent on in-house legal staff to become familiar with the social media domain to better advise the company on risk and regulation as it expands social and digital efforts. In-house legal should also take a page from external legal firms and use social to improve their interaction and collaboration with both internal teams and possibly customer contacts.

Expanding Use of Social for Legal: Collaborative Process

Legal departments are under-utilizing social. Currently, legal use of social is focused on professional promotion and some research, but social tools have value for core legal processes.

For instance, contract preparation and negotiation is a notoriously iterative, linear, lengthy process that manages many inputs from many reviewers and approvers. The contract process is exactly like Marketing's own creative asset review process, which has been streamlined and accelerated with collaborative tools that allow multiple users to review and modify a document while tracking and organizing even simultaneous updates.

Finding internal expertise is a tedious, email-driven process for legal departments with hundreds of professionals. Expert search and matching is fairly standard in enterprise social collaboration tools and is easily extendable to legal teams.

Digital may finally be the technology age for Legal departments—there's much to learn and leverage from the early successes in social media and networking.

Social Tools Helps You Find Internal Experts Fast

Caption: Whodini, a member of TCS's Co-Innovation Network (COIN), offers a product that automatically builds expertise profiles from email content and helps you quickly find an expert that matches your need

Legal and Mobile

Legal's use of mobile mirrors their use of social—underutilized: while legal professionals own and use smartphones and tablets, their professional use is primarily limited to email, research and PDF document readers. In

fairness, searching Apple and Android applications reveals few designed for legal professionals. Still, many existing and planned mobile investments could be extended or modified for legal use. For instance, automated approval is a common process delivered via mobile and would be a boon to legal teams. Digital strategist need to actively engage with legal to capture their requirements and use cases for mobility.

Advanced Mobile Benefits Elude Legal Staff

In which area/s of work has your smartphone or tablet enabled you to come up with new ways to do your work?

Area	%
Email	77%
Research	24%
Business development (researching prospective social networkingsites, etc.) clients/firms,	19%
Case preparation	14%
Document review during discovery	12%
Project management	12%
Billing	11%
Legal writing	8%
Court presentation	7%
Collaborating with colleagues via videoconferencing	6%
Collaborating with colleagues via social networking sites	4%
Collaborating with colleagues via other methods	4%
Other	9%

Caption: Legal professionals primarily use their mobile devices for email and have not been able to tap more advanced use cases in Mobility.

(Source: ALM Legal Intelligence—"Productivity in the Legal Profession: The Impact of Mobile Technology")

In the Am Law Tech Survey 2010, 80% of firms report using hosted solutions for eDiscovery, litigation support, and operations. *Forrester*

Legal and Cloud

Few can argue that Legal, as a function, is underserved by enterprise technology. Many factors contribute to this state: the smaller size of legal teams make it hard to create a compelling business case, legal teams lack the technology expertise to make the case for new tech, IT departments fail to understand how legal can use technology and there is a distinct lack of technology designed for legal use.

Cloud Can Make the Legal Business Case

Cloud computing may help overcome the lack of business case. The cost efficiencies that Cloud computing provides can make more functionality available to legal teams at lower cost… *If* security concerns are sufficiently addressed. Certainly Cloud computing is essential for deploying the social and mobile capabilities we've already discussed.

Legal and Big Data

Legal activity generates a huge amount of unstructured data ranging from reams of prose in contracts to video depositions. The high volume and variety of formats have been limitations that have left this information has largely gone untapped. Now, with the new capabilities to manage and analyze big data becoming generally available, legal teams can quickly mine these sources.

Big Data Analytics Give Legal Teams Predictive Insight

The advantage of faster, deeper research is obvious, and companies have already begun analyzing social data for fraud and intellectual property infringement. Now, consider how the use of advanced analytics could offer legal teams new insights to create legal strategy. By combining internal data with external data sources (market data, economic factors, company profiles), legal teams can get a view of contributing factors in previous litigation that better inform current strategies. Other analytical techniques can offer legal team's predictive insight—the ability to identify risk areas and take action before issues arise. Because of these transforming capabilities, we see big data as the strongest business case in Digital Legal Strategy.

Finance

While finance has many technology tools, including advanced analytics tools, the team has been slow to adopt digital trends and concepts.

Human Resources: Key to the Organization's Digital Success

People engage in social, people are mobile, people want the flexibility of cloud and people generate the terabytes of unstructured data that stress our traditional analytics systems. Every "moment of truth" in a digital customer experience involves people. To execute on a digital strategy, you need a digital organization and culture, and HR is key in transforming the enterprise. HR has explosive potential to bring digital capabilities in house and drive business improvements—far beyond using LinkedIn for recruiting. If HR applies and masters game and crowd mechanics for enterprise performance, HR, not marketing, will become the enterprises new digital innovators.

Improving Employee Experience Makes a Better Customer Experience

Digital will remake employee-enterprise connectedness in the same way that it is revolutionizing customer-enterprise relationships. Just as we see in consumer scenarios, digital enables more collaborative and comprehensive employee engagement, which in turn drives higher levels of employee performance. If social and mobile are the best ways to reach customers, logically, they're also the best way to reach employees. Making social networking and collaboration available internally allows all employees to learn from one another and collectively problem solve.

Human Resources Organizations Need to Hone Their Mobile Employee Strategies

Impact of Typical Mobility Trends 5-year Horizon (% Corporate Dec. Makers)

Leverage location based technology	19%
Support employee productivity	19%
Workforce mobility	26%
Transform business model	19%
Focus on business growth	22%
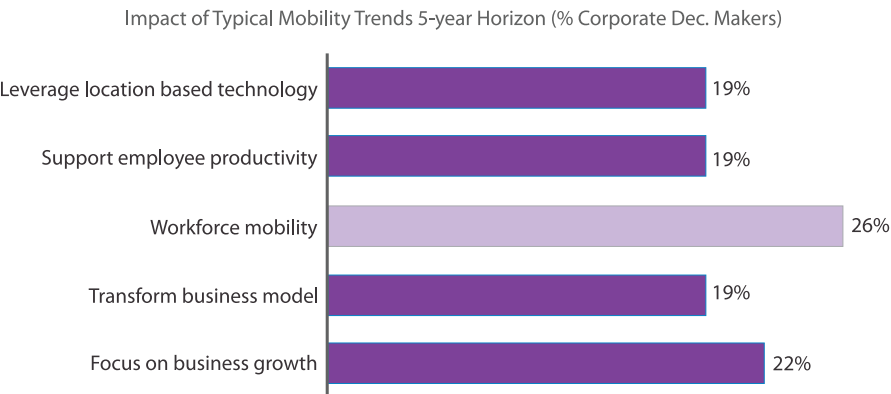
(Source: OxfordEconomics)

Gaming the Digital Enterprise

Just as game and crowd mechanics can be used to drive customer engagement, they can also be used to boost employee performance and loyalty. Employees aren't simply interested in earning a paycheck. Humans engage, participate and are loyal because of deeper motivation—because it's interesting, because it's engaging, because it's the right thing to do and because they want to contribute.

Managing employees the old way involved:

- Financial incentives (carrots and sticks)
- Siloed organizations
- Management hierarchies
- Annual or quarterly reviews
- Clock-in/clock-out (or an implied mandate that you should be at work during certain hours)

Contrast this with the crowd-, game-, and analytics-driven approaches we can leverage going forward:

- Outcome-based performance measurement
- Continuous and real-time feedback
- Social collaboration
- Real-time coaching and mentoring
- Engagement using crowd mechanics
- Performance via multi-motivational game mechanics

As HR learns and applies the multiple motivational approaches of gamification, tapping into people's desire for status, achievement and rewards to drive enterprise performance, HR will become the go-to gurus for behavioral insight and game mechanics.

Mining Big Data for Talent and Expertise

The new digital enterprise helps you find out more about the people who work for you, or who want to work for you. Where is expertise hidden in your organization? Employees may have a deep interest or expertise in areas that are not evident on their CV. The digital enterprise lets you see who knows what and helps you to take advantage of talents you may not realize you have on board (the mailroom worker who is in film school and could help you with video production; the salesperson who does voiceovers for commercials; the person who answers all the questions about SharePoint on the message boards even though it is not her job to do so). You can then bridge the gap between the subject matter experts and the teams who need their expertise across the organization.

How HR is Transformed

Digital helps HR to become proactive instead of reactive. For instance, social listening and analytics can help you track employee satisfaction and intervene when problems are still small.

