DIGITAL

FINANCIAL SERVICES

THE GREATEST REVOLUTION SINCE MINTED MONEY

Mark J. Barrenechea

Tom Jenkins

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Barrenechea, Mark J.
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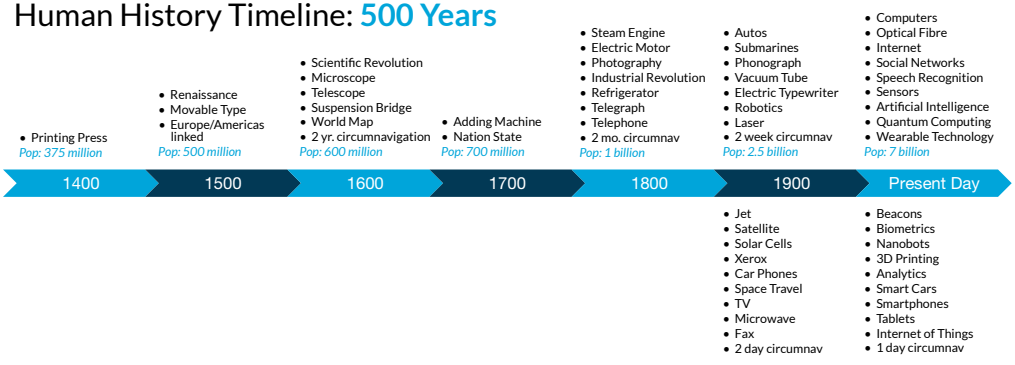
FOREWORD

There's no denying the fact that the nature of business has changed considerably in the past two decades. The rise of global markets, regulatory shifts, economic uncertainty, varying demographics, increasingly tech-savvy consumers, and disruptive technologies have accelerated the pace of change into the 21st century.

If we examine this pace of change in a larger historical context—one that looks back to our origins and some key accomplishments we've made as a species over time—the implications on business (and society) are radical, onerous, and filled with potential.

Going right back to the beginning, the first human species appeared on the planet from 150,000 to 200,000 years ago (depending on what study you follow). It took us equally as long to progress to using movable type with the invention of Gutenberg's printing press. When we consider how far we've progressed since then (with desktop publishing or even the Kindle® and iPads®, for example), this is important on two levels. First of all, it demonstrates a quickening pace of innovation. Secondly, it establishes how central information has been to our progression.

The invention of the printing press changed the world. It gave us the capacity to share information on a large scale with a high degree of repeatability. The printing press was invented in 1440. Within decades, it spread to over 200 cities across Europe and produced 20 million volumes in print. A century later, this number rose to an estimated 150 to 200 million copies and the value of information increased along with these volumes. Since it took roughly 150,000 years to get to that inflection point, we can say this came about at a very slow rate of progress.



Human History Timeline

The printing press prefaced another significant era of human invention. A couple of hundred years following its invention, we embarked on the Industrial Revolution with the invention of the steam engine. We automated our textile factories and the pace of innovation increased. Following the Industrial Revolution, it took us approximately 120 to 140 years to get to where we are today. When we consider the great wealth of material goods we now have and our capacity to manufacture them through automation, we can see that the pace of change has been truncated from 150,000 to 120-140 years. This becomes even more extraordinary when we add the Internet to our timeline.

The Internet revolution took only about 20 years to propagate. After that time it became ubiquitous—connecting people across devices, businesses, applications, and hardware like sensors and robotics. Some research analysts estimate that by 2020, 80 percent of the adult human population will be connected to the Internet. During this time, the number of mobile phones will surpass the human population. This is phenomenal when we consider that just eight years ago, iPads did not even exist.

So far, the pace of change has accelerated from 150,000 to 140 to 20 to 8 years. The rate at which this change is occurring is exponential, and this is the *speed of digital*. The digital revolution will usher in another mass inflection and exponential change in the rate of our development to create a digital world. The pace of innovation will be unprecedented and technological advances will be unfathomable in present terms.

When we compare the volumes of information the printing press made available to the volumes of information we generate today, the difference highlights the speed of digital. Every 48 hours, we produce the same amount of information that was created from the invention of the printing press up until about 2003. This means that the majority of the world's information has been generated in the last two years. The velocity at which every business is generating data is greater than ever, and this challenge will only be compounded. In the U.S. alone, organizations in 15 out of the 17 major industries house stores of information equivalent to the U.S. Library of Congress. The world's largest organizations are struggling to store and manage their terabytes of information.

Financial services is no exception. In a digital world, the firms that succeed will be the ones who capitalize on the value of their information and use it to their advantage to transform their operations. Financial services is an information business. Transactions are exchanged between parties and more often than not, it is capital that's exchanged rather than physical goods. As well as managing vast stores of information, the industry as a whole is struggling with technological disruption, mergers and acquisitions complexity, global regulations, and legacy infrastructures. These factors will not help when the time comes to pivot in new directions and embrace new digital business models.

Information lies at the heart of innovation and disruption. No longer considered just the cost of doing business, information is instrumental in driving innovation and growth.

When used the right way, information leads to greater customer satisfaction, accelerates time-to-market, helps open new opportunities, and enables businesses to remain competitive. Information is a key strategic component for every organization in financial services today.

From 150,000 years, 140 years, 20 years, 8 years—this is the speed of digital, and it's not coming—digital disruption is already here. How is it impacting firms in the financial services industry and how they do business with their partners and counterparties? Or how they build relationships with customers and engage their workforce? And why is a transformational information strategy critical for success?

This book has been written to describe the digital revolution that is taking place in the financial services industry and provide strategies for implementing transformational change. It outlines the ways in which current operations are being disrupted and provides strategic approaches firms can take to capitalize on opportunities to create value. Enterprise Information Management (EIM) is a key technology that enables Financial Institutions (FIs) to simplify their volumes of information, digitalize their operations, and accelerate their business, creating better ways to work in the digital world.

EIM empowers FIs to extract value from their information and make it accessible—in secure and compliant ways. In an economy where intellectual property is a trade commodity, new business models will have to be created. In order to address disruptive changes coming their way—new technologies, a changing workforce, digital consumers, and regulatory pressures—FIs will have to transform their operations. In short, they will have to rethink, rebuild, redesign, and re-platform themselves. They will have to disrupt or die.

Adam Howatson
CHIEF MARKETING OFFICER,
OPEN TEXT CORPORATION

INTRODUCTION

"It's not just business models that are changing, it's value chains and product offerings as well. Digitalization is not just changing industries, it is increasingly blurring the lines between them."[1]

"It is not the strongest or the most intelligent who will survive but those who can best manage change." – Charles Darwin

Business in the Digital World

We live in a time of unprecedented change. The digital world is fast approaching—in fact, in many industries, it's already here. In every sector, digital technologies are changing the rules of business by enabling new business models. All of the great innovators of today, from Google and Amazon to Apple, Netflix, YouTube, Airbnb, GoPro, and Uber, have successfully fused imagination with technology to introduce new business models and change the way consumers buy, the way companies market, and the way enterprises operationalize their businesses.

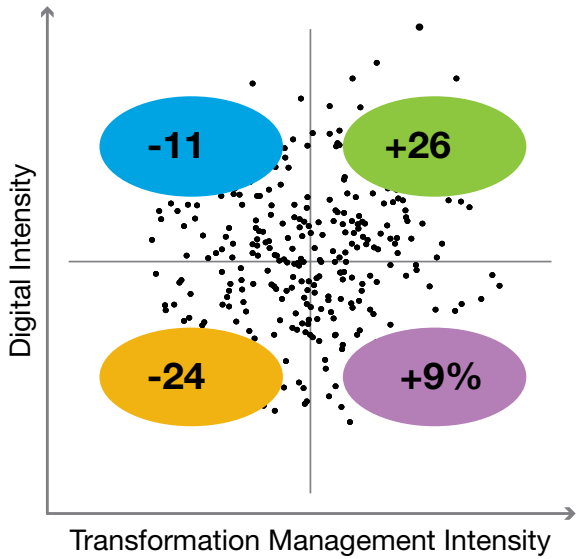
Business Models Are Advancing

[1] *"Executives Expect Digital Disruption to Displace 4 in 10 Incumbents by Industry within Next Five Years,"* Webwire, June 24, 2015, *http://www.webwire.com/ViewPressRel.asp?aId=198501* (accessed July 2015).

All around us, digitalization is promising greater opportunity. Disruptive technologies are fueling a subscription economy. As business moves decidedly to the Cloud and consumers access more products and services using their mobile phones, on-demand services are deposing the mainframe in enterprise infrastructure. Digital innovators are focusing on creating exceptional experiences for their digital consumers and benefiting from a lifetime of customer value. Brand experiences are built on networks, and companies are measuring their value based on recurring metrics. In the digital world, organizations will have to embrace digitalization or they face the risk of losing market share or even becoming obsolete.

Disrupt or Die

Over the next five years, executives expect digital disruption to displace four out of ten incumbents—or 40 percent of established market leaders.[2] This is a profound forecast, and it applies to all industries. Digital disruption is toppling market leaders and restructuring industries faster than ever before in history. If market leaders are threatened, then no organization is untouchable.



Digital Leaders Are 26 Percent More Profitable than Competitors[3]

[2] *"Executives Expect Digital Disruption to Displace 4 in 10 Incumbents by Industry within Next Five Years,"* Webwire, June 24, 2015, *http://www.webwire.com/ViewPressRel.asp?aId=198501* (accessed July 2015).

[3] *"The Digital Advantage: How digital leaders outperform their peers in every industry,"* Capgemini Consulting and the MIT Center for Digital Business, 2012.

In the digital world, the winners will be the ones who find new customers, discover new markets, and pursue new revenue streams using digital channels. These will be the digital leaders, and they will have competitive advantage. Companies that demonstrate digital growth have higher financial performance than their less digitally mature competitors. On average, digital leaders are 26 percent more profitable than their competitors. They generate 9 percent more revenue, and they create more value, generating 12 percent higher market valuation rates. For large traditional companies, this equates to billions of dollars.[4]

Fintech Rising

"A new digital ecosystem is being built; one in which launching new products and services is much easier, cheaper, and faster than it was a few years ago. Startups, developers, designers, large digital companies—all interact in this ecosystem, simultaneously competing and collaborating."[5]

In the digital world, the winners will outpace the losers who fail to reinvent themselves and miss the opportunities fueled by disruptive digital technologies. The financial services industry is no exception: while 93 percent of executives believe their business will be disrupted within the next 12 months[6], 86 percent of insurance executives and 83 percent of banking and financial services leaders believe that their business will be disrupted by digital technology.[7]

Startups are disrupting the financial services industry. Five years after the global financial crisis, Financial Institutions (FIs) are struggling to achieve profits and organic growth. Trust has been eroded by recent scandals in the industry, a recession, and the rise of financial technology or "fintech" companies—those who are willing to embrace disruptive technologies to meet the demands of the digital consumer and provide more engaging experiences. These are approaches that incumbents are overlooking to their own demise.

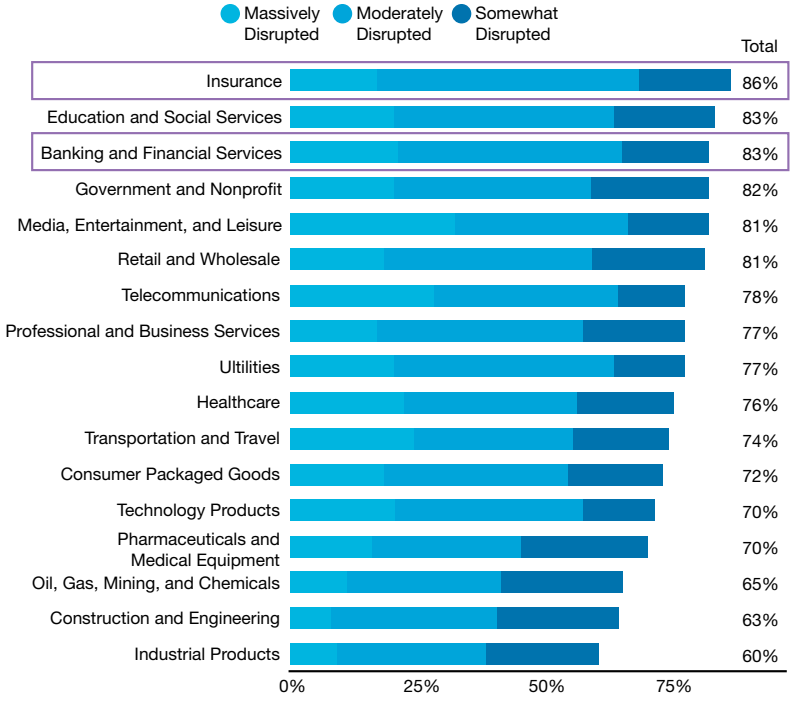
Using algorithm-based innovation, fintech organizations are helping people save money, balance their budgets, plan financially for the future, invest wisely, and process payments digitally, in real time. They're applying technologies like the Cloud, mobile, social, and analytics to deliver more targeted products and services to consumers with much greater ease and accessibility—and in the process, they're reshaping the entire industry.

[4] Nigel Fenwick and Martin Gill, *"The Future of Business is Digital,"* Forrester Research, March 10, 2014.

[5] *"Chairman of BBVA analyzes effects of technological revolution on banking industry at Harvard University,"* BBVA Press Room, April 22, 2015.

[6] Nigel Fenwick and Martin Gill, *"The Future of Business is Digital,"* Forrester Research, March 10, 2014.

[7] Oliwia Berdak and Bill Doyle, *"Digital Disruption Hits Retail Financial Services,"* Forrester Research, July 16, 2014.



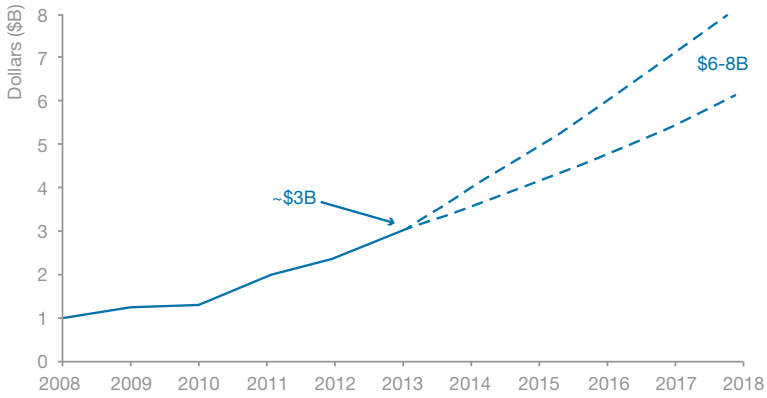
Executives in Financial Services Expect Digital Disruption[8]

Fintech innovation is on the rise. In a recent report, global investments in fintech are expected to rise to $8 billion U.S. by 2018 due to lower barriers of entry made possible by open-source software and cloud computing. Currently, there are at least 4,000 active fintech startups, and a dozen of them are valued at over $1 billion. Entrants to the market are challenging traditional players to offer similar capabilities and quality of service or lose market share.[9]

Driven by their desire to better serve consumers, fintech is moving the industry forward. Digital consumers can borrow money to crowdfund their enterprises using Peer-to-Peer (P2P) platforms like Kickstarter®. They can transfer money using PayPal® or TransferWise® and payments can be processed instantly using Apple Pay® or a digital wallet mobile app. There are even "robo-advisors"—digital financial advisors who advise consumers where to invest their money and how to spend wisely. This is the digital world, fueled by a holistic, digital ecosystem in which FIs will play the supporting role in a "whole-life platform". This platform will be made up of integrated technologies, data, and services—all driven by the digital consumer.

[8] Nigel Fenwick and Martin Gill, *"The Future of Business is Digital,"* Forrester Research, March 10, 2014.

[9] Joseph Young, *"6 Rising FinTech Startups,"* The Cointelegraph, May 22, 2015, *http://cointelegraph.com/news/114330/6-rising-fintech-startups* (accessed July 2015).



Global Fintech Will More than Double by 2018[10]

While the concept of robo-advisors might seem futuristic, digital transformation is already well underway. What this means is that many of the current business models that belong to retail banks, corporate banks, insurance companies, capital market firms, card issuers, and corporate treasuries will not be sustainable into the future. While the role of finance remains focused on growing corporate revenue and customer acquisition, survival will require the adoption of disruptive technologies to drive continuous innovation cycles and customer engagement. *Digital Financial Services, The Greatest Revolution Since Minted Money* has been written to explore these facets.

In the digital world, FIs will be required to deliver a range of products and services using digital channels. The alternative is to be marginalized to utility providers as holders of capital and suppliers of accounts.[11] In short, they will need to disrupt or die. They will need to digitalize all of their processes and operate at the speed of digital. To outrun the risk of becoming irrelevant, FIs will be required to become a crucial part of their customers' digital ecosystems. To overcome key disruptive forces, they will need to invest in new technology platforms, integrate emerging technologies with legacy IT infrastructure, standardize their data across systems, and create dynamic and flexible processes to support new technologies and devices.

Key Disruptive Forces

Many FIs cannot keep pace with the rising **demands of the digital consumer**. Even established brands are having a hard time capturing the mindshare of the emerging consumers: the digital natives also known as Millennials. For the first time in years, there

[10] Joseph Young, *"6 Rising FinTech Startups,"* The Cointelegraph, May 22, 2015, *http://cointelegraph.com/news/114330/6-rising-fintech-startups* (accessed July 2015).

[11] Oliwia Berdak and Bill Doyle, *"Digital Disruption Hits Retail Financial Services,"* Forrester Research, July 16, 2014.

has been a decline in positive banking experiences.[12] FIs are not satisfying Millennials: 53 percent believe that their banks fail to differentiate their services, 33 percent believe they don't need a bank, and 73 percent would feel more inclined to support new financial services offerings from Google, Amazon, or PayPal rather than their own banks.[13] Branch locations are slowly being replaced by an online presence with mobile and social access. Future generations will interact with banks as part of a digital experience, instead of the traditional channel experience of today. Increasingly, the bank of the future is shaping up to be an integrated network of distribution channels designed to meet the diverse and changing needs of the consumer.

In the digital world there will be longer, more interactive transactions and higher volume networking. There is already an incredible amount of online transactions taking place on a daily basis. **New technologies** like social and mobile and how they connect over 5G networks will change the way people consume financial products and services. These high-powered networks will offer organizations zero-distance connectivity to a high-quality, global network of five billion users. Enterprise IT infrastructure will move to the Cloud. Mobile users will replace PC users, and more services will be mobile-enabled. The Internet of Things (IoT) will automatically integrate machines, data, and people. Real-time payments, transactions, and processes will become the norm.

As employees, Millennials will impact the enterprise as radically as they are impacting markets as consumers. Digital enterprises of the future will have to support a culture of innovation and build technologies to support a **changing workforce**. By the year 2020, 50 percent of our workforce will be made up of digital natives—generations that have grown up with the Internet and expect to use the same tools at work that they use at home. FIs will have to cater to their needs—from mobile apps to collaborative social networks.

Finally, the Financial Industry will have to **re-platform compliance**. Growing regulatory and market pressures will call for more robust governance strategies for enterprise information. These requirements will be driven by emerging global regulations, increasing amounts of Internet users and privacy-related issues, big data, and protection against cybercrime.

A digital world with new technologies, a changing workforce, a global marketplace, and digital consumers offers pure opportunity for FIs. Now is the time to capture the opportunity and meet the challenges of the digital world. The pace of change underlies the urgency with which the FI must transform.

[12] *"World Retail Banking Report 2014,"* Capgemini, 2014, *http://www.capgemini.com/thought-leadership/world-retail-banking-report-2014* (accessed March 2015).