Table 1

HR Functions/Goals	Social	Mobile	
Recruiting	HR has rapidly adopted social sites for recruiting. LinkedIn offers enterprise recruiting tools. Involve the entire organization in recruiting. Social gives you connectivity to a vast network of the best recruits.	Mobile allows employees to capture business card/CV information via mobile devices wherever they may be (conferences, network events, etc.) and submit the contact information directly to HR to initiate recruiting.	
Onboarding	Social tools help new employees find SMEs within the company quickly and easily, rather than relying on tribal knowledge to find the right contacts.	Employees can submit new hire documentation via mobile (photo of driver's license and social security card, for example) and track the status from anywhere, at any time.	
Performance	There is huge potential in leveraging social and game mechanics to drive employee performance.	Mobile apps allow employees to track their performance and receive real-time feedback anytime, from anywhere.	
Development	Social capabilities let employees self-organize to mentor and be mentored. Social also lets employees "follow" the SMEs and influencers to learn from and emulate. High achievers are identified and recognized so others can emulate their behavior.	Employee can receive training via mobile devices from anywhere at any time.	
Attrition	Social listening and sentiment analysis help gauge morale and employee satisfaction.	*[I wish there were a mobile app for expressing frustration on projects that could later be used to identify process improvements]*	
Curate Company Knowledge	Information is readily available throughout the organization. Employees can collaborate and provide input on documents, projects, policies, etc.	Company systems and information is accessible via mobile for real-time access and collaboration.	
Organizational Change	Organizational change is driven socially by influencers in the company, rather than being handed down from management. Social listening lets management track acceptance (or resistance) of organizational change.	Mobile apps bring on-the-go (road) employees into the social conversation to support and influence organizational change.	

Digital also helps identify underappreciated resources. In the past, leaders and extroverts got the attention. It's important to nurture them but also to identify the quiet achievers whose knowledge, skills, and abilities may go unsung.

Table 1 shows how the four pillars of digital transformation can drive change for each important area in HR. This scorecard is more detailed than those for other functional areas because HR is of prime importance in driving digital transformation across the enterprise.

	Cloud	Big Data
	HR can streamline the recruiting process with cloud-based collection of contact information and employment applications. Cloud-based solutions enable seamless collaboration with other departments and access to information throughout recruiting and interview process.	Big data helps HR identify potential recruits by analyzing information from social sites, blogs, web sites, white papers and presentations posted online to help find individuals with the necessary skill set. Big Data analytics can help build more reliable, predictive profiles for hiring.
	Cloud technology lets HR streamline the new hire process with cloud based, gamified applications to sign up for benefits, direct deposit, and so on.	
	Social and gamified applications run from the cloud, enabling remote access, and driving social influence.	Big data allows performance systems to process unstructured data to identify and reward "quiet achievers."
	Training is delivered on-demand in a gamified environment in multiple formats suited to each employee's learning style (video, text, experiential, etc.)	Development mentors are identified through analysis of unstructured data like email and documents based on subject matter expertise as well as likes, interests, etc.
		Process unstructured social data to identify dissatisfied employees who might be a flight risk.
	Cloud based document repositories make searching for, collaborating on, and updating information in real-time seamless.	Big data lets employees find information they didn't know exist by identifying and recommending related documents.
	Cloud becomes an enabler of social and mobile applications to speed adoption of organizational change.	Natural language processing, powered, by big data, analyzes sentiment about organizational change across multiple sources (social, email, etc.)

A Harmonized Enterprise Digital Strategy

Based on the evolution of digital and how it impacts every facet of an organization, it is incumbent upon enterprises to develop a comprehensive digital strategy. This holistic framework will help guide companies through the digital universe and enable them to maximize digital opportunities in a coordinated, integrated approach. Organizations cannot relate to customers in digital channels through traditional corporate silos—digital channels are too transparent and customers will not tolerate uncoordinated, uninformed touches from our various internal departments.

A Framework To Leverage And Harmonize Digital Efforts Across The Enterprise

Figure 1. Digital Harmonization

Outcomes

• Personalization context	• Customer issues	• Customer preferences	• Customer needs analysis
• Customer behavior	• Service request trends	• Cross/up-sell opportunity	• Crowd-sourced ideas
• Social influencers	• Sentiment trends	• Attrition insight	• Product/Service feedback
• Social leads	• Service channel trends	• Propensity to buy	• Competitive intelligence
• Individualization insight		• Social leads	
• Sentiment trends		• Customer advocates	
• Market research			
• Loyalty/advocacy drivers			

Insight

• SEO	• Chat	• Online shopping	• Product communities
• SEM	• Email	• Ecommerce	• Idea exchange
• Augmented reality	• Branded Forums	• Recommendations	
• Campaign microsites	• Automated agents	• Chat	
• Newsletters	• Contact forms	• Contact forms	
	• Support communities		

• Social SEO (SMO)	• Facebook Page	• Social prospecting	• Idea communities / Crowdsourcing
• Facebook Page	• Twitter Handle	• Social lead qualification	• Social listening
• Twitter Handle	• Monitor Forums	• Social commerce	• Ideation tools
• Polls, Rating and reviews	• Peer-to-peer support	• Social listening	• Social customer councils
• YouTube Channel	• Video help content	• Social networking	• Web 2.0 enabled teams
• Social listening	• Social listening	• Rating and reviews	
• Customer Community	• Social customer lifecycle		

• Mobile search	• Mobile surveys	• Mobile search	• Idea generation App
• Mobile advertising	• Payment alerts	• Mobile shopping / QR codes	• Mobile ideation websites
• SMS campaigns	• Call center interactions	• Mobile commerce	• Point of Sale ideation
• Mobile website	• Mobile self-service Apps	• Mobile payments	
• Mobile Promotions	• SMS messaging	• Ratings and reviews	
• Augmented reality	• Location-specific recommendations		
• Games			

Marketing and Communications	**Customer Service**	**Sales**	**Research and Development**

Foremost, a digital strategy must align with the organization's larger business objectives. To be truly comprehensive, the strategy must reinforce an enterprise's short- and long-term goals, as well as the mission of each business unit.

Second, holistic digital strategy breaks down information and organizational silos, ensuring all functions including legal, human resources, and finance incorporate the digital strategy into daily operations to the same extent that marketing and communications have done traditionally. Every department views the digital strategy as part of their responsibility and an instrumental means to achieving department and enterprise-wide objectives (Figure 1).

Web Presence

Social Business

Mobile - Location

Takeaways

- To deal with digital transformation, an enterprise must create a comprehensive digital strategy.
- The digital strategy cannot begin and end in marketing. The digital enterprise is about much more than go-to-market.
- All business units must understand how to apply digital capabilities: HR, sales, legal and finance need to be able to recognize and assess how digital affects their operations.
- An effective digital strategy meshes with company culture, building employee affiliation with the enterprise and rewarding and recognizing employee achievements and expertise.
- The effectiveness of digital strategy should be evaluated based upon how it impacts all business units.

Taming the Digital Storm

Infographic

Mobility Adoption

5-year Horizon

Health Monitoring	21%
Mobile-to-Machine	31%
Untethered Workforce	33%
Mobile Advertising	27%
App Stores	19%
Mobile Wallets	32%
Location-aware Services	37%
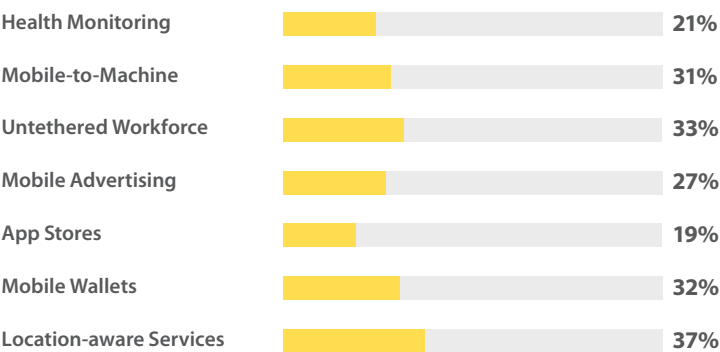
(Source: Oxford Econimics)

Social Interactions

Global Social Media Traffic
(Millions)

	2011	2012	2013	2014	2015
Number of Social Networking Accounts	2,395	2,723	3,073	3,471	3,890
Number of Social Networking Users	798	910	1,030	1,135	1,240

■ Number of Social Networking Accounts
■ Number of Social Networking Users
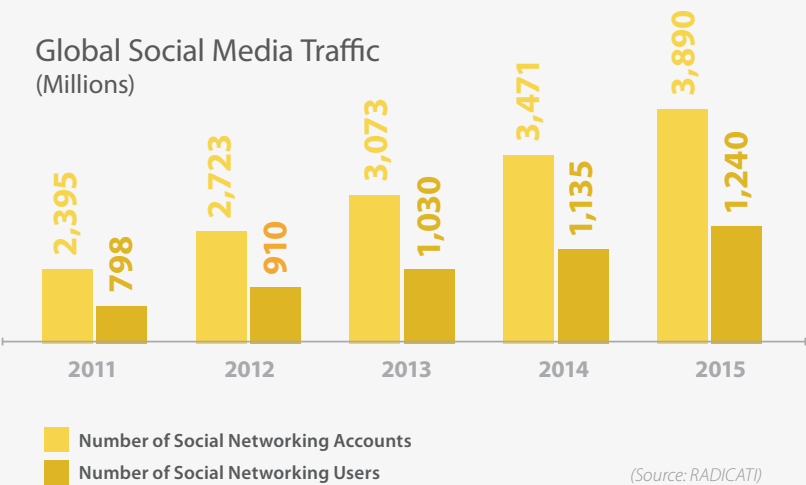
(Source: RADICATI)

What Generates Big Data?

Source

Enterprise Apps Transaction Data
72%

Data from Sensors
42%

Social Media
35%

Email, Documents, Unstructured Data
35%

Clickstream
27%

Location Data
27%

Images
13%

Scientific/Genomic
12%

Use

BI Analytics
55%

Enterprise Applications
28%

BPM
17%

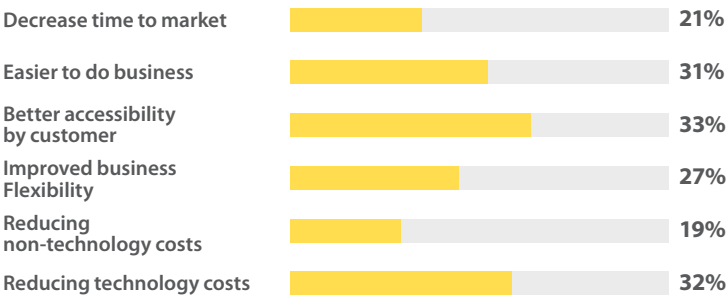**Business Rules**
17%
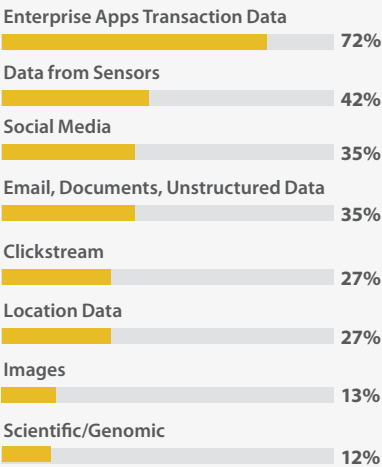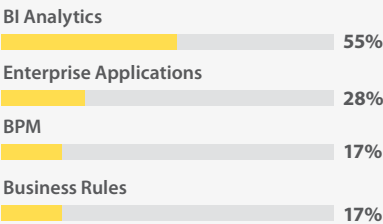
(Source: Global Big Data Online Survey, Forrester Research, INC., June 2011)

Cloud Computing

Positive Impact over 5 years
(% of Corporate Dec. Makers)

Decrease time to market
21%

Easier to do business
31%

Better accessibility by customer
33%

Improved business Flexibility
27%

Reducing non-technology costs
19%

Reducing technology costs
32%

(Source: Oxford Econimics)

Digital Enterprise Strategy

Cloud

Go-To-Market

Relationships are built and lost online...

- Shift to digital channels, systems of engagement
- Master omnichannel go-to-market and ensure integration of traditional channels
- Leverage digital reach for access to new markets, new segments
- Fend off digital entrants and threats

Social

Product & Services

Commoditization and erosion of core offerings...

- Assess digital threats to traditional offerings
- If you can't transform to digital, package in digital
- Embrace crowdsourced ideation and innovation
- Integrate customers into product life cycle

Mobile

Value Ecosystem

Digital disrupts value and supply chains...

- Assess digital substitutes and participants
- Streamline with digital linkages and processes
- Mine big data insights for advantage
- Use digital to master global relationships

Big Data

Culture & Organization

Employee are in a digital transformation, too...

- Support digital strategy with digital culture and organization
- Power recruiting, training, coaching with social
- Turn Big Data inwards for operational gains
- Bring your own success: mobile/cloud enabled workforce

A Roadmap for the Digital Enterprise

Six Key Elements to Enable
the Digital Enterprise
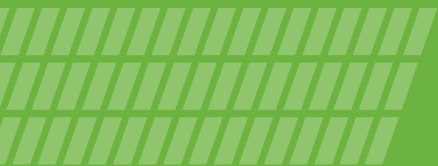
Author
Frank Diana

Principal—Digital Enterprise Solutions, Global Consulting Practice

Introduction

Several key drivers have positioned the next decade to deliver a staggering—perhaps unprecedented—amount of change. The accelerating pace of business, the growing impact of digital and several other major indicators suggest that a next generation enterprise is on the horizon. The first of these indicators is the level of societal change impacting everything from business to war. In the business world, the implications of this change can be seen in our employees, where, for the first time in history, four generations of workers are in our workforce. The associated challenges are coming into focus, as some of these workers are digital natives, but the vast majority consists of digital immigrants. With customers, the shift of power to the individual has changed their role forever and placed them at the center of the company ecosystem. Other indicators include an intense focus on growth, which increasingly requires collaboration within, and outside, the four walls of the enterprise. This growth agenda drives a new type of value ecosystem enabling growth that, in many cases, is outside a company's traditional business.

The search for effectiveness is an emerging indicator that promises to drive many future initiatives. Whereas the goal of efficiency is doing things right, effectiveness will focus on doing the right things. In parallel, and after hitting an efficiency wall, companies will focus on creating next generation efficiencies. The maturation and convergence of Social, Mobile, Analytics, Big Data, Cloud and the Internet of Things will be key enablers. As commoditization across industries accelerates,

companies will differentiate by creating consumer-like experiences, specializing and effectively using insight. Perhaps the biggest indicator is the realization that future success is tied to Digital DNA—or those characteristics that enable companies to operate in a rapidly changing business environment. Internet companies and start-ups have the DNA advantage and the barriers for new market entrants continue to collapse. But most companies are traditional and have a considerable gap to close. To do this, enshrined organizational policies, practices, processes and structures that inhibit Digital DNA will change. When we look back, this structural change will be viewed as the catalyst that enabled next generation enterprises.
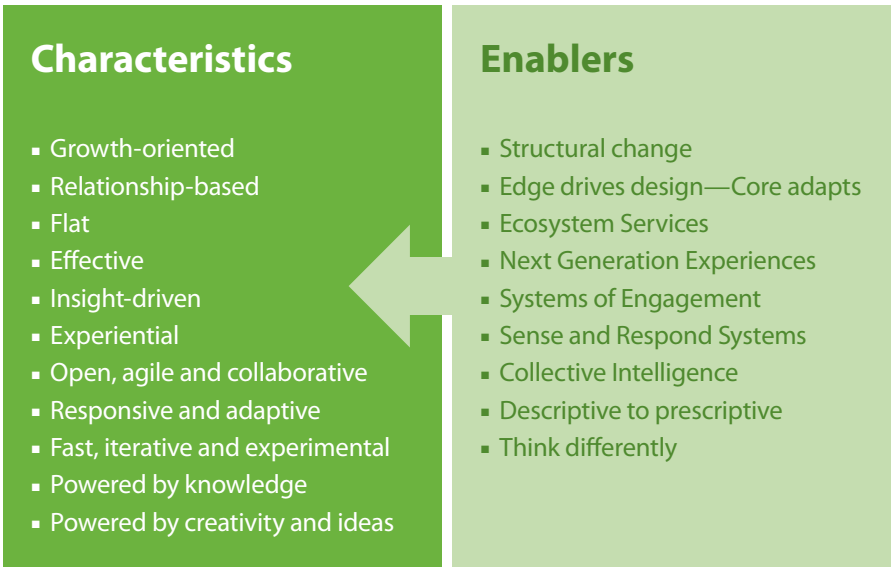
The underlying driver of all of these indicators is digital. It is for this reason that 'Digital Enterprise' was chosen to describe the future state—and for discussion purposes, the focus is on the enterprise of 2020. More specifically, the focus is on the Digital DNA required for the enterprise to succeed in 2020. The key premise that supports this focus is the one certainty that is likely to drive future executive agendas: that is, in 2020, companies of all sizes must exhibit these key characteristics:

- Growth-oriented
- Effective
- Experiential
- Responsive and adaptive
- Powered by knowledge, creativity and ideas
- Relationship-based
- Insight and engagement-driven
- Open, agile and collaborative
- Fast, iterative and experimental

No other bet has this degree of certainty, and making that next big bet is difficult for executives today. Compressed technology cycles make it difficult to keep pace with innovation, and obsolescence is generally just around the corner. Planning cycles are struggling to keep up, and experimentation increasingly replaces planning for many visionary leaders. As a result, traditional businesses are beginning to understand that viability in the next decade drives the need to evolve. As companies transform over the next several years, enabling these characteristics should be at the top of the transformation agenda. The disparate initiatives pervasive in most enterprises must come together holistically if these characteristics

are to be realized. The focus of the following sections is the enabling roadmap that transitions a traditional business to a Digital Enterprise that exhibits the characteristics required for future success. To drive this transition, companies must focus on and invest in several key enablers. Diagram 1 lists the Digital Enterprise characteristics and their key enablers. The first enabler, the notion of structural change, is coming into focus. When you look at the characteristics of the future enterprise, it's easy to conclude that most traditional companies are not structured to deliver against these collective characteristics. As a result, structural change is required and expected. There is plenty of evidence to support this in the form of new executive roles and organizational structures.

Diagram 1. Digital Enterprise characteristics and enablers

Characteristics

- Growth-oriented
- Relationship-based
- Flat
- Effective
- Insight-driven
- Experiential
- Open, agile and collaborative
- Responsive and adaptive
- Fast, iterative and experimental
- Powered by knowledge
- Powered by creativity and ideas

Enablers

- Structural change
- Edge drives design—Core adapts
- Ecosystem Services
- Next Generation Experiences
- Systems of Engagement
- Sense and Respond Systems
- Collective Intelligence
- Descriptive to prescriptive
- Think differently

In the following sections, six Digital Enterprise road map elements that represent several of the enablers identified in diagram 1 are addressed. The six chosen are by no means an exhaustive list, but one that focuses on two critical areas of excellence: The first is relationship (collaboration) excellence supported by the key areas of experience, engagement and value ecosystems. The second is insight (analytics) excellence supported by knowledge, collective intelligence, advanced analytics and effectively managing the data tsunami.