[13] Anna Cotton, *"Can financial services marketing meet the social media challenge?"* The Drum, February 2015, *http://www.thedrum.com/opinion/2015/02/05/can-financial-services-marketing-meet-social-media-challenge* (accessed March 2015).

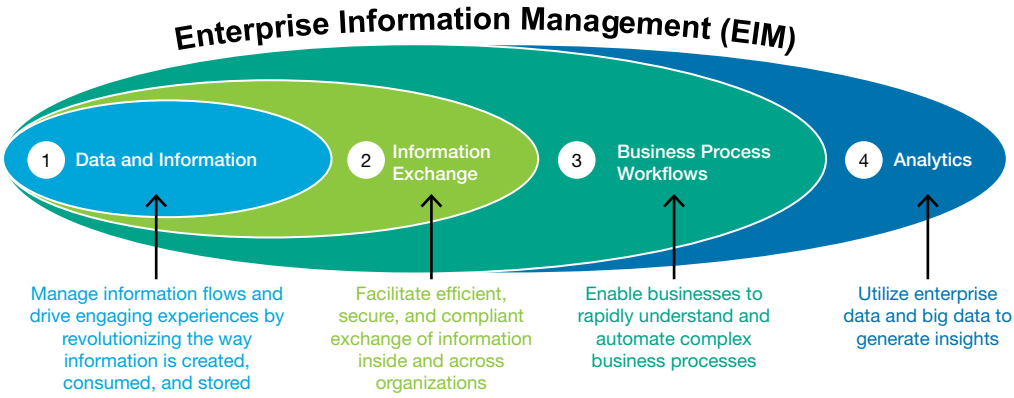
Digital Transformation

Startups and web-based companies are using digital business models to disintermediate the established market leaders. To remain relevant in the digital world and gain a sustainable competitive advantage, FIs will be required to transform themselves into digital enterprises. Digital transformation requires a radical overhaul of enterprise strategies, processes, products, services, and relationships. Enterprise Information Management (EIM) empowers organizations to make this journey.

As a transformational platform, EIM helps FIs reduce costs by integrating emerging technologies with legacy infrastructures. It enables them to simplify and integrate information across systems and digitalize processes to increase efficiencies. Consolidated information and process management empowers FIs to meet the requirements of digital customers in a new disruptive world. Based on accelerated innovation cycles, FIs can increase the speed of information delivery through integrated systems—on-premises, in the Cloud, and throughout the entire business network.

Information lies at the core of digital transformation. In the digital world, information is the new currency, playing a fundamental role in empowering FIs through innovation, growth, and opportunity. Digital leaders will differentiate their products and services based on a strategy that maximizes the potential of information as a key differentiator.

EIM is *the* key transformational technology. It provides a proven foundation for the digital enterprise to advance engagement with employees, customers, and partners, as well as across the entire financial supply chain. This book has been written to help FIs chart their course on their journey to a digital future. It is a discourse on digital transformation, as told by our customers, analysts, innovators, and industry thought leaders.



EIM Enables Digital Transformation

With change comes tremendous opportunity: the opportunity to form deeper connections with customers, partners, and employees; to create social, mobile, and flexible workplaces that are conducive to higher levels of productivity and innovation; and to deliver products and services according to individual need and specification. With opportunity comes risk, and the greatest risk lies in not embracing disruption in the digital world.

Mark J. Barrenechea
CEO & CTO,
OPENTEXT CORPORATION

Tom Jenkins
CHAIRMAN,
OPENTEXT CORPORATION

CHAPTER 1

DIGITAL DISRUPTION

CHAPTER 1

Digital Disruption

"Many conventional banks are going to fall by the wayside. Those that make it will no longer be 'banks', but software companies, competing with the digital players and with a completely different value proposition." – Francisco González, Chairman and CEO of BBVA[1]

Never before has the financial industry been threatened by so many disruptive forces. Against a backdrop of the recent global financial crisis, fluctuating interest rates, and volatile market cycles, Internet-based startups are disintermediating the market and displacing traditional incumbents.

A combination of market forces and technology are lowering the barriers to entry, making the timing just right for disruptors to capture market share from established banks and insurance companies. Technology-driven organizations are reshaping the industry, offering simplified algorithm-based financial services. Based on advances in connectivity, software, and devices, these new agile players are creating a complex landscape of lending, payments, personal money management, investment, and advisory services. Convergence is introducing competitors from other industries like retail and technology, who are well positioned to connect directly with digital consumers and offer more personalized financial services.

Competition is fierce. An explosion of regulations is making it harder for established Financial Institutions (FIs) to innovate and grow. Shackled by complex legacy IT infrastructures and outdated strategies, FIs are unable to respond sufficiently to rising competitive threats. Scale alone will not ensure survival. To succeed in the digital world, FIs will need to re-invent themselves as digital enterprises. First market movers will invent digitally based business models and lead the disruption.

As an introduction to digital disruption, this chapter examines how technologies like mobile devices, social media, analytics, and the Internet of Things (IoT) are reshaping the financial services sector.

Disruptive Innovation

Even the most mature industries are being transformed by disruptive innovation. Disruptive innovation is one of the most important theories to surface over the last 20 years. In his article for the Harvard Business Review (January – February 1995) "Disruptive Technologies: Catching the Wave," Clayton Christensen defines the term

[1] *"Chairman of BBVA analyzes effects of technological revolution on banking industry at Harvard University,"* BBVA Press Room, April 22, 2015.

"disruptive technology" (commonly referred to as "disruptive innovation") as "an innovation that helps create a new market and value network, and eventually goes on to disrupt an existing market and value network (over a few years or decades), displacing an earlier technology."

Disruptive innovation creates new markets or reshapes existing ones. As market leaders continue to produce "sustaining technologies" that are reliable and profitable, they create opportunities for disruptive innovators to enter the market. An innovation that is disruptive allows a niche set of customers to access a product or service that was once only accessible to consumers with a lot of money.

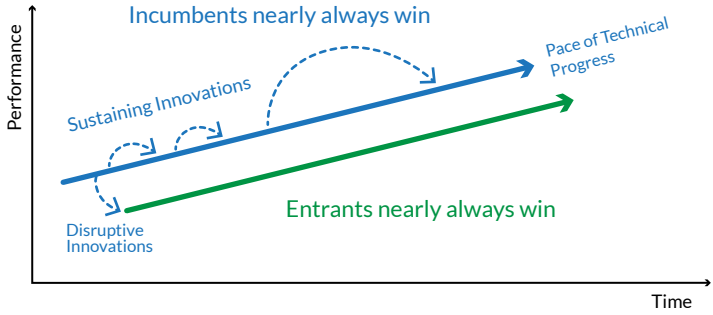


FIGURE 1.1: The Disruptive Innovation Model[2]

According to Christensen, disruptive technologies may offer poorer performance than leading technologies but are more affordable and deliver benefits not currently available from existing technologies. Market leaders miss these innovations and how they will impact the market. Typically, disruptive technologies improve in quality over time and replace older technologies. In some cases, innovations enter the market and replace leading technologies immediately based on superior performance. Both scenarios are currently uprooting the market leaders in the financial services industry at a global level.

An Emerging Digital Ecosystem

"In his latest annual letter to shareholders, Jamie Dimon, the boss of JPMorgan Chase, warned that 'Silicon Valley is coming.'" – The Economist[3]

Today's financial services industry is a crowded space, rife with disruptive innovation. Digital FIs, often contextualized as "financial technology" or "fintech" organizations, are emerging to offer a range of services that circumvent traditional payment, lending, and insurance

[2] Peter Duke, *"Sitting on Top of the World – A Strategy for Life (and Business),"* Peter Duke Media Services, March 10, 2010, *http://dukemedia.com/sitting-on-top-of-the-world/* (accessed Sept 2014).

[3] *"The Fintech Revolution,"* The Economist, May 9, 2015, *http://www.economist.com/news/leaders/21650546-wave-startups-changing-financefor-better-fintech-revolution* (accessed May 2015).

infrastructures. Fintech companies are generally startups that use disruptive technologies to deliver tailored products and services with efficiency and ease. Unlike incumbents in the industry, the focus is on delivering services rather than providing a full-service online bank. Fintechs are focused explicitly on meeting consumer needs, and without the overhead of a full-service FI, they can often deliver much cheaper products and services.

Like other disrupters from Silicon Valley, fintech innovation is on the rise. Entrants are challenging traditional players to offer similar capabilities or risk losing market share. PayPal, an online Peer-to-Peer (P2P) real-time payment platform, is a great example of a disruptive innovation. PayPal combines technology with new business models to supplant current payment systems in place. They provide a cheap, convenient, and flexible alternative to established banks by giving both consumers and merchants more ways to connect to their money and to each other.[4]

Founded in 1998, PayPal continues to be at the forefront of the digital payments revolution, enticing customers away from traditional banks and chipping away at their transaction revenues. The Company has built up a global presence, serving 203 markets and allowing over 110 million active users to get paid in more than 100 currencies. PayPal is an ambitious player. It has progressed from a payment processor to a one-stop payment shop and has formed partnerships with Starbucks, Home Depot, and other global retailers. PayPal is a highly disruptive threat as consumers want more flexible services at faster and affordable rates and merchants are frustrated with current payment systems.

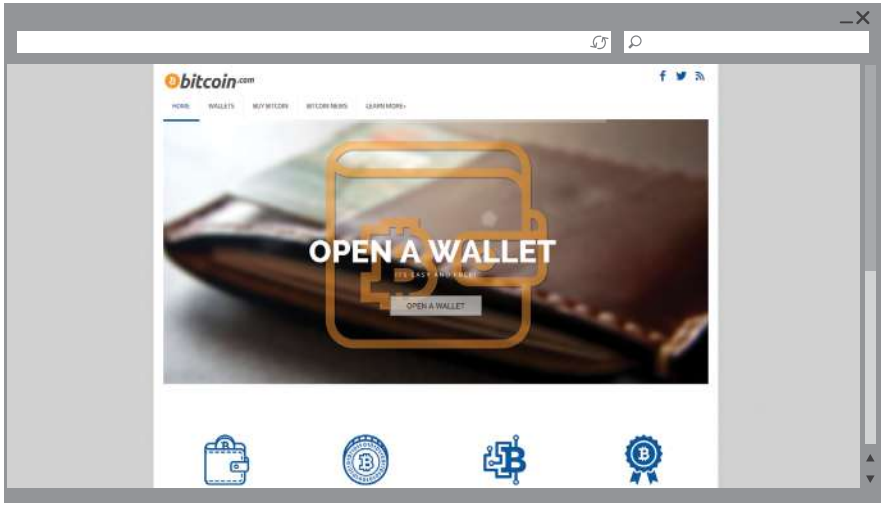


FIGURE 1.2: Bitcoin

[4] *Paypal.com.*

Like PayPal, Bitcoin® is another innovative payment network that is disrupting the current payment system. Bitcoin works without a central repository or single administrator, which has led the U.S. Treasury to categorize it as a decentralized virtual currency. It is the largest of its kind in terms of total market value ($3 billion at the time of writing). Bitcoin is open source and belongs to everyone. Transactions are verified by the network and recorded in a publicly distributed ledger called the block chain. The ledger uses its own unit of account, also called a bitcoin. Since the system is P2P and operates with no central authority or banks, users can transact directly without needing an intermediary. The network collectively manages transactions and issues bitcoins.

Bitcoin is not subject to regulations because it holds no capital. Their innovative approach to payments and exchange remains unfettered. For this reason, Bitcoin has attracted the attention of governments around the world. The market is growing at an accelerated rate. Over the past year, global private investments in Bitcoin-related companies were set to reach $300 million, a three-fold increase from the year before.[5]

There are many other examples of industry startups that are displacing services provided by established brands and eroding consumer loyalty. Some solutions are designed to cut out acquirers and credit cards, such as Dwolla and GoCardless. Social lending systems, like Zopa, Lending Club, and Kickstarter help entrepreneurs tap into a network of digital investors and lenders to crowdfund their business innovations. Digital money managers like Mint.com, Money Dashboard, HelloWallet, and OnTrees offer budget advice based on spending and transactional data to help manage consumer debt and savings. Disrupters like MarketRiders and SigFig assess consumer banking accounts and assets to make recommendations about future investments. Social insurance is also a budding industry, empowering users to pool insurance risks and self-insure.[6]

FIGURE 1.3: OnTrees Mobile App

[5] Neils Christensen, *"Regulations Are The Next Step For Bitcoin - Montreal Economic Institute,"* Forbes, May 30, 2014, *http://www.forbes.com/sites/kitconews/2014/05/30/regulations-are-the-next-step-for-bitcoin-montreal-economic-institute/* (accessed March 2015).

[6] Oliwia Berdak and Bill Doyle, *"Digital Disruption Hits Retail Financial Services,"* Forrester Research, July 16, 2014.

As the ecosystem evolves, market leaders in other sectors are jumping into the game, offering credit cards and banking services. Supermarket chain Loblaw Companies provides banking services with PC Financial. Most customer interactions are completed on the Internet, the telephone, or at kiosks in the supermarket. Retailers Home Depot, General Electric (GE), Canadian Tire, and Walmart have expanded their services to include credit card services, payments, and transfers. These organizations can leverage their massive databases of consumer payment information, relationships, and established channels for competitive advantage.

Despite radical changes to the financial services landscape, it's not all doom and gloom for the incumbents. Many of the fintech startups just mentioned are focused on customer engagement at the front-end, which means that they are built on existing back-end infrastructures belonging to banks or credit card companies, for example. What will be required for incumbents to keep pace is modernization of their systems, standardization of data, and the digitalization of processes—Chapter 5 explores this in detail. Partnerships with fintech startups also provide compelling alternatives and opportunities for incumbents.

One advantage that established FIs hold over smaller startups are the volumes of customer information they have access to. For many of these larger organizations, the challenge is to manage this information effectively for competitive advantage (which is explained in Chapter 3) while complying with myriad regulations (covered in Chapter 4). How established FIs use their data will determine how they fare against the fintechs in the digital world. But what does this world look like? The following section examines the impact of digital technologies on the financial services industry and their potential for innovation and opportunity.

The Impact of Digital Technologies

As delivery channels to consumers converge, advances in technology and connectivity are at the root of the upheaval and opportunity in the financial services industry. The Internet and its associated software and infrastructure have empowered small players to innovate and scale using less costly platforms. Comparison engines and apps are giving consumers faster and cheaper access to investments, capital, and currency. When financial and consumer data exchange is automated across the IoT and wearable technologies and analytics applied to this information to enrich it with value, the potential for new services will be unlimited.

Together, disruptive technologies present tremendous opportunities to increase consumer engagement, break down information silos, and deliver highly targeted solutions at a lower cost. Technologies that include mobile computing, social networks, cloud computing, fifth-generation (5G) wireless, and the IoT are disrupting the entire financial services industry. When combined, these breakthrough technologies help organizations bypass the costs typically associated with barriers to entry and connect directly with consumers. This is happening at an accelerated rate because these technologies are affordable, accessible, and portable.

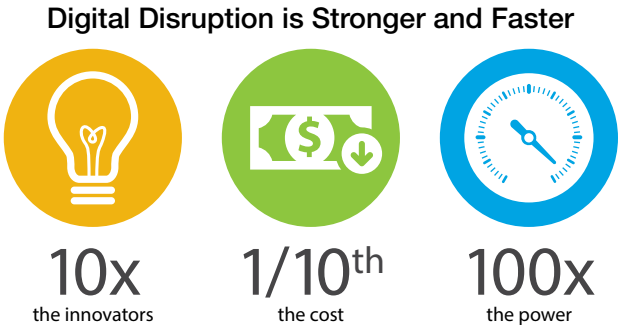


FIGURE 1.4: Digital Disruption Is Stronger and Faster[7]

The swift pace of innovation gives digital disruptions even greater impact. For digital technology, this is based on the speed of development and the magnitude of innovation involved in its creation. Unlike the disruptions introduced by the web in the nineties, today's digital disruption is cheaper, faster, stronger, and more reliant on the combination of key technologies and environmental factors. These include the ubiquity of mobile phones, increased speed and bandwidth, more affordable data storage, and faster computing power and data processing ability. With more people connected and sharing ideas in a global, digitalized marketplace, the pace of innovation can only increase exponentially.

Advances in Connectivity and the Cloud

By the year 2020, the number of Internet users is expected to jump to 5 billion.[8] This growth in Internet users will result in more people gathering, transmitting, and exchanging information online. The Internet will evolve as technology disrupts every industry, revamping value chains and enabling cross-industry partnerships and networks. The transformation from analog to digital is already well underway.

[7] James McQuivey, *"Digital Disruption: Unleashing the Next Wave of Innovation,"* Forrester Research, Inc., 2013.

[8] *"Internet use reaches 5 billion worldwide,"* Future Timeline.net, *http://www.futuretimeline.net/21stcentury/2020.htm#internet-2020* (accessed March 2014).

In the near future, 5G wireless networks will support 1,000-fold gains in capacity, connections for at least 100 billion devices, and a 10 gigabyte individual user experience capable of extremely low latency and response times. Deployment of these networks will emerge between 2020 and 2030. Breakthroughs in wireless network innovation will drive economic and societal growth in entirely new ways. Fifth-generation wireless will power networks capable of providing zero-distance connectivity between people and connected machines.[9] Based on this connectivity, the number of cloud-based business models and applications will continue to rise.

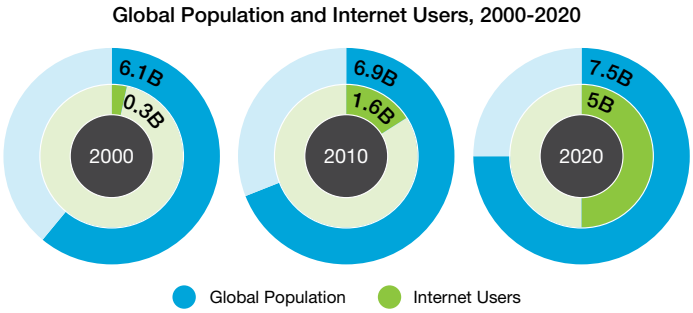


FIGURE 1.5: Increasing Internet Usage

In today's subscription-based economy, business is moving decidedly to the Cloud. Fueled by cloud technologies, new business models will continue to emerge and evolve. By 2017, 50 percent of large enterprises will adopt a hybrid cloud-computing model with data stored partially on cloud servers and partially onsite.[10] FIs will also take advantage of the on-demand capacity and cost effectiveness of cloud computing by transforming core applications for banking, insurance, and payment processing. From shared services to cloud-based front-office and back-office applications, processes such as claims management, business intelligence, and credit scoring will become available on a Software-as-a-Service (SaaS) basis.

FIs will implement hybrid cloud deployments to balance their workload and meet all their data sovereignty requirements. The Cloud will continue to offer benefits like seamless process integration across business networks, collaboration, easy information exchange, secure connectivity for transacting, improved visibility and transparency of transactions, and the standard lower cost of ownership that comes with cloud deployments. FIs like The Insurance Workplace (TIW) Group are using a private cloud to drive productivity and to build specific solutions for the demanding London insurance market.

[9] *"5G: A Technology Vision,"* Huawei Technologies Co. Ltd., 2013.

[10] Thomas Bittman, *"Private Cloud Matures, Hybrid Cloud Is Next,"* Gartner, October 2013.

TIW Group

"More than 2,500 users in over 300 companies around the world are using our solutions to provide secure, collaborative workplaces where documents, video files, structured and unstructured data can be uploaded, viewed, acted upon and downloaded, with in excess of 5 million document transactions taking place per year."

WARREN GUNN, TECHNICAL DIRECTOR, TIW GROUP LIMITED

FIGURE 1.6: TIW Group

TIW Group (TIW) was formed in 2005 with a vision to provide a digital platform to support the London insurance and reinsurance markets. Since then, TIW has played a prominent role in assisting with insurance reforms, regulations, and, in particular, the processing of London market risks, premiums, and claims.