Here are the six road map elements:

1. Developing a holistic strategy
2. Creating experience-based differentiation
3. Creating an integrated social ecosystem
4. Developing systems of engagement and integrating to systems of record
5. Enabling effectiveness
6. Moving insight delivery from descriptive to prescriptive

Each roadmap element is addressed in detail in the following sections.

Holistic Strategy

There are nine elements of a holistic digital enterprise strategy. The first critical element is managing innovation convergence. The isolated focus on key innovations like Mobile, Social, Cloud, Big Data, Analytics and the Internet of Things, fails to exploit the value created by their intersection. Equally, when innovations collide, the intersection must be effectively managed—or the result is distributed chaos. A holistic strategy must effectively focus on this intersection. The second element is the enablement of digital enterprise characteristics. This is perhaps the most critical element of the strategy, as it is the digital enterprise characteristics described earlier that enable future competitive advantage.

The third element of the strategy helps to clarify ecosystem positioning. Fueled by the increasing importance of relationships to value propositions, the Digital Enterprise adds relationship management to its list of critical core competencies. Thus, there is an increasing focus on value ecosystems. More and more companies will need to identify the relevant ecosystem(s) that they should participate in. Once identified, their ecosystem(s) role must be determined. The critical piece of this strategic element is the identification of the necessary relationships within the ecosystem(s). It comes down to collaboration excellence and therefore managing these relationships must become a core competence if companies are to succeed. The fourth strategic element focuses on future business and operating models. I am a big believer that operating models will change, as a number of business and innovation disruptors both challenge existing models and present opportunities for new ones. Assessing these disruptors and their impact to current models is task number one. The strategy should enable the development of new models and offerings that drive new revenue streams, and the effective redesign of existing operating models.

Creating next generation efficiency is the focus of the fifth strategic element. This next generation is enabled by the convergence of innovation described above, and depends on the key elements of Smart Automation and Smart Optimization approaches. The System of Engagement phenomenon is the focus of the sixth strategic element: enabling effectiveness through engagement and collaboration excellence. The key activities associated with the strategic planning process include: enabling systems of engagement, delivering consumer-like experiences, integrating systems of engagement with systems of record, creating a sense and respond system, enabling right-time in-the-moment effectiveness, establishing a relationship culture, and developing relationship management skills. Close behind collaboration excellence as a core competence is analytic excellence. The seventh strategic element therefore is enabling analytic excellence. The role of analytics is evolving and there are several key activities that are critical to establishing a differentiated level of excellence. These are: moving from a descriptive-to-prescriptive insight paradigm, establishing an analytic center of excellence, evolving existing business intelligence capabilities, developing advanced analytic and Big Data capabilities and developing analytic applications.

In addition to the isolated focus on various innovation areas, companies have redundant initiatives in place across their organizations. The eighth strategic element addresses this problem by harmonizing and rationalizing cross-organizational initiatives. To accomplish this, critical activities include: identifying existing initiatives across functions, finding overlap and redundancy, developing a harmonization road map, evaluating proposed initiatives, developing an initiative portfolio, prioritizing initiatives, and lastly, aligning Business and IT. The ninth and last piece of holistic strategy may be the most difficult. Geoffrey Moore has described the future of design as edge-driven with an adaptive core. As opposed to our core systems driving our design and forcing the edge to adapt, the design principle has flipped. The edge will now drive our design and our core must adapt. The critical elements of this strategy are: consumer-like experiences, service-oriented architectures, and a modern core platform.

Experience-Based Differentiation

With the rapid commoditization of products and services, the speed at which new market entrants emerge and the rise of consumerization, experience is the new battle ground. When I talk of experience, I mean stakeholder experience. Ultimately,

it's about creating differentiated customer experiences—but to get there, the experience we create for our employees and partners is critical to that end goal.

Engagement is the foundation of our experience road map. We create experiences through engagement—and with the right experiences, we create trust. That holds true for any stakeholder in our ecosystem. As we move away from command and control models towards edge interaction that is value-based, trust is the critical ingredient. This places great importance on the systems of engagement that we develop in the next five to ten years, and puts this effort at the top of the priority list.

To create an engagement foundation that delivers experience-based differentiation, strategy is a critical first step. The experience vision must align with company strategy and brand attributes, and the brand experience should be evaluated and envisioned from the stakeholder perspective. Experience design should be informed by stakeholder insight and co-created with all stakeholders. This shifts experience design to an edge-driven model where the core adapts—a complete reversal from previous design principles. As most of us that have lived through the ERP and process reengineering days can attest, the core drove design and the edge adapted. The most effective way to co-create is through visualization. The experience delivered should be envisioned and visualized as a way to ensure that all stakeholders can clearly see the intended experience. Journey maps and real world personas are common practices that should be used in the design phase, as we look towards customer behaviors, motivations and rewards derived from insight.

The true obstacles lie in the execution of the experience strategy and design. This is at the core of my premise that significant structural changes lie ahead. Traditional companies are not structured to deliver consumer-like experiences—and let's face it, we've all been conditioned to expect them. How many companies are structured to deliver on these digital enterprise characteristics:

- Open, agile and collaborative
- Able to listen, adapt and respond
- Engagement-driven
- Fast, iterative and experimental
- Powered by creativity and ideas

And yet, delivering experience-based differentiation will demand that we exhibit these characteristics. Therefore, we must align internal activities and structures to support the experiences we intend to deliver.

At the end of the day, it comes down to fostering collaboration and integration within the company and making experience a core competence. There are several practices that companies are embracing to get there, like establishing cross-functional teams or creating new executive roles. By placing the customer at center of our existence, we can drive towards the in-the-moment effectiveness so critical to any experience strategy. So that brings us right back to the foundation—systems of engagement. How we

address the foundation defines our success or failure. These systems must analyze customer experience across unified data sets and simplify and align process to customer touch points. They must eliminate interaction fragmentation and break down data silos in order to inform every interaction with context.

The last piece of the experience road map is measurement. We must identify the aspects of customer experience that drive the intended outcomes and then effectively measure the Return on Customer Experience (RoCx). It is critical that we define and delineate customer value from company value and define goals and metrics for each touch point. Diagram 2 visualizes the focus on Return on Customer Experience.

Diagram 2. Measuring Customer Experience
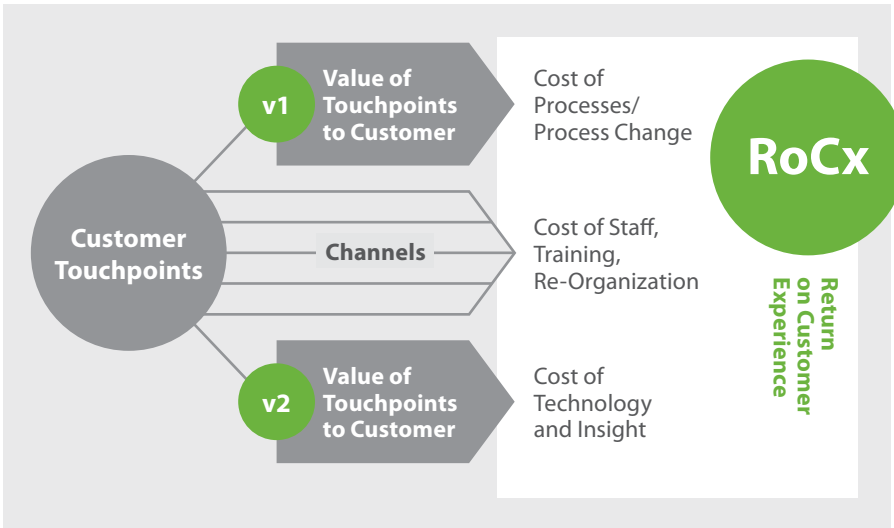
Integrated Social Ecosystem

My belief that digital is still very misunderstood is growing stronger. Instead of understanding digital to be the transformative engine that drives sustainability—it is still viewed as an offering or channel. Those are indeed critical pieces of the digital story, but it's not the whole story. Those very innovations that drive our current disruptive environment—transform us to deal with the aftermath. Our customers have shifted—and we can't shift with them if we are inhibited by traditional views of digital. I participated in a recent think tank discussion, where people talked of digital's small contribution to revenue, concluding that it was not worth the focus.

Heavy sigh!

Without a burning platform, I fear companies will stay on the digital sidelines. This approach may have worked in the past, but we live in a different, fast paced world. Without the vision to see the future, companies will leave themselves no time to react to nimble start-ups or Internet Companies that continue to expand outside their traditional business. Internet Companies and start-ups have a high digital quotient—traditional companies do not.

The third element of the digital enterprise roadmap focuses on the most misunderstood member of the digital family: Social. There is still too much emphasis on Facebook, Twitter, LinkedIn and other social networks, as opposed to viewing social as a critical component of future systems of engagement. As these systems emerge, they will do so across three ecosystems: customer, employee and partner. Diagram 3 shows the importance of the Social Ecosystem in the broader Digital Enterprise architecture.

The initial social ecosystem focused on the customer and was dominated by activity in external social channels. There are great examples of customer communities and other internal social customer efforts created and managed by companies; but the dominant activity in the social customer ecosystem is in the external channel. Social listening has for the most part focused on brand monitoring, with a growing focus on customer service and social leads. Social will increasingly be woven into the fabric of customer-facing processes, and software vendors are already moving down this path.

The second social ecosystem and one that is seeing a growing focus is the employee ecosystem. One typical initiative in this area is the creation of internal communities using software

Diagram 3. Digital Enterprise Architecture
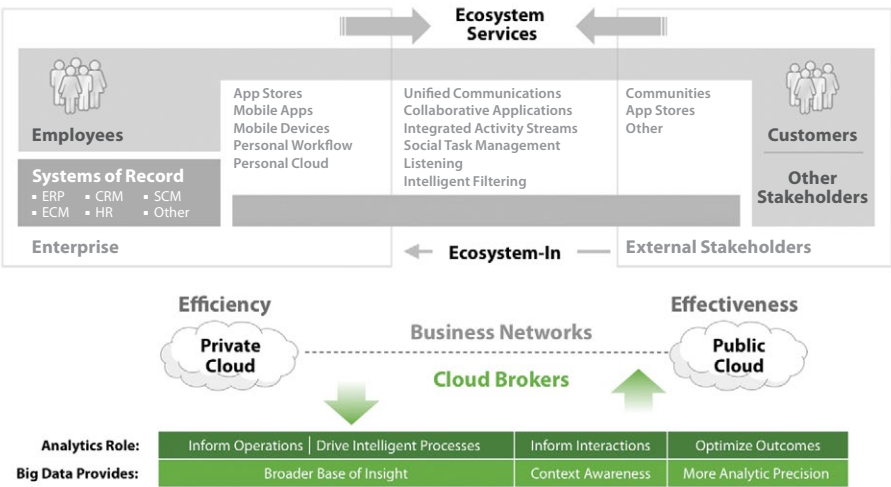
like Jive or comparable products. These efforts will evolve from basic community development to the creation of a social layer that fundamentally changes our business processes. Integrated activity streams, social task management and interaction histories are just some of the things we will see as this ecosystem evolves. Collaboration, communication and coordination will all improve with this evolution, and the collective knowledge of the organization will be used in a way that has eluded us for years.

The third social ecosystem—and one that is just now getting attention—is the partner ecosystem. As value ecosystems emerge, the importance of collaboration grows and social is a key enabler of collaboration excellence. This third ecosystem therefore becomes a key component of the relationship management strategy. Effectively managing an environment that includes a growing number of external stakeholders is a critical success factor. This scenario makes it clear: social needs to break away from traditional views to become the enabler it is destined to be.

Is there a danger of three separate and distinct ecosystems emerging? I think so—and that's a big mistake. The collective intelligence of complete ecosystems unleashes the knowledge, creativity, ideas and innovation so necessary to future survival—disconnected ecosystems can't deliver that. Next generation

experiences will be delivered by an ecosystem of stakeholders—disconnected ecosystems can't deliver that either. A system of engagement that uses complete interaction histories to make each moment of engagement an effective one cannot do so without an integrated social ecosystem.

So back to the misunderstood nature of digital—it's very puzzling to me. How can we enable digital enterprise characteristics so important to future success, if we don't start thinking differently? Though misunderstood, social is a key piece of future systems of engagement and an enabler of many future enterprise characteristics. The future cannot be realized however, if the three social ecosystems are not integrated. So the third critical element of the digital enterprise road map is the integrated social ecosystem.

Systems of Engagement

Geoffrey Moore introduced the Systems of Engagement concept about two years ago. This vision for the future of Information Technology is gaining broader acceptance—but a surprising number of executives are blind to the coming sea change. Is it hype or reality? For me, this question boils down to one certainty: traditional companies must infuse their organizations with digital DNA—and I believe systems of engagement accomplish this. They raise Digital DNA quotients by using consumer technology to make companies more effective. This notion of effectiveness is a key shift from a two decade long focus on efficiency. That's not to say the importance of efficiency has diminished, in fact I'd say the next phase in the search for efficiency gains is upon us. But at the same time, effectiveness will headline a decade long journey focused on growth. The same platform that enables next generation efficiency—Mobile, Social, Big Data, Analytics and Cloud Computing—forms the foundation for effectiveness through systems of engagement. Diagram 4 describes the system of engagement vision.

Diagram 4. Systems of Engagement

Where current enterprise systems are designed around records (systems of record), these new systems are designed around interactions. Where technology investment in the last two decades enabled transaction workers and executives, these systems enable the middle of organizations with a focus on growth. Here is more evidence supporting the likelihood of these systems emerging: driving future growth will increasingly involve multiple stakeholders within a value ecosystem. So systems of engagement therefore must be viewed holistically across the entire ecosystem— and if you ask me, few if any have taken this holistic view. What we have are isolated sets of initiatives that in the worst case create more silos, and in the best case are sub optimal. Holistic systems of engagement should bring together the entire value ecosystem—but there are many obstacles:

- Lack of vision—failure to see the burning platform
- Shifting industry boundaries and ecosystem complexity
- Ecosystem uncertainty
- Organization and data silos
- Innovation-crushing policies and procedures
- Outdated back-office systems
- Top-down command and control models
- Digital initiative sprawl
- Shadow IT
- Lack of governance

Deploying systems of engagement: Effectively navigating these obstacles is the first order of business, and a holistic strategy is the enabler. The second is effectively using consumer technology and interaction histories (think Facebook Timeline) to drive effectiveness. These systems will increasingly use mobile as the face of engagement. I've had the pleasure of working with Ted Schadler from Forrester on occasion, and he and John McCarthy produced a report on the role of Mobile in this emerging space— "A Billion Smartphones Require New Systems of Engagement." I have a lot of respect for Ted, and I believe his findings are spot on. Specifically, he states that recent research indicates that companies have:

(Forrester Blogs, http:// blogs.forrester.com/ ted_schadler/12-02-14-a_ billion_smartphones_ require_new_systems_of_ engagement; published February 2012)

"A new ability to empower customers, employees, and partners with context-rich apps and smart products to help them decide and act immediately in their moments of need."

Mobile therefore lies at the heart of the system of engagement vision; and 'context-rich' aptly describes a critical enabler. Not only will these systems deliver effective interactions, but they will usher in new ways of working by leveraging mobile apps, smart products, personal clouds, integrated activity streams, social task management and personal workflow. They will increasingly leverage all data in our ecosystems to drive outcomes and enable the effective use of collective intelligence.

Beyond Mobile, systems of engagement will leverage the social ecosystem described as the third element of this roadmap. The collaborating, communicating and coordinating power of social will fuel these

future systems. But perhaps the most impactful and difficult engagement element is the sense-and-respond system. To deliver in-the-moment effectiveness, context must be provided at the point of interaction—and interaction windows are short. But context is just a means to an end—we need to determine appropriate action (response)—and this requires a deeper use of analytics than most companies are prepared to support. I believe the hype around Big Data masks the true issue: organizations lack the analytic maturity critical to future success. Yes, Big Data technologies play a critical role, but the point of failure in many cases will occur in the process of converting data to insight, insight to action and action to intended outcomes. Sense and respond systems therefore will only succeed if companies mature from a descriptive (backward looking) paradigm to a predictive and prescriptive paradigm (forward looking). We will explore this maturation as part of the sixth element of this roadmap.

So we've done the hard work of deploying system of engagement components—it must be time to sit back and enjoy all this engagement. Not so fast—we need to integrate these new systems of engagement with our systems of record.

Integrating systems of engagement and systems of record: In effect, systems of engagement are built on top of systems of record. But a complex tension exists between the two: systems of record want to be stable and secure, while systems of engagement want to be agile, flexible, fast and responsive. Focus too much on stability and security—and the value of systems of engagement diminishes. Aggressively leverage systems of engagement to create Digital DNA—and the company could be exposed. This type of environment introduces risk, including possible leaks of confidential information and intellectual property. But in a recent McKinsey Global Survey titled "Evolution of the networked enterprise: McKinsey Global Survey results" *(http://www.mckinsey.com/insights/ business_technology/ evolution_of_the_ networked_enterprise_mckinsey_global_ survey_results, published March 2013)*, 60 percent of respondents still say the potential benefits outweigh the risks. Solutions that manage this tension will likely evolve over time, but until then, leaders need to develop road maps that enable a phased transition—not a complete overhaul.

Lastly, all of this is further complicated by architectures that are not service oriented and antiquated legacy

environments. Investments made in legacy modernization and service orientation will deliver considerable returns over the next several years—and those that have done this hard work are ahead of the game. Without an enabling foundation—realizing the systems of engagement vision will be difficult.

Either way, this is likely a five to ten year journey—but journey we must.