Much of the central activity in the insurance market is based on communicating via documents often as attachments to emails. TIW wanted to provide a secure, accessible, and web-based environment where its clients—underwriters, brokers, and others—could collaborate by easily sharing documents, eliminating the need to create unnecessary duplicates. Working with paper-based folders or documents randomly stored across network drives, shared mailboxes, public folders or embedded in back-office applications was proving to be challenging and inefficient. These, combined with location and time of day, were often barriers to effective collaboration. Further challenges for clients included organizing their business to operate more efficiently, observing company processes and procedures and, at one of the most basic levels, simply filing emails to a shared environment.

TIW's platform provides an intuitive interface for its clients to manage documents of all types in a highly secure manner while offering remote, *ad hoc* and mobile access to content. The Insurance Workplace is a scalable and flexible content management platform hosted privately in the Cloud. For TIW's clients, the simplicity of The Insurance Workplace is a central factor to its success, as are the text indexing and security capabilities. More than 2,500 users from all over the world and over 300 companies are now using The Insurance Workplace, which can be accessed securely over the Internet in a private cloud environment. The solution provides secure, collaborative workspaces where documents can be uploaded, viewed, acted upon and downloaded, with in excess of 5 million document transactions taking place each year.

Mobility Opens up New Markets

Like the Cloud, people are increasingly relying on mobile phones in their daily lives. The prevalence of mobile phones in both developing and developed economies demonstrates the extent to which they have become ingrained in our culture. Currently, there are almost as many mobile subscriptions as there are people in the world. The number of mobile connections is projected to rise to 8.5 billion by 2018.[11] In the very near future, there will be more people accessing the Internet on mobile devices than on personal computers.[12]

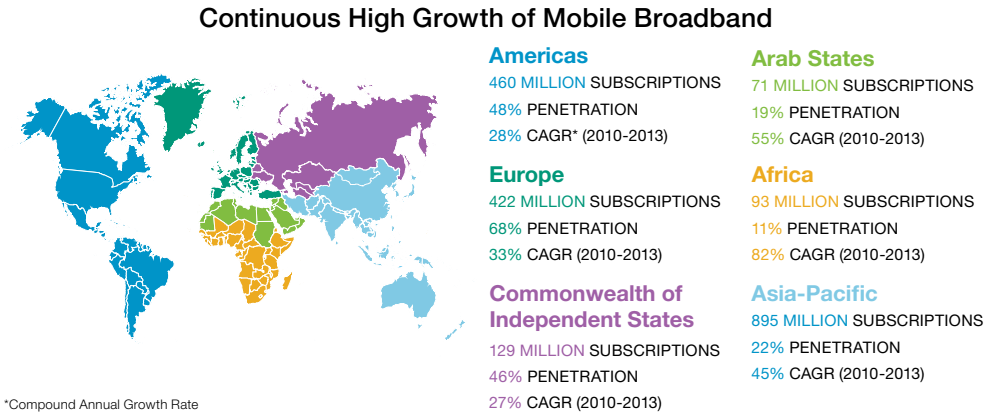


FIGURE 1.7: Almost as Many Mobile Subscriptions as People in the World[13]

Mobile devices and apps are reshaping the financial industry. Today's consumer has access to a wide variety of technologies, but mobile devices like smartphones and tablets in particular, are revolutionizing the digital experience. Consumers are increasingly using mobile phones to complete financial services transactions in banking, payments, budgeting, and shopping. Statistics indicate that consumers are ready for digital financial transactions and new models of engagement. In total, 51 percent of smartphone owners have used mobile banking in the past 12 months, up from 48 percent a year earlier.[14]

As the popularity of mobile retail rises, a digital marketplace will offer a range of technologies that support mobile transactions. Mobile payments and Mobile Financial Services (MFS) will become integral to the functions of financial institutions, banks, and global retailers. Devices will transform into digital wallets, and even in some instances,

[11] *"Market Trends: Where to Find Opportunities for Mobile Solutions in Vertical Industries,"* Gartner, July 2014.

[12] Frank Gens, *"IDC Predictions 2013: Competing on the 3rd Platform,"* IDC, 2012, *http://www.idc.com/research/Predictions13/downloadable/238044.pdf* (accessed February 2014).

[13] Ibid.

[14] *"Consumers and Mobile Financial Services 2014,"* The Board of Governors of the Federal Reserve, March 2014, *http://www.federalreserve.gov/econresdata/consumers-and-mobile-financial-services-report-201403.pdf* (accessed March 2015).

mobile point-of-sale terminals. It is predicted that digital banking cards will be embedded in mobile devices and used by 70 percent of physical bank card users.[15] In addition to card readers, QR codes and Near Field Communications (NFC), a wireless communications technology that enables mobile devices to communicate based on proximity, will allow for widespread mobile payment at point-of-sales. Apple Inc. has already launched Apple Pay, which allows consumers to make purchases using their iPhones®, and Google is offering similar services for Android® devices.

FIGURE 1.8: Authentication Through Biometrics

Other pioneering technologies like biometrics and beacon technology present more sophisticated ways to exchange, identify, and protect customer information using mobile devices. Biometric identification, by fingerprint, eye scan, or voice activation is already available on devices in the market, including the iPhone 6S™and Samsung Galaxy S6™. Beacons are a small, low-cost piece of hardware that use network connections to transmit messages directly to a smartphone or tablet. They make mobile devices "smarter" by allowing for background positioning and proximity detection. As a payment method that uses NFC as well as Bluetooth and Wi-Fi to connect a mobile device to a point-of-sale terminal, Apple's iBeacon is already demonstrating how automatic and seamless payment will be in the future.[16]

In the digital world, FIs will be required to deliver a range of products and services using digital channels, such as mobile, or they risk being marginalized as utility providers. Many institutions are realizing this and making investments in mobility a top priority.

[15] *"Will Retailers be Ready for EMV by Oct 2015?"* Payments Leader, 2014, *http://www.paymentsleader.com/will-retailers-be-ready-for-emv-by-oct-2015/* (accessed August 2015).

[16] Kelly Hodgkins, *"Apple Investigating iBeacon-Assisted Mobile Payment Methods,"* MacRumors, January 16, 2014, *http://www.macrumors.com/2014/01/16/ibeacon-mobile-payments/* (accessed March 2015).

One way that firms can achieve this is to partner with other providers in the digital ecosystem. Toronto Dominion Bank in Canada, for example, has partnered with Moven® to distribute a banking and budgeting app that provides greater transparency into finances by tracking payments and monitoring banking activities using a mobile phone. This partnership is win-win, providing the bank with a contemporary, functional app and giving Moven access to a nationwide bank's established customer base.[17] Partnering with innovation hubs to develop these services is an effective way to gain exposure to new technology-driven services and tap into technical expertise.

FIGURE 1.9: Moven

Mobile technology presents pure opportunity in financial services. A typical transaction at a bank costs 50 times that of a mobile transaction—so significant cost savings can be realized by offering mobile services.[18] If banks reduced their physical branches, the savings in rent, salaries, and equipment would drive up earnings by an average of 2.7 percent. In emerging markets, mobility has introduced new business models, including the establishment of payment institutions that are not subject to the same regulations as established banks. Banks in developing markets are much more open to partnering to develop mobile banking products and services. In the digital world, the 2.5 billion consumers worldwide who currently do not have access to bank accounts ("the underbanked") will be empowered to participate in the mobile and social financial system.[19]

In the following interview, The PrivateBank® is exploring the application of emerging technologies like mobile access, digitalization, and analytics, to drive efficiency and deliver superior customer service. For The PrivateBank, digital transformation "is a journey that requires vision, focus, and persistence."

[17] Tom Groenfeldt, *"TD Partners With Moven For Mobile Money Management,"* Forbes, December 2014, *http://www.forbes.com/sites/tomgroenfeldt/2014/12/08/td-partners-with-moven-for-mobile-money-management/* (accessed March 2015).

[18] David Berman, *"Bricks, Mortar and Beyond,"* The Globe and Mail, August 29, 2015.

[19] Asli Demirguc-Kunt and Leora Klapper, *"Measuring Financial Inclusion: The Global Findex Database, World Bank,"* April 2012.

The PrivateBank

The PrivateBank strives to advance the goals of its clients by delivering compelling commercial and personal banking and wealth management solutions through a high-touch relationship. The PrivateBank serves entrepreneurial middle market businesses, their executives and their employees, as well as the cities and neighborhoods where we live and work.

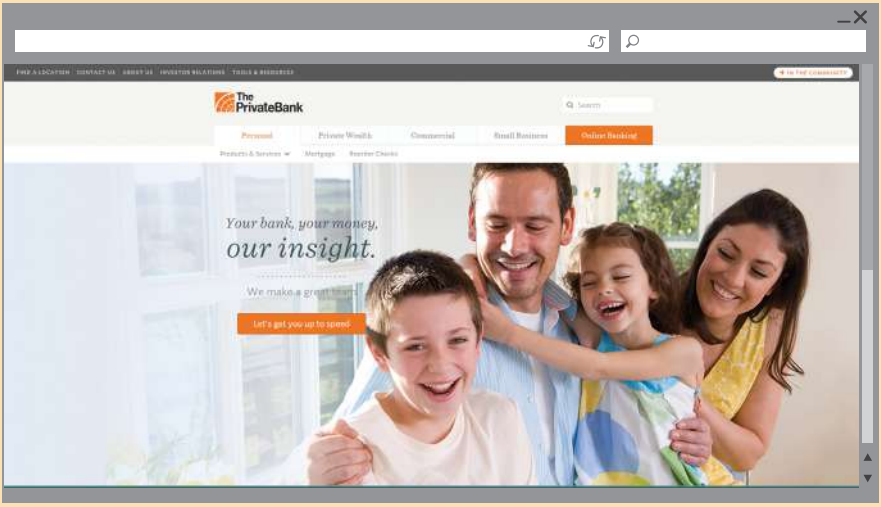


FIGURE 1.10: The PrivateBank

What follows is an excerpt from an interview with Dean Haacker, Chief Technology Officer and Managing Director of The PrivateBank, and Tom Jenkins, Executive Chairman of OpenText.

TOM JENKINS: Banking has had an interesting decade. It's been volatile, governed by regulations, and innovative—all at the same time. Give us a sense of what it's been like to manage digital transformation in this kind of environment.

DEAN HAACKER: *We're still in the early stages of digital transformation at The PrivateBank. If this were a baseball game, we'd be in the third inning. Regulatory compliance has driven some of the first changes that we've made, but we're beginning to look at opportunities for increased revenue and improved client services as driving the next range of transformational projects.*

Digital transformation, or "digitalization" as the bank calls it, replaces paper-based manual processes with digital (or electronic) content and optimized, automated processes. We've put a new twist on the old principles of Business Process Reengineering and Lean Six Sigma with modern technology. For example, we've just implemented a new deposit origination process

for clients who want to set up a new account with us. This was a manual process in the past, and we've automated and simplified it so that clients can use a digital signature and the required documents flow through the back-end processes according to a workflow to verify a client before we set up an account.

What are some of the benefits you're realizing from digital transformation?

The benefits of digitalization can be described using the "Five Cs": compliance, cost reduction, collaboration, cycle time, and customer satisfaction. Digitalization has had a positive impact on both the company and our clients in terms of the Five Cs. Back-office processing for underwriting, commercial loans, and other banking products and services have historically been manual and paper based. We print an estimated 20 million pages each year, which is about 17,000 pages per employee. Our content management system helps us reduce paper and courier costs and increase productivity by allowing users to access documents online instead of going to filing cabinets located in remote vaults. Digitalization is as much about making sure our business documents are compliant with industry and company standards as it is about improving efficiency. Banks are required to store and archive pertinent data safely and securely. And finally, digitalization allows for systematic and effective collaboration and dissemination of information throughout the bank.

Tell us about what's going on in the front end with customer service driving revenue. What are you being driven to do by customers?

We have an online channel called "The Palladian PrivateBank" (www.palladianprivatebank.com), which is specially designed for clients who prefer an online-only banking experience. Clients can initiate a new relationship with the bank without ever stepping foot inside one of our branch offices. We have modern, intuitive websites and mobile apps that enable digital consumers to manage their money, wherever and whenever they need to. As well, we're monitoring trends and assessing innovations in mobile payments and exploring how "cardless cash" can deliver new, convenient, and secure solutions. We are also enabling our commercial clients to integrate their Enterprise Resource Planning (ERP) systems with our core banking services, like ACH (Automated Clearing House) and wire transfers, using EDI (Electronic Data Interchange) and SWIFT messaging to facilitate end-to-end integration and cycle time improvements.

Give us a sense of your back-end processes. How do you equip your people to maintain client relationships?

The PrivateBank prides itself on having a very distinct and close relationship with our clients. About two-thirds of our employees are client facing, so we have several hundred relationship managers. We strive to give our relationship managers the right information at their fingertips, so that when they meet with our clients, they're better able to understand and anticipate their needs. We manage a 360-degree view of our clients using an enterprise data warehouse in combination with our Customer Relationship Management (CRM) and content management systems. This gives us a single source of truth for client banking information. We've also developed a custom application that links the data warehouse with our clients' commercial loan documents stored in our system. This integration ensures the required metadata is systematically populated with little to no effort from our relationship managers.

What innovative technologies are you using to get to know your clients better?

The key strategic areas that we're focused on are digitalization, analytics, and mobility.

As far as analytics goes, we're building on what we've already got in our enterprise data warehouse and taking it to the next level. The efficient acquisition, cleansing, classification, distribution and archiving of information is absolutely critical to client engagement—and digital leadership as well. When proper information management and analytics are applied, data transforms into information, and then knowledge, which eventually becomes wisdom. This wisdom is what separates the winners from the losers in the digital economy. Our collective wisdom enables superior client relationship management that differentiates us from competitors in the market.

I'm fascinated by your approach of building a relationship through insight. As we all know, with data analytics, you can be more predictive with a larger data set, and your relationship or case managers can be better prepared to interact with clients.

It can be difficult to find a balance between too much information and the right amount of information needed to get the job done. We have a full range of metadata that we've defined for our core banking information. I think it goes beyond this, though, to the unstructured data contained in loan applications, for example.

When you're using insight for relationship building, what does success look like?

Success happens when the client is happy. You have successful clients when you're meeting their needs and their business objectives. The challenge is to do it day after day, quarter after quarter, and to continue to build that momentum. At some point you need additional technology and tools in order to help you get to the next level.

How are new technologies impacting Millennials, both inside your organization as well as across your customer base?

It's not just the Millennials, it's the prior generations as well that believe they should be able to do what they want to do wherever they are. So we support our clients through our website and through our mobile apps that run on tablets and phones, Android and iOS—so that they can take care of all their needs without ever setting foot in one of our branches.

When you introduce an app, do you roll it out across the whole bank or do you release to a small group first?

Let me answer this with an example. We recently launched a Bring-Your-Own-Device (BYOD) program. We tested this with a pilot group of 50 people for a couple of years because we need to maintain high standards in terms of security, convenience, and efficiency. We have an even smaller group of a dozen people that are working with us on the latest releases. As we perfect these, we launch them across the bank to anyone who is interested, and so from that perspective, they are opt in. Depending on their success, after the bugs are worked out, these solutions become available across the organization.

Now tell me about compliance. As a bank, you face a lot of regulatory requirements.

It's hard. It is very, very hard. We spend upwards of 70 percent of our time playing defense from a technology perspective, whether it's regulatory or cybersecurity threats. We have to remain vigilant in protecting the bank and our clients' data and keep up with the latest changes and patches that addresses vulnerabilities. There are projects running that address specific regulatory needs. For example, in the U.S., the Dodd-Frank regulations required us to change many processes and some of our systems to comply. It was one of the largest projects that we had in the past year. There are many other regulations, and we're always assessing new regulations to make sure that we stay compliant.

Looking at Dodd-Frank, for instance, how do you translate the regulatory requirements to a step in a workflow process? How do you bring the back office to the front office?

It's a big challenge to keep everyone up to speed with everything that they need to know in such a complex environment. Fortunately, the bank has professionals who are working in these areas and helping to guide the work that we do across the bank. Even though we outsource some operations, our vendors are an extension of the bank and so we're responsible for making sure our vendors follow the same protocols that we do to maintain regulatory compliance. We continue to work through that to understand where those risks are and how to mitigate them. It's a great challenge to maintain that level of knowledge and visibility into all parts of our architecture and the way we operate. But we do that on a daily basis to protect against threats that occur every day.

I'm glad you said that. What I've noticed as a technology architect and algorithms guy is that technology is only one part of a step in a new process. So much of it depends on training and effective change management. When people are deploying, they often focus more on getting the technology implemented than on the end user. And it has to be a combination of the two.

That's the trap that we find ourselves trying to avoid. It's interesting because often the first response is "we need a system for that" or "we need an app for that" when six other things have to happen first before we implement or adopt the technology.

How do you approach the Cloud within The PrivateBank?

We don't actually say that we're in the Cloud; we say that we're using an Application Service Provider (ASP). In reality though, the ASP configuration is not much different than a private cloud. And the hosting or software companies we use are subject to the same regulations that we are, so we trust and verify that they're performing to the same standards that we perform to ourselves. We're also assessing strategic opportunities to use private or hybrid clouds for targeted opportunities within our legal and regulatory guidelines. There are three questions I ask during these assessments: 1. "Is it secure?" 2. "Is it integrated?" and 3. "Does it perform?" We can move forward with the Cloud only when the answer to each of these is "yes".

What advice would you give to other executives who are championing transformation?

Transformation is a journey that requires vision, focus, and persistence. Define your expected outcomes and work backwards to lay out the plan to achieve them. Find the best people you can, including vendors and partners, since the best team usually wins. You will be tested again and again. You cannot over communicate, so perfect your elevator speech. Look for what is missing; many know how to improve what's there but few can see what's missing. Stay true to your guiding principles and enjoy the ride!

Thank you, Dean.

Social Expands Reach

As outlined in the interview above, technology has become embedded in many financial aspects of our lives. Like mobile devices and the Cloud, social media is becoming a critical channel for consumer outreach. To remain competitive, financial companies will look more frequently to this channel to support innovative ways to engage with customers and deepen relationships. In the digital world, physical branch locations will be replaced by online presences with mobile and social access. Future generations will interact with banks as part of a digital experience, instead of the traditional channel experience today. As growth in social media penetration and adoption continues among consumers, social media will become a permanent sales channel in banking and insurance.

A winning approach depends on the secure delivery of data, products, and services across preferred consumer channels. Forward-thinking FIs are leveraging social media sites like Facebook® and Twitter® to create more engaging experiences, provide customer service, better understand customer preferences and sentiments, and sell more targeted products and services. In fact, 75 percent of financial advisors today rely on social media to connect to their customers and almost half (46 percent) expect social media to play a more significant role in increasing networking opportunities, streamlining customer experience, and improving customer acquisition.[20]

One of the key drawbacks to current social media sites in financial services is a lack of willingness to share account information on available social media sites. This is due to concerns around data privacy, security breaches, and non-compliance with regulations. These challenges are exacerbated by the legacy technology infrastructures many leading institutions have in place, which makes it difficult to support integration with social network sites or capabilities. Cost and risk constrain established FIs when they are working with current systems to manage, integrate, analyze, and deliver data across channels seamlessly—including mobile, social, and the Cloud. An increasing number of financial services businesses are using Customer Experience Management (CEM) platforms to control the creation, approval, and distribution of social media content.