Effectiveness

Efficiency dominated the last two decades with a focus on doing things in the right manner. But the next decade brings an increased focus on doing the right things—also known as effectiveness. The overarching goal of effectiveness is to drive desired outcomes and encourage innovation to meet enterprise goals. This simple statement has far reaching implications and represents one of the strongest drivers of enterprise change in this next decade. If I were to place one long term bet, it would be on the enablers of enterprise effectiveness.

To drive business effectiveness, each element of the value ecosystem must be considered—and it starts with an outside-in view of the role played by each ecosystem stakeholder. A holistic effectiveness strategy and road map has the potential to:

- Drive optimal business outcomes
- Make every moment of engagement an optimal one
- Make every decision a smarter one
- Drive course correction in real-time
- Drive rapid and iterative strategic planning
- Enable future enterprise characteristics

Holistic systems of engagement are a major piece of the effectiveness road map. But without structural change (organization, process, policies, procedures, etc.) the road to

effectiveness will be a difficult one. I believe that effectiveness holds the key to future enterprise success, and as such, I am certain that considerable structural change is likely in the coming decade. Beyond structural change, the convergence of Mobile, Social, Big Data, Analytics, The Internet of Things and Cloud Computing provide a platform for effectiveness. Collectively, the platform delivers the core elements of the effectiveness road map (see diagram 5).

Diagram 5. Measuring Customer Experience
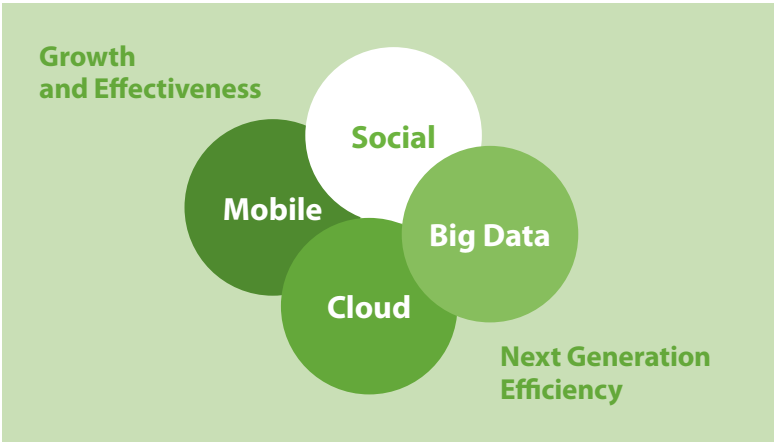
Enabling right-time in-the-moment effectiveness

In-the-moment can span seconds or weeks depending on the circumstances. It can mean a current customer interaction that requires real-time insight to drive the next best action, or the timely analysis of a claim to determine the appropriate course of action. In any case, windows for decision making are shrinking and now require analytics at the speed of stakeholder experiences. As colleague Tonya McKinney describes it: we are dealing with micro-cycles of engagement. These micro-cycles create our moments of need, and effectiveness is now a clear differentiator. Effectiveness can be achieved through action-enabling insight, and the facilitator is the Google-like question and answer paradigm so familiar to all of us. IBM Watson showed us the art of the possible when it defeated two Jeopardy champions. Now, rapid advancements in the price and performance of technology make realizing this question and answer paradigm achievable and economical for a wide range of use cases.

The sense and respond systems described as part of the fourth element—systems of engagement—are enabled by the same mechanics that drive the question and answer model. In one scenario, these systems sense stimuli in the ecosystem and enable a timely response. An example would be a tweet that references a fire at a factory within a company's supply chain. Sensing that event enables the company to drive a rapid response. Another scenario leverages interaction histories to provide context in support of a particular moment of engagement. Still another scenario leverages rapid simulations to inform critical decisions or adjust a current strategy. But how will these sense and respond systems evolve? Big Data and advanced analytics are a key piece of this evolution; and Fast Data will soon be another buzzword added to the mix. The Forbes article, "Fast Data Gets A Jump On Big Data" *(http://www.forbes.com/sites/oracle/2013/03/01/fast-data-gets-a-jump-on-big-data, published March 2013)* defines fast data as the continuous access and processing of events and data in real-time for the purposes of gaining instant awareness and instant action.

Fast Data combines with Big Data to find new opportunities and enable a rapid response. It's the timeliness of response or decision that matters, and

this article on in-memory analytics, "In-Memory: The Lightning in the Big Data Bottle" *(http://www.ibmbigdatahub.com/blog/memory-lightning-big-data-bottle, published March 2013)* anticipates a time when in-memory infrastructures could deliver an order-of-magnitude improvement in the responsiveness of next-best-action environments. In a recent survey released by the Independent Oracle Users Group (IOUG), titled "In-Memories Strategy Survey" *(http://www.dbta.com/Articles/Editorial/Trends-and-Applications/IOUG-Releases-Results-of-its-2013-In-Memory-Strategies-Survey-87286.aspx; published January 2013),* nearly 75% of respondents believe that in-memory technology is important to competitive advantage. In-memory analytics delivers data-driven decision making to a broader set of individuals at all levels of the organization—and this is critical to effectiveness at scale.

While speed is one driver, quality of insight is another. In-the-moment effectiveness is inhibited by organizational and data silos. These silos—which may actually be getting worse due to digital initiative sprawl—must be torn down to succeed. Another key obstacle is an inability to break away from insight-inhibiting traditional practices. For example, Forrester recently published a report

titled "Digital Intelligence" *(http://www.forrester.com/Digital +Intelligence+Transforms+Analytics+Into+Action/fulltext/-/E-RES83961; published October 2012)*, where they urge Marketers to move from traditional web analytics to digital intelligence. They go on to describe how digital intelligence promises to deliver complete visibility to customer interactions across all digital touch points and turn analytics into actionable insights.

Cloud-enabled business networks

Disruptive innovation is coming to the world of business collaboration—and effectiveness is the likely outcome. In their recent report titled "Building Business Network Platforms In The Cloud" *(http://www.forrester.com/Buildi ng+Business+Network+Platforms+In+The+Cloud/fulltext/- /E-RES77764; published October 2012)*, Forrester describes a future where Cloud-enabled business networks deliver an ease of engagement never before seen in traditional business-to-business (B2B) collaboration solutions. According to Forrester, these networks enable business collaboration by sharing data in real time on a single cloud platform based on trust relationship models rather than by mapping and exchanging B2B data. As industry boundaries continue to blur and multiple relationships are increasingly required to create value, this business network capability will manage increased collaboration complexity and make every relationship more effective.

Leveraging Innovation Convergence

So it is clear that analytics and collaboration are the enablers of future business effectiveness, and as the primary innovations continue to converge, the byproduct is an engine to deliver that effectiveness. Collectively, systems of engagement will increasingly enable the capture, sharing and consumption of tacit knowledge. Social—which was the third element of this roadmap—leverages its collaboration, communication and coordination strengths

to make the entire ecosystem more effective, while enabling the use of institutional knowledge. The rapid convergence of Mobile and Social supports the micro-cycles phenomena and enables a re-invention of business process. The Internet of Things plays a crucial role in sense-and-respond systems and promises to generate a sea of data that if harnessed, can contribute significantly to business effectiveness.

To say it again, the overarching goal of effectiveness is to drive desired outcomes and encourage innovation to meet enterprise goals. The shift to effectiveness will happen over the course of the next decade, and the enablers are in place to support the journey.

Insight

The final piece of the Digital Enterprise road map focuses on moving insight delivery from descriptive to prescriptive. Throughout this series, I have stressed the importance of analytic excellence to long term success. But current methods such as traditional business intelligence (BI) focus on reporting and analysis that seeks to answer questions related to past events—what happened. Advanced analytics seeks to answer questions such as: why is this happening, what if these trends continue, what will happen next (predict) and what is the best that can happen (prescribe). There is a growing view that prescribing outcomes is the ultimate role of analytics. To accomplish this, analytic initiatives need to leverage an insight-action-outcome framework that starts by defining outcome-enabling insight and ends with a focus on data provisioning. Diagram 6 depicts a framework for business outcomes.
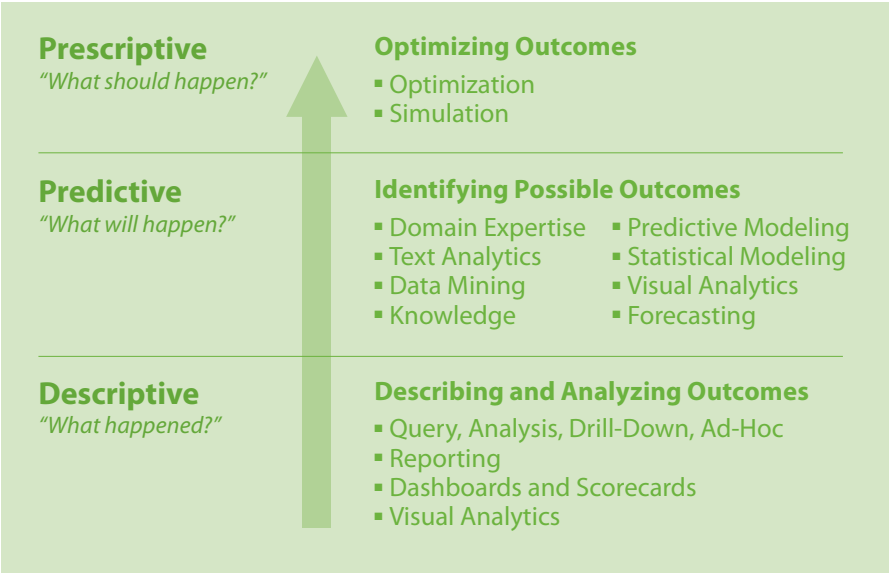
Diagram 6. Business Outcome Framework
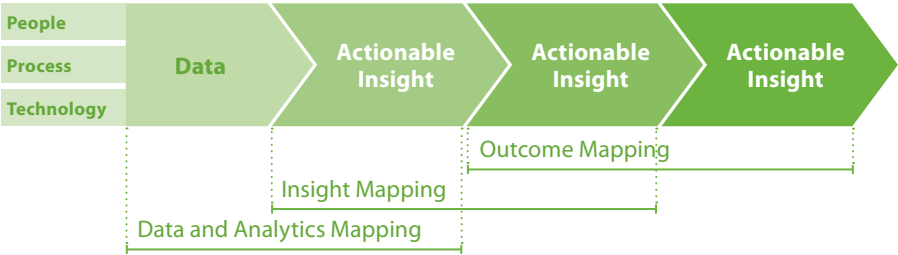
However, the data side of this framework is growing in complexity. The digitization of virtually everything now creates data across a broad range of industries. Data is flowing through social media, medical and scientific devices, sensors, monitors, detectors, supply chain devices, instrumented cars, roads, domestic appliances and much more. The utility sector provides a great example of this data tsunami and the growing need for analytics. The smart grid and the gradual installation of intelligent endpoints, smart meters and other devices will generate volumes of data. Smart grid utilities are evolving into brokers of information, and this type of information broker will emerge across all industries to feed a growing need to leverage third party data. For Utilities, this is a formidable IT challenge, but it is also a huge opportunity to move beyond simple meter-to-cash functions and into real-time optimization of their operations.

With insight and enabling data defined, advanced analytic technology drives the framework with levels of sophistication, speed and accuracy previously unachievable—but analytic capability and a data culture are lacking in most organizations. To address this, holistic strategies must incorporate a road map for analytic excellence that moves organizations from their current level of analytic maturity (mostly descriptive) to the highest level of maturity (prescriptive). Companies that effectively manage this transition will do so across these three levels:

Level One	**Descriptive**	Query, reporting, dashboards, KPIs, etc.
Level Two	**Predictive**	Answer questions about what will happen next
Level Three	**Prescriptive**	Optimize outcomes

Diagram 7 shows these levels visually.

Diagram 7. Business Analytics

Prescriptive
"What should happen?"

Optimizing Outcomes
- Optimization
- Simulation

Predictive
"What will happen?"

Identifying Possible Outcomes
- Domain Expertise
- Text Analytics
- Data Mining
- Knowledge
- Predictive Modeling
- Statistical Modeling
- Visual Analytics
- Forecasting

Descriptive
"What happened?"

Describing and Analyzing Outcomes
- Query, Analysis, Drill-Down, Ad-Hoc
- Reporting
- Dashboards and Scorecards
- Visual Analytics

In conversation with executives, most believe they are somewhere between level one and level two on the maturity curve. They understand that success in the future dictates an aggressive move towards level three, but the challenges can be overwhelming and the transition is not an easy one. At its core, this transition requires a shift from gut-based decisions to a data-driven culture that allows insight to guide decision making and actions. A recent MIT Sloan Management Review report, titled "Analytics: The New Path to Value" (published in 2010), effectively uses a maturity model to describe how organizations typically evolve to this state of analytic excellence. The authors through their analysis of survey results have created three levels of analytic capabilities:

Aspirational Use analytics to justify actions
Experienced Use analytics to guide actions
Transformed Use analytics to prescribe actions

The report found that as the value of analytics grows, organizations are likely to seek a wider range of capabilities—and a more advanced use of existing ones. This dynamic is leading some organizations to create a centralized analytics unit that makes it possible to share analytic resources efficiently and effectively. These centralized units are the primary source of analytics, providing a home for more advanced skills within the organization. This same dynamic could lead to the appointment of Chief Analytics Officers (CAO) in the future.

The availability of strong business-focused analytical talent will be the greatest constraint on the path to analytic excellence. Companies will explore hiring, training and outsourcing alternatives to address the need for specialized skills. Another obstacle is the data itself, which will increasingly lead organizations to establish enterprise data management functions led by Chief Data Officers that coordinate data across business units. The information management challenge will grow as millions of next-generation tech-savvy users leverage feeds and mash-ups to bring data together in a way that lets them answer their own questions. This gives rise to new challenges, including data security and governance.

Actionable insight could be the biggest determinant of future success, which makes the move to analytic excellence mission critical. It seemed only appropriate to wrap up the digital enterprise road map with what is potentially the biggest piece of the future road map.

Digital Enterprise & the Changing Role of IT

The CIO's Pivotal Role in the
Digital Enterprise Effectiveness

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Introduction

Digital Transformation—involving the four pillars of technological disruption, namely Big Data and Analytics, Cloud Computing, Mobility and Social Networks—can provide major benefits to the enterprise, including easier customer reach, personalized customer care, improved productivity and better collaboration and innovation, leading to increased revenue and reduced cost. While each of these pillars is powerful by itself, their collective use can provide strong synergies and endless possibilities for innovation. However, investing in these without a well-thought out digital strategy will lead to ineffective implementation and an ad-hoc and skewed adoption. With the blurring of boundaries between business and technology, the IT department and the CIO today have a pivotal role to play in ensuring the effectiveness of a Digital Enterprise. This paper highlights the various factors and considerations that drive this change in the role of IT, as well as the cultural and mindset change that must occur at all levels of the enterprise.

The consumerization of technology, marked by the invasion of employee-owned smartphones and tablet devices into the workplace, has changed the roles of the IT department and the CIO. No longer limited to technology, these roles have evolved and grown, making 'people' the key consideration and focusing on their empowerment and collaboration needs. The key benefits of Digital Transformation, built on the four pillars of Big Data and Analytics, Cloud Computing, Mobility and Social Networking, are numerous. Cloud computing with its anything-as-a-service paradigm shift offers new scalability

and economy. Mobility with its anytime-anywhere culture is enabling easier customer reach, better supplier interaction and improving employee productivity. Social media is shifting the balance of power from businesses to consumers and offers powerful two-way communication between consumers and businesses. Social media can change the partner ecosystem dramatically, building sharing and crowdsourcing solutions. Big data expansion means there is more and more data about the customers, and with effective analytics, personalized customer care has become a reality. By effectively embracing these four pillars of a Digital Enterprise, CIOs today can lead their organizations to a state where information technology redefines business.

The New Digital Technologies—Their Impact is All Pervasive

Digital disruption is not limited to the boundaries of the enterprise; it has something to offer everyone—customers, employees, partners, service providers, CXOs, top management, entrepreneurs as well as shareholders. As the influence of these technologies and the corresponding customer demands are not under the control of any entity, ignoring these, or even worse, letting the individual components grow unharnessed is surely a recipe for disaster.

Customers voice their grievances on social networks, use peer reviews for product selection and increasingly expect personalized products and services and near-instant solutions. Mobile devices today are almost equivalent to computers and function as instant access, anytime-anywhere devices. Employees bring their own devices, business users work on projects using easily available cloud services and IT personnel explore newer technologies with no initial investment. The availability of cost-effective analytics and big data can provide organizations with real-time business intelligence, making it possible to take decisions on each individual case, based on a clear understanding of past data—a possibility that did not exist earlier.

Social media is fast becoming the standard, or default channel for communication—between customers, employees, partners, and even within the organization. Customers speaking to a customer service representative to get their queries answered and problems solved has become the norm. There is a close correlation between customers' loyalty and their level of comfort in their digital interactions with the organization.

Social media investments today can have business objectives such as reducing

costs on traditional customer research, paid media and third-party customer surveys as well as pre-empting negative influence spread. Enterprises are currently in the experimental stage of social media usage, and it is expected that in a few years, organizations will use social media to achieve targeted objectives with clearly defined business results—both in the customer space as well as in employee collaboration.

Big data today is bringing in the most benefits for companies that conduct a lot of their business on Internet—in the area of logistics and sales, in improving customers' offline experience and marketing to consumers based on their physical location. And in customer service, monitoring how customers use their products to detect product and design flaws is seen as a critical application for big data with great potential benefits.

The Synergy between the Four Pillars

Individually, each of the above mentioned four pillars is powerful by itself; leveraging them collectively however, produces synergy and provides possibilities for innovation. Research firm Gartner rightly calls this the 'Nexus of Forces.' Take for example, a high valued customer on business travel across the globe, who raises a

complaint on a social network. This triggers a message to the customer service representative, who connects to the analytics system, deployed cost-effectively on a public cloud, to get the complete customer history. He then uses a mobile application to get approval for the additional expenses required to solve the problem without delay, fixes the problem and informs the customer on the same social network. The outcome is that customer is not just satisfied, but delighted as his problem has been resolved within minutes, even though he is almost half a world away from his home country.