The Financial Internet of Things

The IoT is the extension of the Internet, connecting us to millions of machines, sensors, and objects. By monitoring devices attached to people, animals, or objects, the IoT automatically exchanges information over a network without requiring human-to-human or human-to-computer interaction. Instead, data exchange is based on machine-to-machine communications between personal identifiers and systems receiving the data via the Internet. The IoT will transform the world as we know it, creating a giant, global network of devices and machines that are connected, communicating, and

[20] *"Putnam Investments Survey on Social Media Points to growing importance for financial advisors to leverage social networks to connect, communicate and cultivate,"* Putnam Investments, October 2013, *https://www.putnam.com/about-putnam/press-releases/putnam-investments-survey-on-social-media-points.jsp* (accessed March 2015).

exchanging data. This market will see 50 billion devices connected by 2020 and a value of $14.4 trillion.[21] Its potential impact on every industry is huge.

While the IoT is viewed by many as a nebulous, futuristic concept, in reality it already exists: we wear pedometers, smart watches, and cameras; our pets are microchipped; and we drive cars with built-in sensors. Thanks to the IoT, many of our everyday appliances will soon have the ability to self-monitor and communicate with a network. Over the next 10 years, billions of items will be connected via sensors.

The rapid growth of the IoT will be driven by low-cost sensors and beacons, cloud computing, analytics, and mobility. It promises a future in which every sector will be part of a hyper-connected world. For the financial industry, the IoT will deliver unprecedented levels of data-driven insight that could dramatically improve customer engagement and experience, optimize process automation and performance, reduce risk, and quicken the pace of innovation. It will empower banks and insurance companies to deliver truly personalized and tailored experiences to satisfy both their corporate and individual clients. Products and services can be highly targeted. In the U.S., Fidelity® is marketing a "free Fidelity Market Monitor for Glass™" that tracks selected stock quotes using Google Glass™. Other banks are experimenting with smart watches.[22] By providing seamless connectivity, the IoT will facilitate new business models and revenu streams.

To capitalize on the power of the IoT and the massive volumes of data it will generate, FIs will be required to become part of their customers' digital ecosystems. To accommodate the IoT, they will need to invest in new technology platforms, integrate emerging technologies with legacy IT infrastructure, standardize their data across systems, and create dynamic and flexible processes to support new technologies and devices. With this infrastructure in place, FIs can start to proactively create new models of engagement that move beyond ATMs and credit cards to mobile and wearable devices and sensors in homes and cars. Connecting consumers to other service providers will facilitate a seamless consumer experience along a complex and user-generated value chain—such as researching and purchasing a car, applying for a loan, and getting insurance; booking and funding a vacation complete with air travel and hotel; and comparative shopping for mortgages and closing a deal on a new house. The IoT transforms the entire customer experience into the end product.

[21] Eric Openshaw and John Hagel, *"Interoperability in the Disconnected World of Connected Things,"* Wired, February 24, 2015, *http://insights.wired.com/profiles/blogs/interoperability-in-the-disconnected-world-of-connected-things#ixzz3UBYIxPKh* (accessed March 2015).

[22] Val Srinivas, Sam Friedman, and Jim Eckenrode, *"Mobile Financial Services,"* Deloitte University Press, 2014.

FIGURE 1.11: Consumers Connect to the IoT

FIs of the future will leverage consolidated consumer data to build loyalty, giving consumers access to their personal finances and anticipating their needs based on preferences, proximity, and behavior. Information from bank accounts, credit cards, ATMs, savings, mortgages, pensions, and benefits will be aggregated to provide consumers with real-time updates of their total wealth. Today's banks use a range of data models to manage risk profiles, for example. Data from the IoT will enhance these models and their ability to better understand and engage with customers.

Using the IoT, the insurance industry could shift from its current reimbursement model to a preventative model based on individual behavior. Data from sensors and home monitoring systems, such as security systems, provide real-time feedback. Predictive analysis could be applied for more accurate assessments of hazards and risk to deliver premiums that are much more personalized.[23] Telematics are already being used by U.S. auto insurance companies Progressive and Travelers to calculate premiums based on usage and driving behavior.[24] Services could expand to connect drivers with their auto dealers and repair shops, exchanging data to notify users about upcoming maintenance. There is opportunity here for FIs to both reduce premiums and lower their costs by using IoT data to create competitive advantage.

[23] Dan Schutzer, *"Impact of The Internet of Things on Financial Services,"* CTO Corner, August 2014, *http://www.bits.org/publications/CTO/CTOCornerAug2014.pdf* (accessed March 2015).

[24] *"The Bank of Things,"* Accenture, 2014.

With massive amounts of data exchanged on the IoT, privacy, information security, and compliance become key concerns. Most firms are already the gatekeepers of confidential, personal information. With an explosion of information across the IoT, how will these organizations, governments, and regulators be able to monitor and protect personal data stored in the Cloud? The promise of value delivered to consumers will have to be greater than the risks of identity theft or loss of personal information.

In the digital world, information is the new currency. The vast amounts of data that the IoT will create will pose challenges for organizations in every industry. The IoT will enable banks and insurance companies to gather even more granular information about their customers. Big data and analytics will play a key role in the value that the IoT delivers, expanding services beyond today's pricing models and product features.

Big Data and Analytics

The digital universe is expanding. The data we create and copy each year is doubling in size every two years. By 2020, the digital universe will reach 44 zettabytes, or 44 trillion gigabytes.[25] FIs face an increasing volume, velocity, and variety of information. For most, this is not a trend but the reality of doing business.

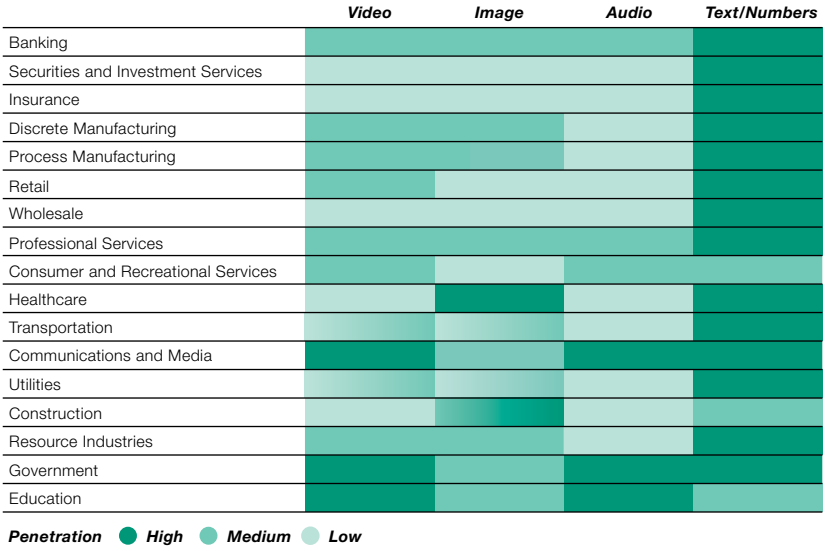


FIGURE 1.12: Types of Data Generated and Stored by Sector[26]

[25] *"The Digital Universe of Opportunities,"* IDC, April 2014.

[26] *"Big data: The next frontier for innovation, competition, and productivity,"* McKinsey Global Institute, McKinsey & Company, 2011.

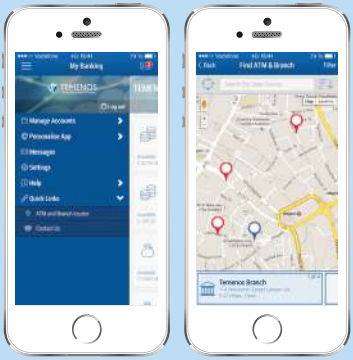
To unlock the value of their information, FIs will be required to manage their data as an asset. Advances in technology such as storage, processing power, and software are enabling organizations to mine their information. Many FIs are already investing in analytics capabilities to overcome silos and legacy systems, optimize wealth management, improve decision-making and transparency, and gain a 360-degree view of their customers.

Organizations in every industry are searching for ways to combine consumer information from many sources to anticipate customer needs and deliver tailored products and services. The world of business intelligence and reporting is shifting its focus to embedded analytics, driven by the demand for built-in data visualization. Analytics provide actionable intelligence. FIs can use analytics to segment customers and identify which ones will be more responsive to cross-selling opportunities, and then fine-tune campaigns to market to them effectively. In addition to providing customer insights, analytics can be applied to forecast sales and predict market revenues, help inform wealth and allocation decisions, monitor loan performance and credit risk, uncover patterns that expose fraud, and for regulatory reporting.

Increasingly global regulations are requiring FIs to store information for longer periods of time. To effectively manage and mitigate regulatory risk, they must be able to consolidate and analyze information across diverse systems and sources. Text and data mining can be used to identify anomalies that indicate non-compliance, valuations, credit worthiness, and market or stock volatility. Analytics can also reveal instances of duplicated efforts or errors and opportunities for cost savings.

FIs are realizing the strategic importance of managing their information effectively. The end goal is to unlock the potential of their information and provide more accessible insights, through embedded intelligence in apps, workflows, and business processes. In a dynamic environment that is impacted by market trends, regulatory flux, and changes in consumer habits, a strategic approach helps FIs consolidate, standardize, regulate, protect, and manage their information for competitive advantage and differentiation. In the following feature, Temenos is doing just this—using analytics to meet the demands of a more sophisticated customer, deliver a more engaging experience, and maintain their competitive edge.

Temenos



"Our market was becoming more sophisticated and end users were starting to expect a more intuitive experience. As a result, we changed our reporting strategy in order to maintain our competitive edge."

FABRICE BIDARD, PRODUCT MANAGER, TEMENOS

FIGURE 1.13: Temenos Mobile Dashboard

Temenos Group AG, headquartered in Geneva, Switzerland, is an industry leader in the global provision of private wealth and asset management solutions and services. Temenos provides a comprehensive range of components for portfolio management, client relationship management, advisory, compliance, risk, and analytics to firms in the financial services industry.

Temenos wanted to offer its private wealth management clients access to integrated reports of portfolio and investment information online in real time. Their existing reporting solution did not provide an intuitive user interface or the modern technology features that their client organizations expected. To deliver a more intuitive and satisfying end-user experience, Temenos developed a solution that would give clients online access to wealth and asset management information using a more attractive, sophisticated, and web-based reporting interface.

Because the solution is based on an open architecture, it integrates easily with current systems. Organizations are able to embed the interface directly into applications and provide users with a seamless and user-friendly experience. Clients are able to deliver brochure-quality, "picture perfect" reports—such as asset reports, currency view, portfolio performance, projected cash flow, and recent transaction summaries—to meet the discerning needs of their high-net-worth individuals. In addition, reports are produced to monitor compliance with governmental regulations, such as Markets in Financial Instruments Directive (MiFID), helping clients comply with the legal and regulatory environments at each step in their operations. The solution has made Temenos more competitive in the private wealth and asset management market. As a digital innovator, Temenos plans to incorporate analytics into its solutions to provide web-based Online Analytical Processing (OLAP) so clients can interactively explore information, build multi-dimensional reports, and improve decision-making capabilities.

Automation and Artificial Intelligence

Automation, robotics, and machine intelligence will permeate our daily lives by 2025 and impact a wide range of industries.[27] New research shows that nearly half of all jobs will be susceptible to automation over the next two decades.[28] The combination of advances in robotics and automation, along with rising wages in developing countries, has encouraged organizations to switch gears from outsourcing and re-invest in local manufacturing and services. The more processes are automated, the less need there is to outsource to countries with cheap labor.

In the digital world, an increasing reliance on self-service technology, sensors, machine-to-machine communication, and Artificial Intelligence (AI) will transform the workplace as menial tasks and even non-routine jobs are digitalized and automated through robotics and process automation. These systems will make FIs more efficient by freeing people from doing tasks that can be completed by computers. In many cases, the intelligence that these systems deliver will be more accurate and immediate.

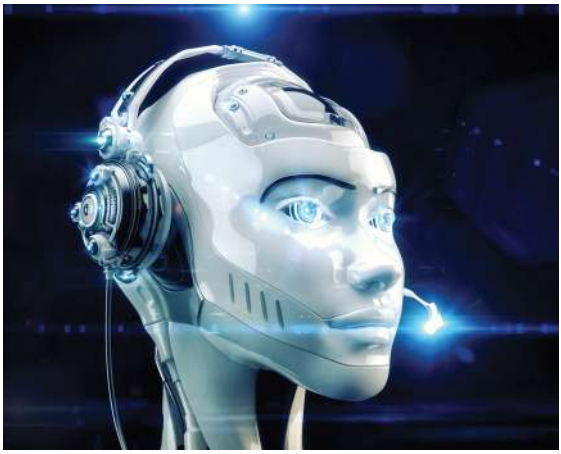


FIGURE 1.14: AI - The Rise of the Robo Advisor

AI relies on computer systems to perform tasks that normally require human intelligence, supported by capabilities like visual perception, speech recognition, and decision-making. Advances in analytics are making AI systems easier to develop. When combined with analytics, AI has the potential to transform the financial services industry through simulated interactive agents (for market information), expert systems (for real-time advice), and neural networks (for analysis and portfolio generation).

[27] Aaron Smith and Janna Anderson, *"AI, Robotics, and the Future of Jobs,"* Pew Research Center, August 2014, *http://www.pewinternet.org/2014/08/06/future-of-jobs/* (accessed April 2015).

[28] David R. Wheeler, *"Silicon Valley to millennials: Drop dead,"* CNN, March 18, 2015, *http://us.cnn.com/2015/03/18/opinions/wheeler-silicon-valley-jobs/?iid=ob_article_organicsidebar_expansion&iref=obnetwork* (accessed April 2015).

In the future, we will rely on automated financial advisors (called "robo advisors") that monitor stock prices and trends, make recommendations about investment portfolios, and manage transactions. Our digital wallets will connect to analytics information about our personal spending habits and finances. Automated insurance agents will help us make decisions based on the most suitable policies. All of these digital services will be available to a wider customer base at lower fees. The objective is to improve efficiency in helping consumers make better and more informed decisions about their money—from any place at any time.

The vision of highly intelligent and automated financial services is becoming a reality. One of the pioneers in this field is a personal financial management start-up based in San Francisco called Wallet.AI®. Wallet.AI is an app that combines AI and analytics to leverage information gleaned from many sources, including contextual awareness, spending habits, bank balances, and more. Based on this data, it delivers relevant insight to consumers based on their individual spending and saving behavior.

AI uses data to connect machines and people and is already changing the way we interact with technology. AI applications will continue to evolve and as they interact with other systems (like the IoT), information security and personal privacy will become key concerns. The consumer will most likely determine the happy medium, where the integrity of the data exchanged is equal to the convenience, accessibility, and other advantages provided by the automated financial service.

Technologies that automate processes boost efficiency so that organizations can deliver results more quickly. Sound process automation solutions equip modern financial institutions to be agile, adaptable, and able to respond rapidly to the needs of their markets.

Digital Changes Everything

Whether we like it or not, digital is now a part of everything we do—as individuals, as business leaders, and as a society. In all industries, digital disruptions are converging and impacting how we live our lives. Changes are being driven by a market that is open, distributed, and highly entrepreneurial. To succeed in this digital world, FIs will need to determine the value of these new disruptive technologies and how they can expand their abilities to compete in their markets.

The new digital reality extends beyond the firewall (and IT departments) to mobile devices, social media, analytics, and the IoT. Old business models no longer apply. Instead, FIs need to adopt a digital business strategy to satisfy their digital customers, and they will have to do this quickly to lead their markets and remain competitive. Information lies at the heart of digital transformation. Data forms the basis of consumer and partner relationships and provides the insights required to differentiate products

and services and digitalize key processes as well as the entire customer journey. The good news is that FIs are taking steps to modernize their systems, digitalize their processes, and unlock the value of the vast stores of information they collect.

Based on the progress of the past and the present rate of change, how will digital technology transform business models to meet the needs of financial consumers, partners, and marketing channels in the future? What will the financial enterprise look like in the digital world? How will it operate? The following chapter examines these questions in greater detail.

CHAPTER 2

DIGITAL BUSINESS

CHAPTER 2

Digital Business

"No business can afford to ignore or underplay the impact of technology-driven disruptions that are transforming what it means to be a business in a digital world." – Gartner 2013[1]

For decades, Financial Institutions (FIs) in mature economies have dominated their markets, relying on a strong physical presence based on a network of bricks-and-mortar service centers. Significant capital investments in branch offices, staff, and proprietary IT infrastructure created an effective barrier to new competition. Bank branches, for example, made it convenient for customers to visit in person and helped businesses understand their customers' unique financial needs, foster personal relationships with them, and sell products to fill those needs.

But digital technology and changes in customer preferences have turned the physical branch network into a burden. The current bricks-and-mortar infrastructure is increasingly irrelevant to Millennial customers. Full-service banks, for example, are expected to experience a 35 percent loss of market share by the year 2020, with business shifting to entrants from the retail and technology sectors.[2] To meet the needs of the next generation and differentiate themselves in a highly competitive environment, FIs will be required to adopt digital business models to operate with efficiency and agility.

For FIs to keep market share in the digital world, all of their major operating functions will be digital. In order to digitalize every process, FIs will need to re-configure their businesses to ensure competitiveness and effectiveness—from the back office through to the front office. But what exactly is a digital business? What enables it? What are its primary characteristics? What is the platform for success? In this chapter, we explore what it means to be a successful digital business in an evolving financial services sector.

FIGURE 2.1: A Traditional Linear Value Chain

[1] *"Gartner Top Predictions 2014: Plan for a Disruptive, but Constructive Future,"* Gartner, Inc., October 7, 2013.

[2] Jim Marous, *"Traditional Banks at Risk Due to Digital Disruption,"* The Financial Brand, November 13, 2013.

A digital business is more than just a business with digital products that are electronically distributed: it's a business in which digital technology is both pervasive and central to its overall success. A digital business is created when an organization uses digital assets and/or capabilities to create digital products, services, and customer experiences, typically conducted through digital channels and communities.[3] This means that all along the value chain—from the creation of products and services to their consumption—employees, consumers, partners, and processes are reliant on digital technology for easy access to information, constant connectivity, and immediacy of insight.

A digital business is characterized by an open, flexible value chain. In the transition to a digital business, FIs need to re-envision their business not as a standalone entity with a linear value chain (as illustrated in Figure 2.1), but as part of an extended enterprise ecosystem of suppliers from which customers assemble products and services according to their needs (Figure 2.2).[4] To meet their digital consumers' needs, FIs will leverage the power of networks, forming strategic partnerships and playing a critical role in developing a digital ecosystem of providers for financial services.

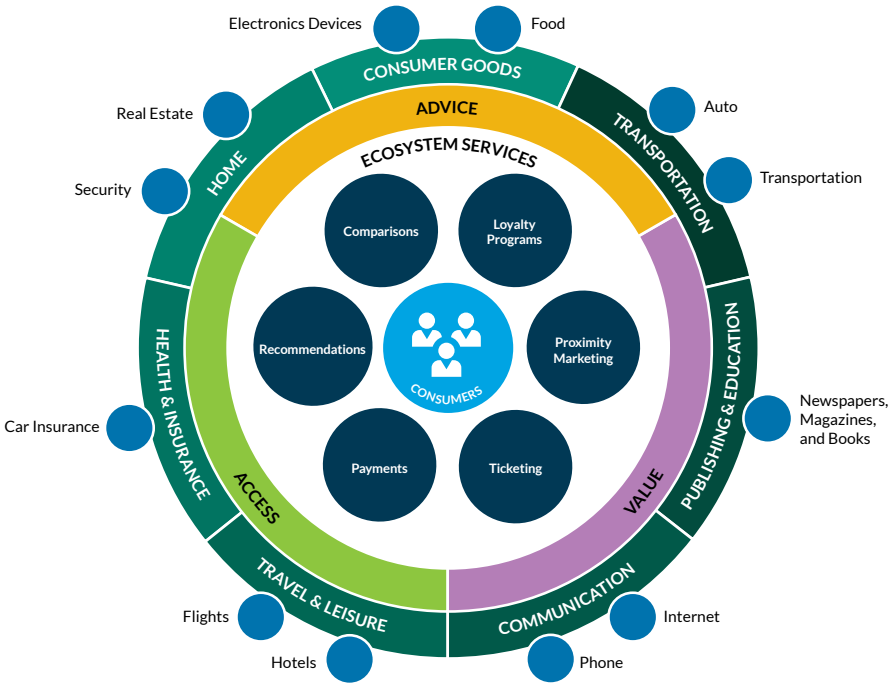


FIGURE 2.2: An Extended Financial Services Ecosystem[5]

[3] Jim Marous, *"Traditional Banks at Risk Due to Digital Disruption,"* The Financial Brand, November 13, 2013.

[4] Nigel Fenwick and Martin Gill, *"The Future of Business Is Digital,"* Forrester Research, March 10, 2014.

[5] *"The Every Day Bank,"* Accenture, 2014.

A defining characteristic of the digital financial services business is its ability to build and operate within this digital ecosystem. The digital ecosystem offers a broad range of solutions, delivering a complete, personalized experience that meets the customer's unique needs. As part of a larger ecosystem, companies can extend their capabilities, innovate to develop new products and services, and explore new revenue streams. By tapping into the wealth of transactional data available within the ecosystem, organizations will be well equipped to gain a holistic view of the customer, build a better customer experience, and continue to innovate and offer more targeted solutions to customers.

Success as a financial service provider will depend on a firm's ability to immerse its service, products, or branch into the lives of its customers—and become a primary digital resource. To this end, building and maintaining a strong ecosystem of suppliers is critical. Leveraging this ecosystem to drive new opportunities will be critical for business growth. Before we examine the characteristics of a digital financial business, let's explore the context that is creating opportunities for digital transformation.

The Drivers of Digital Transformation

The financial services industry has undergone major changes in the last decade. The financial crisis of 2008 wreaked havoc in the global financial system as banks became insolvent or received bailouts. A tsunami of regulations hit the global banking sector to prevent a similar crisis from happening again. As a result, today's financial institutions are struggling to generate sustainable growth and return to pre-crisis profit levels. In an industry that is marked by volatility, megamergers, and decreasing margins, there is a growing backlash against the larger, established financial institutions. Technically savvy consumers are turning to non-traditional, digital channels for financial services that are cheaper, faster, and better. All of these market conditions are combining with digital disruption to create the perfect storm for digital transformation.

The previous chapter highlighted the rapid pace of digitalization and how this wave of digital disruption is stronger and faster than disruptions of the past. In the digital world, the financial services enterprise will either evolve or it will become irrelevant. Several market factors are at work accelerating the adoption of digital technologies and, in particular, driving the transformation of firms into digital businesses. These include:

- The nature of digital technology
- Generation Z
- Globalization and emerging markets
- Regulatory pressures
- The demands of the digital consumer
- Growing requirements for operational agility

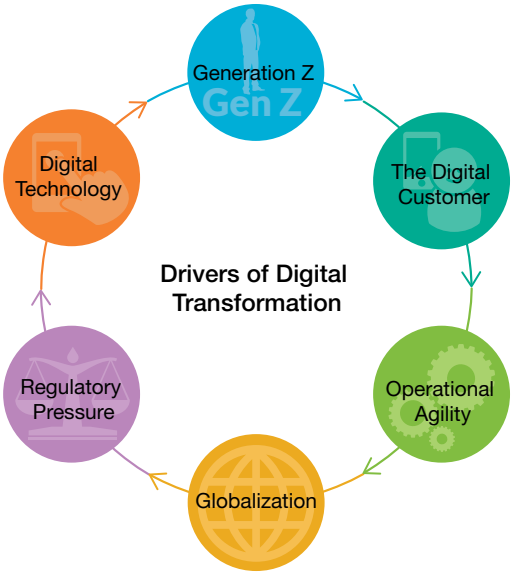


FIGURE 2.3: Drivers of Digital Transformation[6]

The Nature of Digital Technology

Traditional FIs need to leverage digital technology to access new opportunities and compete with disruptive competition. Digital business models leverage common, public technology that is less expensive to implement and maintain and supports rapid innovation. Their data structures are open and flexible. Application Programming Interfaces (APIs) allow software applications to easily interface and connect with third parties and external systems. All of these characteristics help to make businesses more agile, innovative, and responsive to changing customer expectations.

Central to digital transformation is the ability to facilitate direct, Peer-to-Peer (P2P) communication, collaboration, and sharing, without requiring an intermediary. By providing direct, unrestricted access to information, knowledge, and resources, digital technologies empower both businesses and individuals in ways not previously possible or even imaginable. Anyone with a web-enabled device can connect to a global network of expertise. They can share ideas, collaborate, and innovate. Organizations can access new channels for marketing and distribution and work with business partners located anywhere in the world. In this way, digital technologies are disintermediating the traditional financial institutions and their business models.

[6] Connie Moore, "*The Process-Driven Business of 2020*," Forrester Research, April 16, 2012.

As individuals are empowered with new ways of working, traditional channels—and those who control them—hold less importance. The nimble players are able to market globally through inexpensive and accessible online channels, sell through a mobile app, and digitally distribute. If they are missing skills or expertise, they can partner with another vendor. All this can be done in ways that deliver new value to the customer. Many established market leaders are encumbered by legacy IT systems and cultures that prevent them from reacting to new opportunities with agility. In shifting power and influence away from traditional sources, digital technologies are introducing opportunity to the masses. Digitalization is not simply a defensive strategy. Established FIs must acknowledge, respond to, and allow digital technologies to transform their operations from the inside-out if they want to stay competitive and relevant in the digital world.

In the following feature, Black Sea Trade and Development Bank is reinventing itself as a digital business using Enterprise Information Management (EIM) as a transformational technology.

Generation Z

In the digital world, FIs will have to cater to the younger generations, including Generation Z. Generation Z is the first "digital" generation to enter the workforce. Having grown up with easy access to the Internet and persistent connectivity, they are technically savvy, earning them the nickname "digital natives".[7] Technology is central to the way Generation Z works and plays. They use digital technologies like social media to share information and interact with peers. Constant connectedness is a fact of life for this group, they function on the immediacy of real-time insight and action.

In 2020, Generation Z will expect to continue working in ways that are open, social, mobile, and flexible rather than fixed according to a hierarchical structure. They will want to use the same tools in the workplace that they use at home to communicate, collaborate, and share information. If the enterprise does not permit access to these digital tools, Generation Z will bring them inside the firewall, circumventing IT and established governance rules and policies. Not offering them as part of the IT infrastructure will not be an option.

As they enter the workforce, Generation Z will introduce the globalization of talent. While it works to support its existing workforce, the enterprise will need to change its business models and approach to recruiting, retaining, and motivating this workforce. The good news is that, if they are empowered, this highly agile workforce will help to guide the enterprise on its journey to digital transformation.

[7] Generation Z: *http://en.wikipedia.org/wiki/Generation_Z* (accessed July, 2014).

Black Sea Trade & Development Bank

"The prime objective of the Bank is to have a single view and monitoring capability of operations in a single place, by building an EIM system."

MARKOS DOLOPIKOS, PRINCIPAL OFFICER, IT, THE BLACK SEA TRADE AND DEVELOPMENT BANK

FIGURE 2.4: Black Sea Trade & Development Bank

The Black Sea Trade and Development Bank (BSTDB), an international financial institution with headquarters in Thessaloniki, Greece, was established by Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey, and Ukraine. BSTDB started operations in June 1999 and has authorized capital of €3.45 billion ($3.88 billion U.S). The Bank supports economic development and regional cooperation in the Black Sea Region through trade and project finance lending, guarantees, and equity participation in private enterprises and public entities in the member countries.

BSTDB was challenged by the ever-increasing volume and complexity of documentation, siloed information, and a workforce that was often on the road. They needed a solution that could manage numerous and varied documents, connect people and data across the enterprise, and provide employees with mobile access to information—all while meeting compliance standards. To address this, BSTDB sought out a flexible EIM suite—a combination of document and records management, mobile, file sharing, and collaboration solutions.

With the EIM suite in place, BTSDB now has a 360-degree view of various types of information from many sources and locations; employees have secure, auditable access to information while on the move from their own device, making them more responsive to customer needs; and clients are able to upload completed applications and supporting documents directly to a secure workspace easily through a web interface. The Bank has further increased efficiencies and shortened processing times by applying digital signatures to automate business processes. This has eliminated delays on approvals and resulted in shorter processing times and improved customer relationships. Continuing to leverage the solution's extensive mobile information management capabilities, BSTDB is preparing to further improve operations by implementing a Bring-Your-Own-Device (BYOD) program that will allow both customers and staff to access dashboards containing real-time information using mobile devices.

Globalization

The relationship between globalization and digital disruption is interdependent: each one fuels the growth of the other, and both work to shape digital business. Globalization introduces great opportunity for FIs to enter new markets, consolidate their products and services, sell anywhere in the world, and create infrastructures that support operations around the clock. At the same time, it brings new competitive threats. As globalization continues to rise, there will be a global shift in capital, economic power, and influence from older economies in North America and Europe to emerging economies.

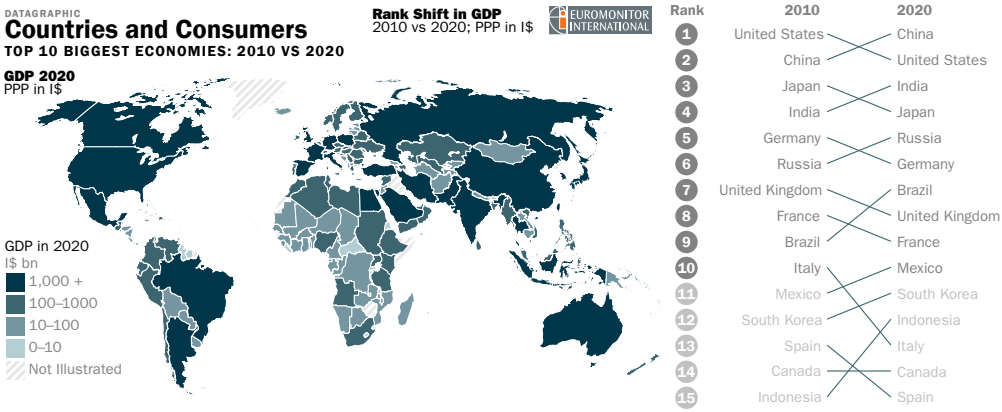


FIGURE 2.5: Top 10 Largest Economies In 2020[8]

By the year 2020, it is expected that Brazil, Russia, India, and China (collectively known as BRIC countries) will be increasingly important centers of economic influence. The flow of wealth into countries like China and India has produced stronger economies. Momentum continues to favor emerging markets: a second wave of globalization is supplanting developed nations in both the U.S. and Europe as the dominant contributors to global economic growth.

Organizations in developing regions are expanding their operations and extending their recruitment efforts beyond their local ecosystems. They will have strong middle classes with significant purchasing power and will be sources of business innovation. A digitally focused FI is well positioned to gain a presence in these markets, serve their customers, and collaborate with businesses located there. It gives businesses the opportunity to hire people in these locales and effectively integrate employees and business processes into a global infrastructure. They have the ability to leverage international tools, knowledge, and networks to influence local decision-making processes. At the same time, it introduces new policies and regulations.

[8] *"Top 10 largest economies in 2020,"* Euromonitor International from IMP, July 7, 2010, *http://blog.euromonitor.com/2010/07/special-report-top-10-largest-economies-in-2020.html* (accessed July 2014).

Regulatory Pressure

Finance is a highly regulated industry that is interconnected and relies on national and global economies. What happens in one economy often impacts many economies on an international scale. For this reason, it is important for regulatory agencies to maintain control over the standardized practices across systems, data, and processes of these institutions. Financial institutions are required to comply with global and local regulations covering capital and liquidity, conduct of business, and financial crime. Reporting and disclosure are costly, complex, and mandatory, and the penalties for non-compliance are severe. In the financial industry, compliance will continue to be expensive and challenging, and rules, regulations, and laws will come from many more regulators from around the globe.

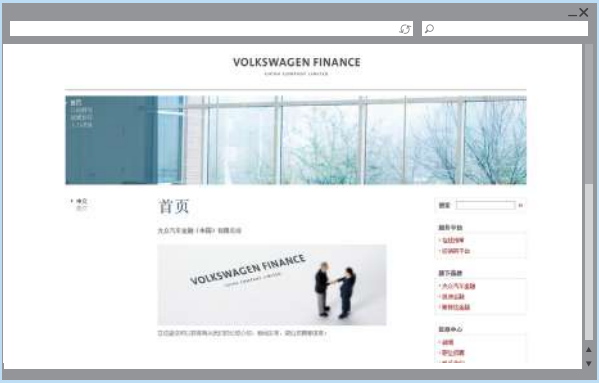
In the digital world, new and disruptive technologies will raise concerns around capital, liquidity, consumer protection, security breaches, anti-money laundering, and overall risk management. Emerging technologies will bring volumes of structured and unstructured data inside the firewall. The Internet of Things (IoT) alone will introduce a wave of new data types into the enterprise. FIs need to be prepared to govern this information before it arrives. Growing regulatory pressures will require the digital enterprise to rethink and reprioritize its strategies for compliance and risk management.

After the global financial crisis, compliance with new regulations cost the average bank 2.5 to 3.5 percent in pre-tax Return-on-Equity (RoE), which is significant considering some banks are struggling to achieve profitability levels above their cost of capital.[9] In some cases, regulatory-driven change accounts for more than 80 percent of the entire corporate investment portfolio, and it is not sustainable to manage change on this scale as a series of one-off tactical projects. In the face of mass disruption, the challenge facing FIs is how to adopt a more strategic approach to managing regulatory-driven change, while minimizing costs and future proofing operating models against the next wave of regulations. Many of these regulations are emerging to protect the digital consumer.

With globalization and transactions across an international supply chain comes a greater need to comply. This need will grow as higher volumes of information and commerce are exchanged across borders. In the following feature, Volkswagen Finance China operates in a complex, global environment with requirements to comply with Chinese law as well as with German banking regulations due to its affiliation with its parent company.

[9] *"Banking 2020,"* Accenture, 2013.

Volkswagen Finance China



Volkswagen Finance (China) Co., Ltd. is China's first wholly foreign-owned auto finance company. Volkswagen Finance China has been committed to providing Chinese customers with advanced auto finance products and high-quality services since its founding in September 2004.

FIGURE 2.6: Volkswagen Finance China

As a result of the rise of affluence in the Chinese market and the appeal of foreign car brands, there has been an increase in the purchase of cars and a corresponding demand for automotive financial services. Business for Volkswagen Finance China has been growing rapidly in the past five years, and the corresponding data has increased by 800 percent (2010 – 2014). In the midst of this deluge of data, the company is required to comply with regulations in both its host country, China, and its country of origin, Germany. These requirements include the need to store related documents for seven years in both paper and digital formats in support of the electronic disbursement process.

The company turned to an expansive information management solution to give it the agility it requires to manage compliance data and processes—both now and into the future. The solution helps to manage compliance using integrated records management, archiving, search and e-Discovery. The solution can handle large amounts of data and integrates with other applications like email and its retail finance suite to minimize the risk and cost associated with compliance, while maximizing insight and efficiency across consolidated data sources. As well as transparency into performance, the organization has been able to find new value in this solution by reducing the time required to find documents by 50 percent, significantly improving productivity and time-to-compliance.

Digital Consumers

We have entered the "Age of the Customer"—an age in which digital technology has empowered the customer and shifted the balance of purchasing power to customers.[10] Consumers now have the ability to extract price, quality, and service concessions from the world's most powerful financial brands.[11] What used to differentiate the enterprise—economies of scale, distribution strength, and brand—have faded in importance. In their place, customer obsession is what gives firms dominance and drives their competitive advantage.

The rapid adoption of digital technologies has created the digital consumer. They are ready for new models of engagement as they embrace branchless banks, online transactions, mobile wallets, and bundled products and services—fueling a growing digital ecosystem of financial (and non-financial) service providers. An increasing number of emerging businesses are offering customers convenience, flexibility, and choice, making the established institutions vulnerable to losing market share to new market entrants. In fact, Millennials will increasingly look to the companies they trust for financial services, like Amazon and Google.

Consumers now expect more from their financial institutions than simple transactions. They want digitally enabled services, from any place at any time, at their convenience. They want more holistic services like investment and budgetary advice—in real time. With smartphones in their pocket, they want to engage their financial institutions through digital channels and touchpoints. There is evidence of this when comparing the growth of online sales from 2012 and 2013 for banks in the U.S., as illustrated in Figure 2.7.

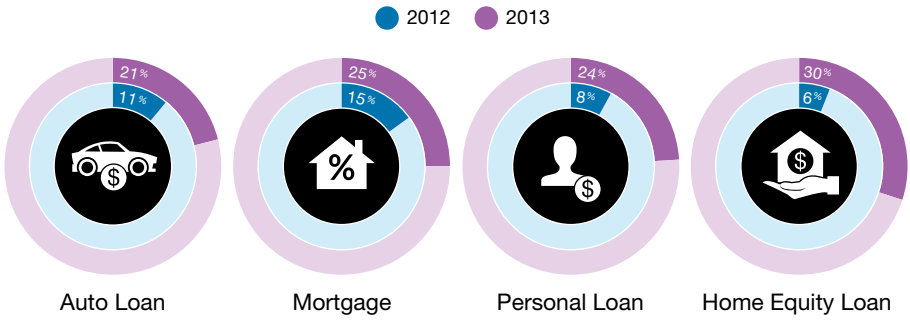


FIGURE 2.7: Sales of Financial Products Shift to Online Channels

[10] Nigel Fenwick and Martin Gill, *"The Future of Business is Digital,"* Forrester Research, March 10, 2014.

[11] George F. Colony and Peter Burris, *"Technology Management in the Age of the Customer,"* Forrester Research, October 2013.

Consumers are demanding personalized service and expect immediate gratification and engaging experiences that satisfy. With client onboarding as a top priority, financial organizations that offer a seamless end-to-end differentiated customer experience will succeed in an emerging digital ecosystem. For customer experience to be seamless, the underlying processes must be automated and streamlined.

Operational Agility

Creating an effective customer experience relies on process efficiency and operational excellence. Operational excellence is becoming more important as digital customers have growing expectations for faster delivery of goods, increasing product personalization, and 24/7 engagement.

In the digital world, the FIs that are agile enough to innovate and seize market opportunity will win market share. On average, one third of the enterprise's business processes rely on digital technology.[12] In the very near future, smart machines and workplace automation will remove mundane and repetitive tasks. Research shows that 47 percent of U.S. jobs are susceptible to replacement by automation within the next seven to 10 years.[13] Electronic transaction processing has already removed the manual labor involved in processing transactions.

Currently, only one-third of an organization's business processes rely on digital technology. In 2020, all of an organization's information and processes will be digital, moving the value of information beyond optimizing performance to create new products and services and open up new sales channels. The benefits are substantial. An automated mortgage application process, for example, can reduce costs by up to 70 percent. A digital case management solution results in almost 40 percent improvement in the time it takes to manage cases at a leading financial institution.[14] Technologies that digitalize processes boost efficiency so that organizations can deliver results more quickly.

The Components of a Digital Financial Institution

As digital technologies transform business operations, all major elements of the business will be impacted. The components of the digital financial institution are already emerging and include the Digital Business Network, Digital Engagement, and Digital Governance and Security.

[12] Sarah Murray, *"CEO Briefing 2014 - The Global Agenda: Competing in a Digital World,"* Accenture, 2014.