As the number of mobile connected devices grows exponentially, there will be more connected mobile devices than people in the near future. Social and mobile client interactions are by nature ad-hoc and their volumes are not predictable. The elastic nature of the cloud—that can cater to wide load fluctuations—makes it the ideal platform for social and mobile interactions. Enterprises with an independent cloud infrastructure for non-transactional applications are also assured that the performance and security of the underlying applications and infrastructure (that are transactional and still the foundation for any business) are not adversely affected.

IT can help enterprises get value from the 'Nexus of Forces'

The IT department's role in ensuring that these four pillars operate in an effective and seamless manner cannot be overstated. It is imperative that the users, be they customers, business users or external partners, are provided with a simple, straightforward and intuitive experience. IT has to absorb all the backend complexities on which innovative solutions are built. In this way, IT can regain its glory days and become the 'business game changer' in the new Digital Enterprise.

Going digital gives enterprises the opportunity to extract value from their service orientation investments. The better the underlying applications adhere to the service-oriented architecture (SOA) concept, the easier it is to try out new ideas on social and mobile interactions. Agility is the key to success, and the underlying IT systems must be made more open and flexible with adequate instrumentation, service orientation and Application Programming Interface (API) management.

Cloud computing has evolved over the past few years, and today 'anything-as-a-service' no longer means only commodity services. Cloud computing can now cater to custom requirements, making it possible to have the best of both worlds: the IT best practice of using a layered approach to application development enables the twin achievement of these seemingly conflicting objectives—differentiated solutions coupled with maximum cost benefit due to commoditization and economies of scale, such as a completely customized solution at the top layer (business process or workflow), with highly commoditized underlying applications, software and hardware.

The rapid pace of development in these four pillars makes it impossible for IT to retain end-to-end accountability and responsibility for all the initiatives related to these areas. Co-creation of solutions, with active involvement from business, customers, suppliers and partners, is the key to the growth and continued relevance of IT. IT has to take on the role of the enabler in creating an eco-system that nurtures idea generation, innovation and experimentation, all aimed at making the best use of technology to deliver business results.

The Digital Enterprise thrives on Innovation

While customer experience is driving new initiatives in most organizations, appropriate instrumentation and

automation in these four pillars can also be used to solve a variety of real-life problems. Examples include real-time parking (i.e. making it easier to find a place to park), real-time tracking of vehicles and inventory and taking instant decisions and corrective actions to handle unexpected situations (for example, during natural disasters).

Innovation is not necessarily about only conceiving a completely new idea; it can also mean adapting an idea to a different context to solve real-life problems. Enterprises that look beyond their own domains to identify potential ideas that can benefit their business are the ones forging ahead. It is not an exaggeration to say that now is when enterprises are facing the 'Perfect Storm of Innovation'.

Business users and IT have to work together to develop new ideas that exploit technology, customers can be co-creators, employees have to be empowered to cut across department boundaries to make decisions and suppliers have to be co-innovators and partners.

The pace of technology change and the speed at which competitors emulate any innovative differentiator, makes it necessary for organizations to continuously innovate. In today's context, innovation is really about bringing in new approaches from both the customer space and from other domains, into the organization. Creating an environment that nourishes an innovative culture across the organization is the key for sustaining value. Hence most enterprises today are investing in internal social and collaboration platforms and encouraging employees to participate, contribute and collaborate.

The Digital Enterprise—Challenges to Overcome

Unquestionably, there are many success stories on how organizations have used one or more of the four pillars of the Digital Enterprise to turn around their failing fortunes, and more stories on how successful companies have further fueled their own growth. However, there are also a few cases where organizations have failed to achieve value from their investments. In the Big Data Study conducted by TCS, which surveyed 1,217 companies in eight countries across North America, Europe, Asia-Pacific and Latin America in December 2012 and January 2013, a little over half (643) said they had undertaken Big Data initiatives in 2012 and 43% of them predicted an ROI of 25% or above while about 24% had negative or no return. The same

study showed that, while sales receives around 30% of the budget, and logistics and finance together get only 14%, on the potential returns, logistics ranked as high as sales. Some organizations have ended up wasting resources and increasing the complexity of their eco-system and worse still, leaving customers and employees disillusioned. As with all breakthrough ideas, these new initiatives have associated risks and pitfalls. Some of the issues include:

- Impact on employee productivity and exposure to legal implications due to increased use of social networking
- Increase in IT complexity resulting from the need to manage multiple mobile platforms and ensuring compatibility across channels
- Overuse of analytics, thereby possibly flooding users with information and making it difficult for them to separate the wheat from the chaff
- Ineffective use of cloud that may result in increased financial outlay
- Increase in security risks and difficulty in protection of IP due to social and mobile interactions

Digital Strategy
Need for a well thought-out Digital Strategy
A big bang approach or an attempt to overhaul the entire organization

with the power of these four pillars poses a major risk. Implementing such initiatives without a well-thought out digital strategy will result in an ad-hoc and skewed adoption, thereby posing a serious financial threat as well as damaging the organization's image.

Enterprise Architecture (EA) with its guideline-based and big picture approach is ideal for use in developing an appropriate digital strategy. However, instead of the IT department anchoring the creation of EA with inputs from others as has been traditionally the case, in the new Digital Enterprise, EA should go hand-in-hand with collaboration, innovation and empowerment. Ideally, the digital strategy should be driven by the business with active involvement from customers, suppliers and partners, enabled and ably supported by IT.

The digital strategy should be a guiding force in setting high level policies, business priorities, investment limits and long term goals, rather than being prescriptive and thereby curtailing innovation.

Digital Strategy—Considerations
To support the new initiatives effectively, the IT department must develop new technology skills related to mobile computing, enable multi-

channels, application integration and analytics that focus on unstructured data (which typically constitutes 80% of the data), develop NoSQL databases that are appropriate for cloud, exploit open-source tools and use mash-ups and scripting languages.

The vast amount of data available and the innumerable possibilities of exploiting this data can be a daunting task and can overwhelm the organization's analytics efforts. By using cloud computing, huge initial investments on big data and analytics can be avoided. The simple approach of using stubs can ensure that ideas are piloted and refined before full-fledged deployment is pursued.

Though there are several models of cloud pricing available, the true spirit of cloud computing, where IT is treated as any other utility, can be actualized only in the pay-per-use model. The downside is the possibility of cloud usage-based payments overshooting expectations or fluctuating wildly. However, these are usually just teething issues that can be corrected by having proper checks and balances—alerts when the usage is expected to exceed the limits (that can be set approximately) and also tracing back the expense to the source (application or department). Once sufficiently mature, the departments can be given 'pre-paid' limits for their cloud usage—giving them autonomy and encouraging innovation while keeping spend in control.

Digital initiatives invariably present new security risks—for example, big data may also be critical data which can be exposed to business, customers and IT. Again, while encouraging employees to bring-your-own-device (BYOD) definitely saves costs and improves employee productivity, it can increase security risks. Lastly, data stored in the cloud adds another layer of complexity. It is therefore imperative that a significant percentage (say 20–30%) of the cost savings and the increased revenue from these initiatives be reinvested in improving information security and reducing enterprise risks.

A Cultural and Mindset Change is Required

A key cultural change that is sweeping many organizations today is that the IT department is no longer expected to simply receive business requirements and business rules as input and religiously deliver on this input. While so far IT has been measuring its success in building the systems correctly, it should now focus on building the right systems.

Unlike traditional IT application development, development in a Digital Enterprise cannot follow the familiar build-deploy-maintain lifecycle. The new initiatives cannot afford to take the Waterfall development approach, taking months to develop, test and deploy full functionality to the user; instead they can benefit from the focused use of agile methodology as the best way to collaboratively develop and deploy functionalities for the user.

The cultural change in mindset for the business user community is that they must take on greater responsibility in these initiatives, accept that IT will now be supplying systems and functions that are constantly evolving, and that their feedback will drive improvement and enrichment of these applications. As individual consumers, we all are quite accepting of this new IT world with changing functions, interfaces and the seemingly perpetual 'beta' phases. The next step, therefore, is taking it to the enterprise level.

To be really effective, Digital Enterprises should also empower the business users, especially the ones in direct contact with customers, to make decisions, as the customers do not want to just connect to chat and discuss, but want their queries answered and problems solved.

Conclusion

The evolution of the Digital Enterprise is another milestone for the CIO, signaling a change from heading the IT department to helping the organization tap into its most valuable asset—information—using cutting edge technology. It is very difficult to use ROI to measure the success of these digital investments as it is mostly about innovation. The challenge for the CIO is to arrive at a pragmatic vision of the Digital Enterprise, prioritize initiatives in line with expected business benefits, keep expectations under control, and strive for long term results. Since this is a path-breaking advancement, for the Digital Enterprise to be truly successful, the CIO must inculcate the required change in mindset and culture at all levels—IT, business user as well as top management.

References
[1] TCS, Perspectives, Volume: Digital Enterprise—A Framework for Transformation (2012), accessed: June 13, 2013,
http://sites.tcs.com/insights/perspectives/digital-enterprise-topics
[2] TCS, Emerging Big returns on Big Data: Big Data Study (2013), accessed: June 13, 2013,
http://sites.tcs.com/big-data-study/the-emerging-big-returns-on-big-data-video/

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