[13] Colin Lewis, *"Robots Are Starting to Make Offshoring Less Attractive,"* Harvard Business Review, May 2014, *https://hbr.org/2014/05/robots-are-starting-to-make-offshoring-less-attractive/* (accessed April 2015).

[14] Sarah Murray, *"CEO Briefing 2014 - The Global Agenda: Competing in a Digital World,"* Accenture, 2014.

The Digital Supply Chain

In the digital world, consumers will drive interactions with financial services organizations. They will expect greater customization of products, swift delivery of services, and an experience that is smooth and seamless. To fulfill this vision, digital businesses will leverage information technology to support new levels of flexibility, operational excellence, and exchange between partners, even those outside of financial services, otherwise known as Business-to-Business (B2B) integration.

Future financial services business networks will consist of vibrant and collaborative environments in which consumers, banks, insurance, investment companies, treasury departments, and technology morph into a market-driven world requiring the right information, in the right format, at the right time.[15] These organizations will be part of an ecosystem with the customer at the hub and leverage digital and mobile technologies to deliver both financial and non-financial services across many channels. The ecosystem will be made up of a business network of partners and counterparties. Digital business processes supported by a digital business network will be essential to success. Technologies like Smart Process Applications (SPAs) and Dynamic Case Management (DCM), when combined with secure information exchange and B2B integration, will bring flexibility, greater agility and efficiency, and customization to the financial services ecosystem.

Given the competitive landscape and the changing expectations of the digital customer, it is important for traditional FIs to proactively evolve and grow their business. They will need to adopt digital operating models to compete. In a globalized and highly distributed environment, FIs will depend on B2B integration—technology and applications for the automated exchange of transactions between broad networks of partners and counterparties. In the digital world, the network will harness the Cloud and offer full mobile access to deliver customer experiences that exceed expectation.

Digital Engagement

In the year 2020, digital will not just be a route to market; it will be the primary route to market. FIs will be required to connect directly with their customers to produce superior customer experiences—reaching and engaging customers at every touchpoint. Digital customers will bounce from device to device across relevant channels—discovering products in online articles and community discussions, researching competitors, downloading product information, completing online and mobile transactions, and engaging businesses through customer service portals. Each touchpoint provides an

[15] Mike Lacobucci, *"Looking ahead to globalization 2020,"* MultiLingual Computing, *http://www.moravia.com/files/download/Globalization2020_MultilingualComputing.pdf* (accessed July 2014).

opportunity to strengthen and tighten customer relations. To be successful, the digital enterprise will provide its customers with a seamless buyer journey across many channels to deliver what they need, when and where they need it.[16]

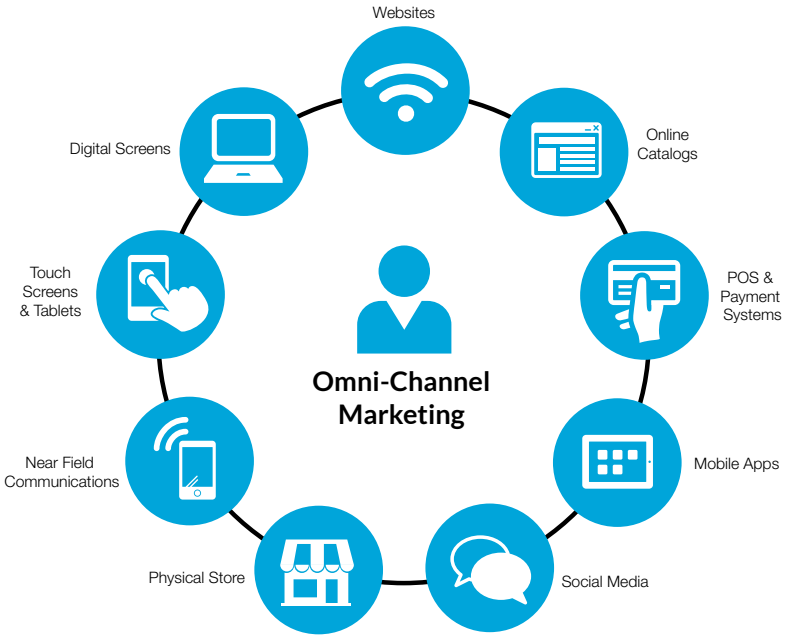


FIGURE 2.8: Omni-Channel Marketing[17]

As consumers engage across multiple channels, FIs will have to adopt an omni-channel approach to deliver a consistent brand experience. Consumers regard brands as a single entity and expect the same experience of its products, services, policies, processes, and personality, regardless of channel. The key to effective engagement is consumer intelligence. The ultimate goal of any service provider today is capturing a 360-degree view of the customer's financial situation to offer services and products that are timely and compelling. As they acquire market share, digital disruptors are profiting from the customer data they are collecting. This will be where the future battle will be focused. Every institution needs to transform into a digital business to leverage new business models, re-invest itself through digital processes, and secure their access to the customer relationship.

[16] Ron Rogowski, *"The Unified Customer Experience Imperative,"* Forrester Research, May 7, 2013.

[17] Christopher Hall, *"Digital Signage and the 'Store of the Future,'"* Retail Customer Experience, Dec 10, 2013, *http://www.retailcustomerexperience.com/articles/digital-signage-and-the-store-of-the-future/* (accessed July 2014).

Internally, firms will rely on the use of digital technologies to deepen engagement with their employees, largely made up of digital natives and Generation Z. New business models and technologies require a different workforce, and FIs will need to transform their operations and cultures to attract, retain, and grow their workforces. To enable this workforce, workplaces will depend on digital communications and collaboration in global conference calls, through instant messaging, and social communities, or by working on shared documents. To succeed, FIs will need to empower frontline staff with digital tools and technology they need to do their jobs, with digital expertise and support at the executive level. Digital engagement is discussed in more detail in Chapter 4.

Digital Governance and Compliance

FIs are subject to laws, rules, and regulations that require strict compliance to protect corporate assets. As digital technologies permeate the value chain, they are producing enormous amounts of data and content. With growing volumes of data and increasing opportunity for data theft, it will be crucial for organizations to have sound strategies and practices for information governance and security of private or sensitive information. As the enterprise re-invents itself, business leaders will need to articulate a digital strategy that balances innovation and growth with security and risk. Information management will increasingly leverage digital technology for compliance, good governance, and e-Discovery.

Making the Move to Digital

To remain relevant in the digital world and gain a sustainable competitive advantage, FIs will be required to transform themselves into digital enterprises. Digital transformation requires a radical overhaul of enterprise strategies, processes, products, services, and relationships. EIM empowers organizations to make this journey. How? At a basic level, it guides them through each phase of transformation, giving them effective ways to simplify, transform, and accelerate their business. Each phase of digital transformation is illustrated in the figure below.

1. Simplify. Every organization wants to simplify its business—and this is a constant challenge. Shoring up core business operations to improve efficiency and profitability is the first phase. Organizations must reduce costs and increase competitiveness by digitalizing their information and processes. Most organizations are already working toward simplifying their operations as “Present Day Followers”, as indicated in the diagram below.

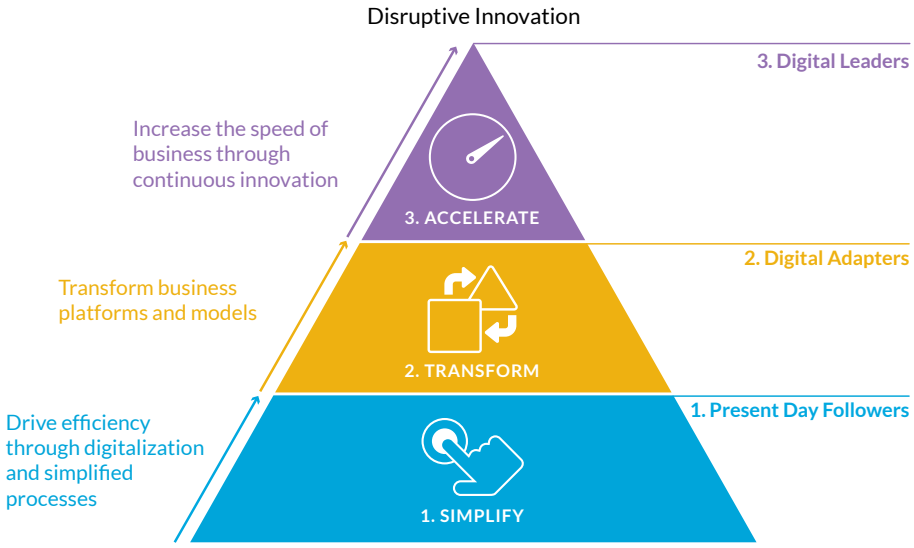


FIGURE 2.9: Phases of Digital Transformation

2. Transform. Business processes need to be agile to adapt products, services, and operations as customer expectations change—and they are changing. This requires transforming information-based processes and platforms to support digital consumers, a new workforce, a digital supply chain, and emerging technologies. To do this effectively, organizations will need to create an environment in which innovation thrives. Business and technology leaders should be ready to take risks, follow digital strategies with effective leadership, and define new models of engagement. Organizations in this phase of transformation are already adapting to the requirements for future digitalization.

3. Accelerate. This describes the rate at which we must undertake these changes, which may be daunting to some, but at the same time it presents every business in every market with even greater opportunities to serve their customers, partners, and suppliers. Every organization will be required to rethink the way that they're engaging with customers, how they facilitate the workforce, and the ways they're integrating and managing their information. The final phase of transformation relies on constant innovation. This can only be achieved by increasing the speed of information delivery through integrated systems. "Digital Leaders" have mastered this. They're redesigning customer experiences, overhauling their approaches to information management, rethinking their processes, and re-platforming their operations.

Many FIs are currently operating at the initial stage of digital transformation. The following interview describes how an insurance company is leveraging digital technology to transform their claims management process, improve their service levels, and produce valuable efficiencies and cost savings.

A Multinational Insurance Company

What follows is an excerpt from an interview with the manager of solutions architecture at a multinational insurance company. The interviewee is part of the enterprise operations group that provides support services to both the personal and commercial insurance divisions.

"As you can imagine, our industry is document intensive. When customers make a claim against their insurance policy, we receive emails, faxes, and mail. Customers send us receipts from the initial purchase and images of the damage. We receive around 50-70 thousand documents a day through our inbound channels, and all these documents need to be processed. Typically, this involves opening a file, classifying documents received against a claim, and then routing them to the appropriate department. There are also the documents produced by the claims adjuster as they evaluate the claim against the policy coverage and communicate a decision and/or payment. These are outbound or customer communications.

When I started with the organization four years ago, the claims management process had some digitalization, but it was largely paper-based. This translated into long handling times and poor service for our customers. We knew intuitively that digitalization would help us improve the customer outcome, so we launched a claims transformation program to digitalize our claims management process, reduce the complexity of our operations, and ultimately, improve our service levels.

My contribution to this program was to oversee the solution architecture underpinning three key areas of our claims management process. This involved implementing a digital mailroom solution to handle our inbound correspondence, a document repository for controlling, securing and retaining documents, and a solution for managing all outbound customer communications related to claims and policies. Let me elaborate on how digital technology transformed each area.

Our digital mailroom solution is based on digitalizing all inbound correspondence. Information is captured and extracted using advanced recognition technology. Metadata is assigned so the document can be auto-classified against a policy and support straight through processing (STP) for the necessary workflows. The system ascertains which claim the metadata relates to and triggers a workflow that routes directly to the claims consultant working on that claim—it doesn't go into a big pick list, it actually goes to the exact person specified. So efficiency is a function of both our claims system and the metadata driving that process.

Before the document is made available to various workflows, however, it's important to store it as a record in a repository as quickly as possible. Supporting the digital mailroom, we implemented a records management solution to ensure every document would be archived, controlled, policies applied, and only then would it be released to workflow systems for fast and controlled access. Our document repository ensures we have a single source of the truth for all processes to reference.

At the other end of the processes, we had a lot of outbound correspondence related to claims and policies that we brought into a customer communications management solution (email, fax, external print, SMS). Correspondence had to be integrated to create a complete file about the claim. Merging information from these two worlds gives claims adjusters access to everything about the claim, beyond information in the claims management or policy management systems. Now they have complete information about the claim and can make better decisions in faster timeframes.

Today, the claims management process is fully automated, and this automation has reduced manual keying and paper handling and improved data quality. It brings together structured data in our back-end systems with unstructured data from inbound and outbound correspondence, merging everything into a singular file. The claims transformation program has improved the customer outcome—we've seen our claims processing times reduced from days down to minutes, which is a drastic improvement and exactly the outcome we were seeking.

By modernizing our claims process we were able to do more with the same number of people and redeploy staff to customer-centric roles. In one part of the business we actually had 40 people simply filing paper, and in that particular example, we were able to reorganize them—to help us process more claims and perform policy administration. With the new system, we are no longer creating physical records. While we currently have in the order of 500,000 boxes of physical records to manage, we've turned off the physical records tap. Moving forward, everything will be digital.

The new claims process has also reduced our compliance risk through better tracking of document-related activities. The solution gives us increased ability to secure and audit access to all correspondence. We can selectively expose to users only the document types and sub-types we want, and we can demonstrate via audit trail who actually looked at them. This is especially important for our workers' compensation claims, which contain personal data that is quite sensitive. So the permissions and audit trail capability is vital.

Today, not only can we archive and retain documents within our organization, but we can dispose of documents in a defensible fashion as opposed to keeping them forever. Defensible deletion is really important, and to do this, metadata has been vital. Our different lines of business have very different rules as do the countries in which they operate. In Australia, for example, documents must be kept from five to seven years, but requirements for retention can range up to 90 years. So document classification is key for helping us track what we are retaining and for how long. As soon as we scan an inbound document, we immediately apply policies to them before they are used by the workflow. This is done right up front.

As we move forward into the future, we need to continue responding to new digital technologies as they become available. The benefits of digitalization became evident to everyone as soon as we started this program. When we got a sense of the aggregate volumes and the impact of the system on our business results, we realized it was the right thing to do. It was strategic. It was this initial realization that drove us and continues to drive us forward."

A Platform for Transformation

Information lies at the heart of digital transformation. But how can organizations unlock the transformational potential of information without compromising productivity and security? EIM is the key transformational technology. Throughout the phases of digital transformation, a digital enterprise can adopt EIM as its foundational enterprise platform for change.

An EIM framework enables FIs to:

- Digitalize all information assets and processes
- Build applications that drive the top-line results, such as revenue, customer satisfaction, innovation, and growth
- Integrate structured and unstructured data into a single source of the truth
- Facilitate social collaboration to foster engagement, idea sharing, and innovation
- Mobilize information and processes across any device, without compromising security
- Deliver a proven framework for information governance across all functions and applications
- Consolidate IT platforms and applications to manage information flows
- Protect the enterprise with robust, multi-layered security
- Capitalize on opportunity and expand into global markets

Becoming a digital enterprise necessitates using digital technology to better satisfy digital consumers and engage with business partners. Digital financial services combines exceptional customer experiences with efficient processes and operating models—both enabled by digitalization and the underlying technologies, processes, and structures.[18]

At the front end, efficient FIs will deliver high-quality customer interactions and transactions, securely and in real time. Digital consumers will demand transparency into pricing and immediate gratification. Products will be offered at competitive prices to consumers who are better informed and understood. For this to happen, the back end will rely on digital technologies that allow for fast and efficient processing. Digitalization helps FIs improve efficiencies and increase revenues using leaner operating models, streamlined decision-making, consolidated unstructured information, and seamless information and process flows. Digital governance is a fundamental aspect of digitalization, ensuring that operations comply with internal policies and external regulation—all along the financial supply chain. An integrated infrastructure based on a digital business strategy helps digital FIs meet these requirements.

[18] Stefan Marcu et al, *"Banking in a Digital World,"* AT Kearney Digital Business, 2013, *http://www.atkearney.com/digital-business/ideas-insights/article/-/asset_publisher/dWxykCQaJmh5/content/banking-in-a-digital-world/10192* (accessed May 2015).

FIGURE 2.10: A Digital Financial Institution[19]

A Digital Business Strategy

In broad terms, digital business is billions of people, businesses, and devices communicating, collaborating, and transacting, all gaining further efficiencies through the smarter use of technological advances. Its potential is huge—from replacing paper and manual processes with software to moving applications to the Cloud to lower costs of ownership and increase agility, to applying analytics to deepen engagement with customers. But it involves more than adopting an e-commerce model: it shakes business at its very core. It moves beyond digitalizing every process to challenging old operational approaches and inventing new processes.

[19] Stefan Marcu et al, *"Banking in a Digital World,"* AT Kearney Digital Business, 2013, *http://www.atkearney.com/digital-business/ideas-insights/article/-/asset_publisher/dWxykCQaJmh5/content/banking-in-a-digital-world/10192* (accessed May 2015).

Digital business upsets the status quo and operates using a flatter, socially-enabled business model. It promotes direct engagement between suppliers and consumers. What is required is a radical break from the past and the creation of entirely new business models with new expectations and new ways of working. Customers are already embracing digital technology and redirecting the value chain. Millennials are entering the workplace and bringing new expectations for how they want to work. Value chains are being transformed based on new business models and processes that are flexible and scalable and better able to serve the customer.

FIs will only be able to capitalize on this promise of opportunity and innovation if their focus remains fixed on the customer and finding the balance between marketing and operations. A digital business creates new revenue streams using digital resources. In order to digitally transform, FIs will need to develop a digital strategy to evolve their operations. The strategy should support a digital workforce, infrastructure, operations, and engagement across the entire extended enterprise ecosystem.

Digital disruption will help reform the enterprise into a digital business. However, to truly transform, organizations will need to govern and secure their information. As recent history has shown, information is the byproduct of digital disruption—and there is a lot of it. In the future, everyone will participate in the new information economy as technology becomes more accessible and information becomes the primary means to value-added production. Underlying the development of a digital strategy then must be an effective way to manage information to promote innovation and opportunity, while minimizing risk. This is discussed in the next chapter, “Information and Process Flows”.

CHAPTER 3

INFORMATION AND PROCESS FLOWS

CHAPTER 3

Information and Process Flows

"We don't have better algorithms. We just have more data." – Peter Norvig, Director of Research at Google[1]

Disruptive innovations in technology are challenging the established rules of business. What all these technologies have in common is that they enable a new way of using information. For Financial Institutions (FIs), information is no longer just a cost factor but the basis for increasing growth and competitiveness.

Financial services is a data-driven business powered by data-driven insights. From transactions to customer interactions to risk assessments and investment portfolios, FIs collect massive amounts of information, and this data is used to increase revenue, improve efficiencies, and comply with regulations. The ability to access the right information, identify prospective customers and markets, and respond to risks in real time empowers organizations in the financial industry to make strategic decisions that both grow and protect the business.

Visionary FIs are the businesses that can effectively leverage the great wealth of information that flows throughout connected society today. While technology leaders of the past were preoccupied with managing technology systems, today's leaders focus on the strategic value of content. In the digital world, information is the new currency.

One of the biggest business challenges related to digital transformation will be how to effectively manage growing volumes of information to optimize its value while reducing risk. How can FIs unlock the potential of information without compromising productivity and security—especially when security is mandated by law to protect individuals, corporations, and even nations? This chapter examines this question in detail and positions Enterprise Information Management (EIM) as the key transformational technology of the digital age.

[1] Tim O'Reilly, *"Why Google Is Offering 411 Service,"* O'Reilly Radar, April 2007, *http://radar.oreilly.com/2007/04/why-google-is-offering-411-ser.html* (accessed April 2015).

How Much Data?

Over the last decade, the rate of information growth has increased exponentially. By 2020, the world will generate 50 times the amount of information it currently does in 75 times the number of "information containers", while the resources needed to manage it will grow fewer than 1.5 times.[2] As more people, processes, and data interact, an information economy is emerging and the value of information is increasing. Its rapid growth is already outpacing the skills required to store and manage it. And this challenge is being compounded across all industries.

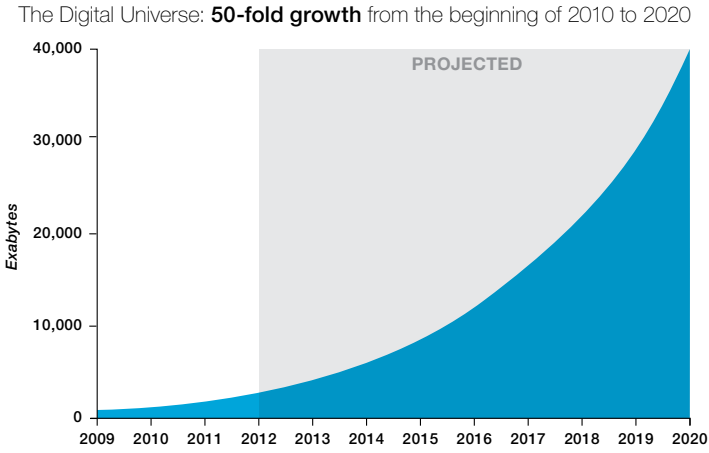


FIGURE 3.1: Growth of Information by Exabytes[3]

Today there is more data in more formats being exchanged at faster rates than ever before. Mobile phones, online shopping, social networks, electronic communication, GPS, and sensors all produce massive streams of data. More data is shared across the Internet every second than was stored in the entire Internet 20 years ago. People are increasingly transacting and interacting online. Google® processes 20,000 terabytes (roughly 20 million gigabytes) of information a day. Video content is added to YouTube® at the rate of 300 videos per minute.[4] To put this amount of data in perspective, by current estimates it would take longer than 1,000 years to watch all of this content in linear time. Retailer giant Walmart collects 2.5 petabytes (or 2,500 terabytes/2.5 million gigabytes) of data every hour based on customer transactions alone.[5]

[2] Tim O'Reilly, *"Why Google Is Offering 411 Service,"* O'Reilly Radar, April 2007, *http://radar.oreilly.com/2007/04/why-google-is-offering-411-ser.html* (accessed April 2015).

[3] John Gantz and David Reinsel, *"The Digital Universe in 2020: Big Data, Bigger Digital Shadows, and Biggest Growth in the Far East,"* IDC, December 2012.

[4] YouTube Statistics: *https://www.youtube.com/yt/press/statistics.html* (accessed July 2015).

[5] Andrew McAfee and Erik Brynjolfsson, *"Big Data: The Management Revolution,"* Harvard Business Review, October, 2012, *https://hbr.org/2012/10/big-data-the-management-revolution/ar* (accessed April 2015).

In the financial industry, transaction volumes are growing at an astronomical rate due to the ease, convenience, and availability of digital transactions. Transactions are proliferating based on our reliance on mobile devices. Mobile payments are expected to reach 47 billion global transactions this year.[6] Consumers can access their accounts, transfer funds, and make trades from any location, at any time, on any device. This increase in digital activity has led to increases in transactional volumes both online and on mobile phones, as illustrated in Figure 3.2.

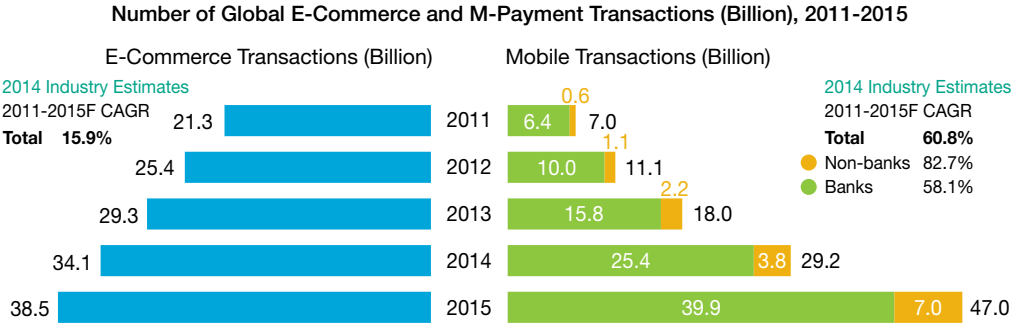


FIGURE 3.2: Global Online and Mobile Transactions Are Growing[7]

As transaction volumes grow, so does the need to store and access this information. The regulatory environment in which FIs operate requires them to maintain many years of transactional data for specified periods of time. On average, a North American bank captures over two billion internal transactions per month, in addition to public data from over one billion external transactions.[8] In capital markets, the pervasiveness of electronic trading has meant that firms both generate and act upon millions of market-related messages and transactions every day. Likewise, insurance companies are required to manage massive amounts of claims-related data. This can equate to thousands of petabytes in data. Processing these increasingly large volumes of information has become a challenge for many financial institutions.

As volumes of information grow, disruptive technologies are introducing new formats of information that must also be managed: data from derivative trading platforms, social media, blogs from Internet channels, transaction history data sets, emails, GPS data from smartphone applications, and more. On a continual basis (microseconds in high-frequency trading), FIs are required to exchange, store, and analyze their information—from entire transaction histories to micro data points. Advances in technology are enabling FIs to combine large pools of structured and unstructured information for greater insights into performance, markets, and consumers.

[6] *"World Payments Report 2014,"* Capgemini and RBS, 2014.

[7] Ibid.

[8] Stefan Dab et al, *"Global Payments 2014: Capturing the Next Level of Value,"* Boston Consulting Group, September 2014.

Structured and Unstructured Information

In the digital world, FIs will need to deliver business insights in context, on demand, and at the point of interaction by analyzing every piece of available data, including structured and unstructured information.

Structured information is data in fixed fields in a relational database that is housed in Enterprise Resource Management (ERP) systems. ERP tools share a common data model, covering operational end-to-end processes, such as those found in finance, human resources, distribution, manufacturing services, and a supply chain. These processes depend on large volumes of data. Unstructured information is the conversation that forms around this data.

Of the volumes that FIs amass and store, analysts predict somewhere between 80 and 90 percent of their information is unstructured. Unstructured data within an FI might be claims data, customer call records, texts, videos, emails, and other documents. Content from external sources includes Facebook posts, videos, and tweets.

Integrating structured and unstructured information across silos is a common challenge that hampers access and productivity in any organization. The volume of content is impacted by the departments it must flow through. In many FIs, information is maintained in siloed repositories. This means that information that should flow securely and effortlessly across departments, partners, and customers—both on-premises and in the Cloud—is disconnected and processes are fragmented. As a result, FIs do not have a consolidated view of their information, which means they do not have a consolidated view of their resources, projects, or customers.

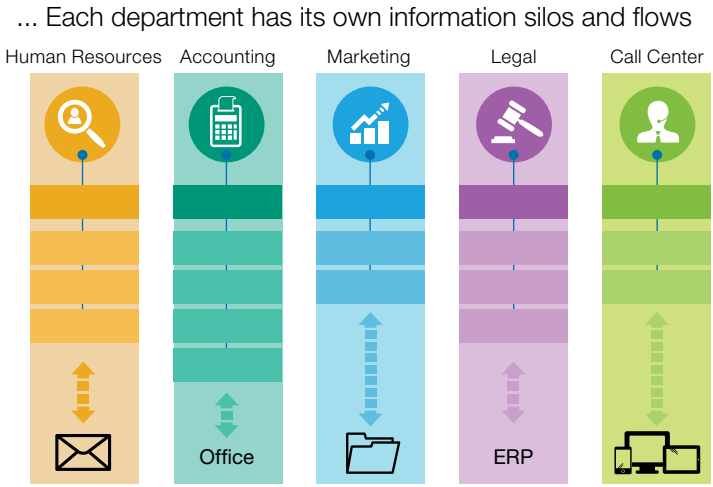


FIGURE 3.3: Integrating Information Across Silos is a Common Challenge

Information chaos reduces margin. Data is expensive due to storage costs and the resources required to manage it. Mismanaged information can cost FIs millions of dollars in expenses associated with litigation, regulatory compliance, and e-Discovery. Data fragmentation diminishes the value an enterprise can derive from its information flows. Most organizations struggle with siloed information and connecting processes across the enterprise. Often, the enterprise must overcome technical, organizational, and cultural hurdles to manage information as an asset.

Big Financial Data = Big Financial Headaches

The volume of enterprise information continues to create big headaches for CIOs and IT leaders—from management to infrastructure, storage, resourcing, and security. Current technologies and architectures are not equipped to handle massive amounts of information. As their "digital shadow" increases, consumers are wary of multinationals and governments using their data to serve their own agendas. Security and privacy are important issues associated with information. To cope in the digital world, FIs will need to rethink their data management infrastructure, especially since information will be core to implementing a digitalization strategy. Organizations will need to invest in EIM solutions and acquire the skills needed to maximize the value of their information.

Technical: The Technology Gap

The right resources have to be in place to analyze information effectively. For many FIs, their data accumulates too quickly, outpacing the ability to use it to their advantage. To meet the demands of growing amounts of data, FIs must have processing and storage requirements in place, and the size and scale of these systems makes them costly to manage and resource.

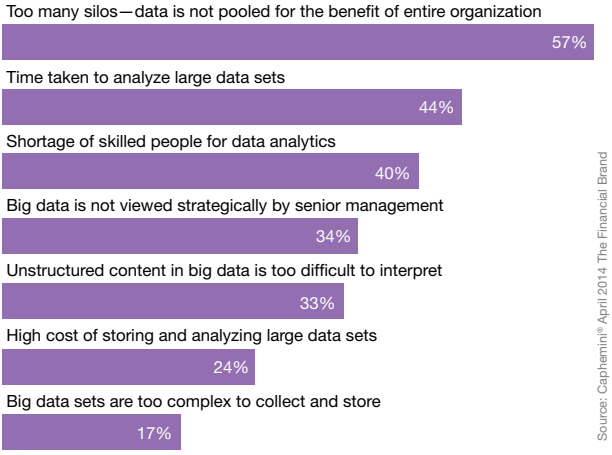


FIGURE 3.4: Impediments to Effective Information Management at Banks

Cloud computing offers affordable solutions for storage. It also allows for analysis on large data sets which could not previously be accessed. While CIOs are focused on minimizing the cost of storage, backups, and security, cloud computing offers convenience, flexibility, and scalability.

In order to benefit from their information, FIs will need to ascertain the value of their information, how much they can store, how much storage costs, and for how long they need to retain the information. Deploying EIM technologies to capture, manage, protect, and even dispose of data is a good first step. Data must be discoverable, accessible, and usable for it to have value. It is important to manage this data according to regulations and corporate policies and procedures—ensuring that analysis and release of information is legal and compliant.

Organizational: The Skills Gap

The right people with the right skill set must be put into place to own and manage information initiatives across organizations. Due to its diversity, people with a variety of skill sets are needed to manage information. New information-related roles are already emerging and will dictate requirements for a new IT structure to support roles related to information leadership, innovation, and strategy.

There is already a skills gap in expertise required to collect, mine, and analyze big data. To capitalize on their information, FIs will need to adopt technology enablers and create strategies—as well as applications—around information. Culture will shift to one that engenders open knowledge sharing and relegates menial tasks to automated processes. Competition will be based on the ability to analyze information for insight and customer information. The better the information, the faster and more precisely FIs can meet consumer needs. To do so effectively, they will need to find a balance between the opportunities provided by information and the risks it presents in both privacy and security.

Cultural: No Risk, No Reward

Despite the potential benefits that greater amounts of data brings to society, there are growing concerns around security and privacy. FIs are already the gatekeepers of private information and as organizations, they are susceptible to information leaks, which raises the question—how much control do we actually have over our own personal information? How will government and regulators be able to monitor and protect huge amounts of personal data stored in the Cloud?

FIGURE 3.5: Growing Digital Shadows

People are suspicious about the ways organizations make use of their personal information. As consumers, we move through our days leaving data traces—from time spent on Facebook to purchases we make both off and online, texts sent, video surveillance footage, and even the energy consumed in our house. These data traces make up an individual's digital shadow. As we become increasingly reliant on technology, and this technology becomes more interconnected, digital shadows will only grow to become rich, varied, and abundant.

To capitalize on digital shadows, businesses will need to find ways to build trust and reward consumers in exchange for their data. FIs will need to become more sophisticated in their use of personal data. In the digital world, all individuals will have a commercial identity based on their own personal information. FIs will be required to protect these identities by investing in robust information security. The number of cyberattacks on organizations is already impacting spending on information security with annual worldwide investment ranging between $375 billion and $575 billion.[9] Enterprise Information Management strategies and technologies can be used to unlock the value of information without compromising security and privacy.

In the following interview, Aon Affinity Insurance Services is digitalizing its products and services, adopting technologies like big data analytics to gain value from its customer information and improve service delivery.

[9] *"Cybersecurity: combatting the next generation of cybercrime."* Fidelity, October 2014, *https://www.fidelityworldwideinvestment.com/norway/professional/investment-forum/details.page?id=/templatedata/perspectives/article/data/cybersecurity-combatting* (accessed April 2015).

Aon Affinity Insurance Services

Aon is the leading global provider of risk management, insurance and reinsurance brokerage, and human resources solutions and outsourcing services. Through its more than 66,000 colleagues worldwide, Aon unites to empower results for clients in over 120 countries via innovative and effective risk and people solutions and through industry-leading global resources and technical expertise. Aon has been named repeatedly as the world's best broker, best insurance intermediary, best reinsurance intermediary, best captives manager, and best employee benefits consulting firm by multiple industry sources.

FIGURE 3.6: Aon Affinity Insurance Services

What follows is an excerpt from an interview with Brahm Om Sharma, Senior Director of IT and Head of information Systems, American Institute of Certified Public Accountants (AICPA) Insurance Trust at Aon Affinity Insurance Services and Adam Howatson, Chief Marketing Officer at OpenText.

ADAM HOWATSON: Can you please briefly tell us about the services Aon provides to its clients and the role you play in delivering them?

BRAHM OM SHARMA: *Aon is the world's largest risk management firm and we have a fairly diverse portfolio across many business units. We provide many different types of services to our clients. I manage IT for the AICPA Insurance Trust, so my role is similar to a division CIO-level role. The Trust operates like an insurance company, offering Certified Public Accountants (CPAs) professional liability, term life, disability, and long-term care insurance products that are not available to the general public.*

What are your plans for digitalizing these services?

Up until six years ago, our transactions and interactions were predominantly paper-based. This met the needs our existing insured base, a demographic that is somewhat tech savvy and roughly between 50-65 years of age. We realized that to drive future growth and appeal to a younger and more tech-savvy CPA demographic, we would need to digitalize our products and services and make them available online via a portal. Our goal is to be one hundred percent digital and EIM is providing foundational technologies to help us accomplish this.

Does this goal extend strategically to all operations of Aon business, both through external channels to customers and internal processes, such as the way the employee files are managed, or any sort of back-office processes?

In 2014 we started implementing a project to automate, or digitalize our incoming application processes. We wanted to replace our manual, data-entry step in the application process and reduce a reliance on paper. The system had to be flexible enough to allow for paper-based application documents and give us the option to capture these digitally. There are many actions that involve exceptions or requests from CPAs, including qualifying for a different rate, a reduced premium, or a cancelled policy—all of which require a refund. As custodians of the AICPA accounts, we have to be careful and ensure that we process these refunds accurately. The old approach involved making a paper-based request, which would then be reviewed for approval. Customer Sales Representatives (CSRs) would be required to physically seek out the appropriate approvers and their signatures. After these were obtained, a "check request" would be created. With the new system, this process would be completely automated, all but eliminating paper "floating" around the office, in search of signatures for approval.

Part of this process is digitalized, with the rest on target to go live this fall. Once the system is fully in place, when a request for a refund comes in, it will be automatically generated as an open process request. A task will be created and routed automatically through each step in the process. Once complete, it will move to accounting, who submits the request to the bank, and the bank will handle the refund from there. Once the system is fully implemented, this will all take place without any paper, and without requiring CSRs to write down a name or a policy number—this will be captured automatically. The entire process used to take about three weeks to complete, so our customers would have to wait that long for a refund. Once it is fully automated, our clients will have their refund sitting in their bank account within about two days. So as well as improving our accuracy and efficiency, digitalizing application processes will improve overall customer experience and satisfaction with our services.

That's an incredible transformation. We hear a lot of about cybersecurity and about the way personal data is handled. How do cybersecurity, privacy, and compliance with regulations affect the

way that you make decisions around your digital strategy?

Our clients—the AICPA—are the people who write the rules for audit. They create regulations for compliance. This puts pressure on us to be ahead of the game when it comes to compliance. We get audited by an AICPA-appointed auditor every year. They conduct two separate audits: one is a Service Organization Control 3 (SOC 3), which relates to a service organization's internal controls for security, availability, processing integrity, confidentiality, or privacy. The other is the regular operational audit and it includes a focus on security. Our processes are strict around information security. We handle HIPAA (Health Insurance Portability and Accountability Act)-related information as part of the underwriting process. When clients submit applications for life or disability insurance, they submit medical information. Generally, whenever a claim is filed, personal information is shared, so whether it's HIPAA or the PII (Personally Identifiable Information), we have to make sure our processes and information are secure and compliant. We're overzealous about the protection of information and security. We use SSL (Secure Socket Layer) or SSDP (Simple Service Discovery Protocol) to encrypt and protect information like a social security number, where it is stored, and when it is exchanged. Public/private tokens help add an extra layer of security. So data extraction is always secure and encrypted whenever it is stored and transmitted.

Obviously, you collect a lot of customer information. Do you leverage big data to better understand your customers and help you optimize your products, your marketing approach, and your client interactions?

For my business unit we are creating a strategy for our Customer Relationship Management (CRM) initiative to provide us with a 360-degree view of the customer. It involves data management and advanced analytics, which relies on information gleaned from structured and unstructured data. We use predictive analytics to gain insights based on customer behavior on our website or our portal. We know who is using the site and what they're using it for. And we can combine this information with other customer interactions, such as telephone calls with our CSRs. These insights can identify which customers have a propensity to buy a specific product or service providing us with opportunities to cross-sell and upsell. By analyzing our information we can make sure we're delivering more targeted offers and meeting our customer needs. Our goal is to provide services for our customers to protect them against risk, not just to sell products, so we have their best interest at heart. Our intent is to cover our clients so that in the instance that something happens, we can protect them and return their circumstances to normal as soon as possible.

Millennials are entering the workforce and becoming a key purchasing demographic. Do you have a specific digital strategy in place for attracting the Millennials, in terms of the tools that you provide your employees as well as the services you provide your clients?

We have a three-pronged approach to this aspect of our digital strategy. First of all, we're creating a digital workplace environment that is conducive to Millennials. In fact, Aon has a specialized department called Workplace Productivity that has high visibility with executives like the CIO. This initiative is focused on creating the best productivity technology tools available for our employees. Secondly, we have developed a strategy that is completely focused on optimizing channels and ways to connect with Millennials or Generation Z. As part of this strategy, we understand that they have very different needs than older demographics, which means that the traditional products and services we've been offering might not be the products or services they're looking

for. As a result, we're continuously innovating to develop new products that will meet this generation's needs. So we have a strategy to attract and retain younger generations in the workforce within Aon, and we have a strategy to attract and retain the same demographic as customers. Finally, we're creating unique and targeted products to meet the needs of Millennials.

Very insightful, thank you for your time Brahm.

Where's the Value?

So how does the enterprise find value—and find it quickly—in the mass of unstructured and unmanaged information? The solution to this problem lies partially in its root cause. The network effect, both inside and outside the firewall, has empowered FIs to collect data at a high velocity across many channels. Based on this data, context can be determined, and this is where value is created. FIs can take advantage of location or presence to tailor offerings or information to match individual preferences or proximity—on either side of the firewall.

Technologies that enable businesses to integrate unstructured content with structured data present an enormous opportunity for improving business insight for financial institutions. An insurance claim form provides a good example. While much of the most critical information is captured in text format, the ability to combine this text with structured data in a claims database can help the insurance company to deliver better customer service and enhance their ability to detect fraud and comply with Know Your Customer (KYC) regulations. Banks can use analytics tools and information management to build profiles for customers and improve segmentation; deliver more personalized campaigns, products, and services; and provide better service based on information that is integrated across channels.

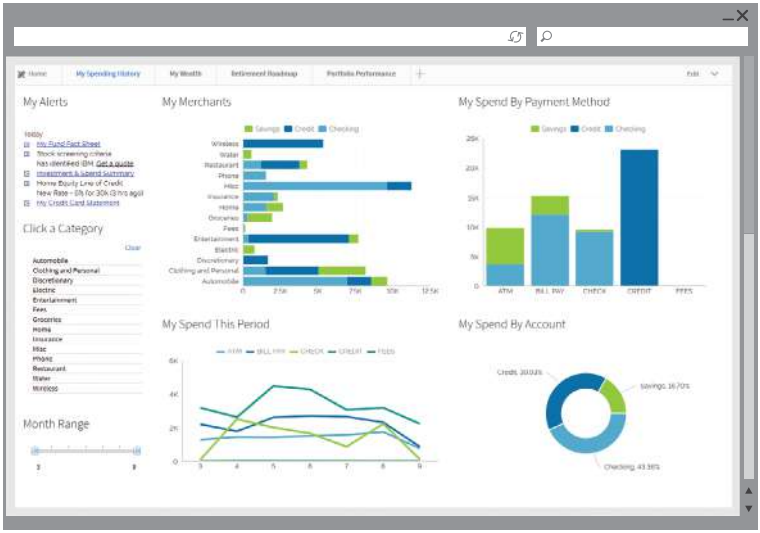


FIGURE 3.7: Analyzing Banking Spend

Deeper connections allow for instant action to be taken, transactions to occur, and experiences to be created. Technologies such as mobile apps and self-service kiosks are helping FIs tap into the digital lifestyle of both their workforce and consumers. Digital exchanges are immediate. Services such as a trade ordering are becoming a commodity and competitive advantage requires processing more trades at a faster rate. In the future, FIs will have much tighter connections of each node in a complex series of both internal and external applications. All of this will depend on information and the technology that conveys, stores, manages, and analyzes it.

FIs of the future will be part of an information ecosystem in which data can be shared across the whole value chain, flowing from employees to partners (both finanical and non-financial) to customers. Sophisticated analytics help FIs analyze their vast stores of data quickly and more easily to predict and respond to changing business needs. Business intelligence, sentiment analysis, social media analytics, content analytics, and predictive analysis can be applied to a complex mix of data to enable FIs to act on events and information without human intervention. There will be an upsurge in the development of agent-oriented processes, requiring machines to act as agents and make decisions based on artificial intelligence.

In the digital world, FIs will strive to consolidate information across silos and connect front-office innovation with back-office operations. Dashboards and visualization tools will drive deeper engagement and insight. Users will interact with the ecosystem based on their own preferences and data. Processes will be integrated and allow for massive scales of B2B commerce and exchange, with analytics applied to optimize performance.

Information Management and Analytics

To stay ahead of their competition, leading FIs strive to find new ways to discover insights into their customers and markets. The effective management of unstructured information and the application of analytics create competitive advantage in the financial industry. FIs have amassed huge volumes of information based on years of performance data related to sales, products, services, and customers. Mining this information for insights gives them greater ability to segment their markets, assess risk, understand their customers, and make more informed and timely decisions.

While the industry has always been data-centric, FIs are combining data from inside and outside their organizations for greater insight. Advanced analytics and data models can provide insightful analysis on a diverse range of structured and unstructured data sets. Parallel processing and algorithms allow for the fast identification of useful data and real-time updates. The benefits analytics can bring are myriad and include improved customer revenue and loyalty, increased transparency and risk management, enhanced performance, and greater innovation to create new growth markets.

Increased Customer Revenue and Loyalty

Up until a decade ago, organizations had the privilege of intervening and explaining the value of their products and services to customers. FIs no longer own the relationships with their customers. Instead, the consumer is in the driver's seat, often seeking relationships with multiple firms to serve a range of needs, from holding savings accounts and mortgages to home and life insurance, investments, and retirement savings. Digital consumers are fickle: they use numerous channels to interact with their financial institutions of choice. As described in Chapter 1, disintermediation has bifurcated the industry. In a volatile and competitive market that is further complicated by convergence and consolidation, it is a constant challenge to obtain a 360-degree view of the customer. Since the number one goal for FIs is customer acquisition, delivering an exceptional digital experience is a key differentiator.

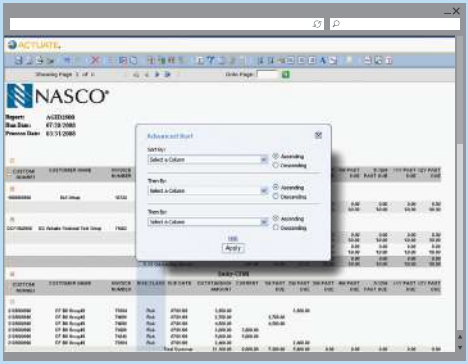
Analyzing customer information in new ways reveals relevant topics, summaries, sentiments, and relationships to deliver more enriched information. Buying trends and patterns can be revealed by monitoring system information. Insight into customer personas, behavior, and pathways gives organizations the ability to deepen customer engagement, exceed expectations, and create a lifetime of customer value. Customers benefit from self-service access to their own account data and history and are provided with recommendations and information about additional products and services. From an asset and wealth management perspective, customers can be given a complete picture of their finances based on accurate, detailed reporting, allowing them to budget and save to improve their quality of life.

In the following feature, NASCO is using analytics to power an improved claims-reporting system for greater insight, efficiency, and customer satisfaction.

Improved Information Risk Management

When multiple data sources are integrated, correlated, and analyzed, patterns or anomalies can be revealed to help identify instances of fraud. By examining data across various sources, FIs can uncover fraudulent or potentially fraudulent activity such as money laundering, mortgage fraud, insider trading, tax fraud, and procurement fraud. Analytics helps banks and insurance companies scrutinize interactions across channels to reduce losses from collection recovery and claims processing, for example. Once patterns are revealed, programs can be tailored to effectively recover unpaid fees and outstanding loans to reduce losses. All of these scenarios require capturing data in real time, analyzing it, and taking the appropriate action.

NASCO



"Through the flexibility of the solution, we are able to deliver enterprise, web-based customer information via a single BI infrastructure, ensuring consistency while lowering our BI deployment costs."

AMANDEEP SINGH, TECHNICAL CONSULTANT, NASCO

FIGURE 3.8: Interactive NASCO Reporting Dashboard

NASCO provides the most efficient single-system claims processing solution for national, state, large group, small group, individual, and government business, processing over 280 million claims for over 20 million members. NASCO's system is unsurpassed in the market for dependability, flexibility, scalability, and operational performance. NASCO also offers a highly configurable membership solution as well as performance-based services designed to help customers improve their operational efficiencies and reduce costs.

NASCO's existing systems were not flexible enough to meet their customers' business and operational reporting needs. The Company was hampered by long development cycles, text-based reports, and a lack of timely and cost-effective ways to generate reports. As a result, many customers were not using NASCO's premium billing services and overall customer satisfaction was declining. Looking to remove complexity and create a seamless, engaging customer experience, NASCO turned to a cost-efficient, web-based Business Intelligence (BI) solution flexible enough to integrate with existing applications, generate customizable reports, and scale to support a growing customer base.

The new solution's collaborative environment enables developers, report writers, and end users to work together to create rich, interactive membership and billing applications. This has decreased the time required to deliver new reports and has enabled NASCO to lower its development costs. Timely delivery of enhancement requests has had a positive impact on customer satisfaction. End users can easily access billing and member data online and create customized reports on demand. Since its implementation, NASCO has expanded the solution from a small deployment to an extranet application with a large user base and over 300 custom reports. The cost savings and request turnaround times achieved have been unprecedented. Due to the successful implementation and measurable value-add, NASCO is looking to expand the solution and continue to leverage its rich interactive reporting capabilities.

Fraud in financial services is driven predominantly by incidents of cybercrime and money laundering. One in three of all organizations in a recent survey have been victimized by economic crime. The three sectors that are most heavily targeted are financial services, retail, and communications. One quarter of respondents to the survey had experienced money laundering during the survey period.[10] FIs consider money laundering to be a greater risk than corruption, bribery, or competition law. They are required by law to report all instances of money laundering. This requires the diligent review and reporting of customer transactions in compliance with regulations.

On the capital markets side, regulatory efforts are focused on getting a more accurate view of risk exposures across assets, lines-of-business, and firms in order to better predict and manage the relationships between systems. Many firms are using information management and analytics to monitor their information risk controls in real time. Combining and accessing information across systems helps to give FIs a holistic view of risk, empowering them to adjust their performance accordingly.

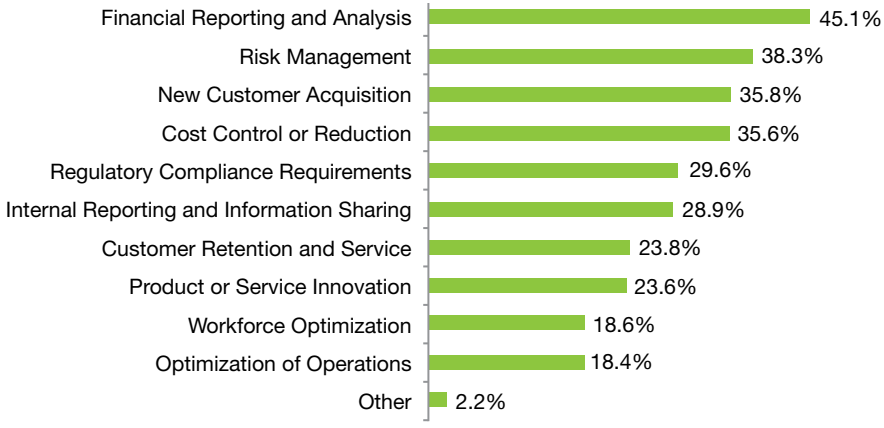


FIGURE 3.9: Risk Management as Key Driver for Analytics[11]

Displaying user-trading activity is another regulatory requirement. Using analytics, firms can capture daily transaction activities for both customers and brokers, helping them to engage in higher value interactions. Data from multiple sources such as current, historical, and stock price data can be integrated and accessed. Customers are able to drill down to underlying transactional data for analysis. All of this information can be retained for regulatory scrutiny.

[10] *"Economic crime: A Threat to Business Globally,"* PwC's 2014 Global Economic Crime Survey, PWC, 2014.

[11] *"IDC Financial Insights: Analytics in Financial Services,"* IDC, June 25, 2013, *http://www.slideshare.net/TIBCOSpotfire/idc-23472358* (accessed July 2015).

For enterprise risk management, the added challenge is data integration across disparate systems. The need for security has never been more pressing with information fragmented across mobile devices and multiple applications, in both private and public clouds. In all sectors, the ever-present threat of security breaches is driving investments in secure information management. Data consolidation across networks with security mechanisms built right into the system, along with secure information exchange and governance technologies, work together to protect information and identify suspicious patterns that require immediate action. This is discussed in more detail in Chapter 6, "Digital Governance".

Enhanced Performance and Collaboration

Making information available and searchable frees up valuable time so resources can be allocated to focus on top priorities. When information is combined across departmental systems and processes, data is easier to access and duplicated efforts (and data) are reduced—saving time and money. Automated solutions eliminate the need for business users to sort and classify growing amounts content. With a holistic and consolidated information system, information can be analyzed to identify cost savings and opportunities to increase overall productivity. There are opportunities to look for patterns for compliance purposes and to identify patterns of collaboration that are effective. In the digital world, this is where organizations will invest to optimize efficiency and performance.

Analytics use-cases range from departmental reporting to large scale, customer-facing applications. When analytics are embedded, information can be used to support the decision-making process at each step in a business process. Data sets can be combined into management dashboards and comparative engines used to measure the effectiveness of projects, compare performance across business functions, and track outcomes over time. Variability in performance can be revealed. FIs can add value to information by continually measuring impact and allocating resources, identifying best practices, and refining campaigns. As a result, insight can fuel continual performance improvements, learning, and growth across the entire enterprise ecosystem.

Creating New Revenue Streams for Growth

FIs are looking for new methods and techniques to develop new products and trading strategies. Developing and launching innovative products is a key business strategy for wealth management firms, payment companies, credit card companies, and banks. Additionally, insurance companies need to grow their market share by tailoring insurance policies for each customer and can do so using fine-tuned analytics.

Current technology does not support product innovation that relies on information outside of traditional channels and systems of record. Disruptive innovations are often based on emerging systems of engagement, such as social media and video sharing sites.

The challenge has become how to manage, store, and analyze this amount of data in an efficient and cost-effective way to better manage portfolios.

As information is managed as a corporate asset, the pressure to measure and maximize its value will increase accordingly. FIs will discover additional opportunities to monetize information directly, packaging data at various prices for partners, customers, or the market at large. Digital technology is an enabler of the syndication of data. In the digital world, individuals as well as organizations will take advantage of opportunities to monetize their data and create additional revenue streams. To do this effectively, information flows must be managed and digitalized.

Digitalizing Information Flows

Information is today's untapped resource. When information is managed effectively, it reveals larger patterns of activity to confirm performance levels, evaluate compliance, or deliver customer insight that can differentiate products and services. But how will organizations find, analyze, and act on data to realize its full potential? Being able to capture, preserve, manage, and build information-oriented applications is the next frontier of competitive business. For the last 30 years, CIOs have been focused on automating processes and transactions for structured data in systems of record with ERP systems. In the decades to come, CIOs will concentrate on digitalizing processes and transactions for unstructured information in systems of engagement.

When unstructured enterprise information is well managed, a company's information becomes powerful through the use of standardized information-oriented applications. The more effectively FIs can collect, find, and process information in the context of an application, the more effectively its employees and operations can function. FIs can unlock the value of their data through information-based processes for suppliers, employees, customers, cases, projects, and contracts.

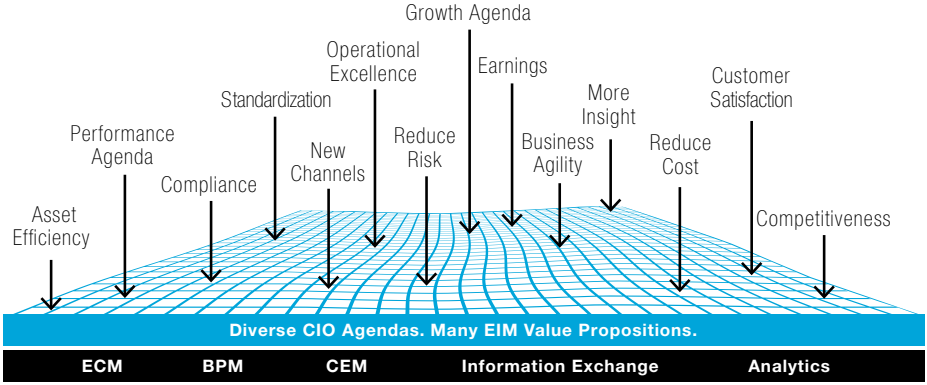


FIGURE 3.10: Creating Business Value With Information

Migrating current information-centric processes to digital processes is an overwhelming undertaking. The required approach is a break from the past and existing processes to reinvent new processes using digital technologies. Streamlined information flows help FIs take products and services to market at a faster rate, comply with regulations, and optimize the customer acquisition process to attract new customers and retain existing ones.

Information Flows: Time-to-Market

When launching a new product or service, the goal is to accelerate time-to-market by rolling out new products and services with greater speed while decreasing innovation cycles. A key aspect of this process is creating a compelling, omni-channel experience for prospects and current customers. The focus of websites and app design is to remove complexity in order to create a seamless, consistent, and engaging experience for customers.

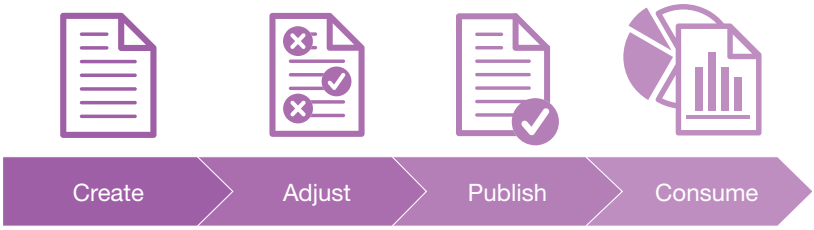


FIGURE 3.11: Time-to-Market Information Flow

At the forefront of current web design trends is the need to create responsive web layouts that adapt to support all devices from desktops and laptops to tablets and smartphones. Launching a new product generates thousands of new content assets, and they must be easy to access, incorporate, and update across touchpoints to deliver a consistent brand experience. Content should be personalized using a tailored message and the channel most preferred by prospective customers. Web Experience Management (WEM) technologies give FIs the ability to optimize customer experience across all customer touchpoints.

The use of social media within the customer experience has also exploded as an effective means of marketing products and engaging with younger consumers. FIs need to follow their markets, and they have a captive one in social communities. WEM's built-in social media capabilities can be used to notify consumers on their favorite social sites about new investment products or services. Updates are coordinated across platforms and channels to ensure consistent messaging. FIs are increasingly differentiating themselves with personalized customer communications to drive targeted marketing

to the most relevant prospective customers and partners. This includes personalized bank statements that feature promotions for new investment products. These channel activities can be automated and synchronized to accelerate time-to-market and improve customer experience for FIs.

In the following feature, Total Administrative Services Corporation (TASC) is more effectively managing the flow of its information across disparate sources to improve customer experience and time-to-market.

Information Flows: Time-to-Customer Service

Banking, insurance, and investment management have entered a new era where customer service and managing the customer experience are clear differentiators and crucial for success. Typically, in the financial sector, new customer attrition rates are up to double or triple the average rate of established customers.[12] This makes client onboarding one of the most critical functions for any financial institution. Client onboarding dictates the customer experience and establishes the relationship with the customer. It lays the foundations for long-term loyalty and satisfaction and increases revenue, retention, and profitability through the potential for cross-selling opportunities.

Client onboarding is also an area that draws scrutiny from industry regulators—and regulations may vary between different geographies and products, adding complexity and impacting cost, capacity, and operational efficiency.

FIGURE 3.12: Time-to-Customer Service Information Flow

Client onboarding has traditionally been a manual, paper-based process that can lead to duplicate data entries, inefficient processing, lack of management visibility into pipeline status, and disconnected customer service. To accelerate time-to-customer service, FIs can use an EIM solution with Business Process Management (BPM) and adaptive case management technologies to automate the process and provide secure, role-based access to required information.

[12] Christopher Wachtel, *"Everyone knows it's a good idea to greet new customers,"* ABA Bank Marketing. March 31, 2011.

Total Administrative Services Corporation (TASC)

The impact on TASC's business has been rapid, with a whole new level of visibility now available, resulting in improved customer experience and faster time-to-market.

FIGURE 3.13: Call Center Monitoring Dashboard

As a third-party benefit administrator, Total Administrative Services Corporation (TASC) provides a wide range of employee benefit solutions to clients in all 50 U.S. states. Those services include flexible spending accounts, health savings accounts, tax-advantaged medical insurance benefits, and a variety of options to assist Human Resources, including corporate benefit administration and risk compliance administration.

TASC services over one million participants with its MyTASC web portal. The company needed a Business Intelligence (BI) solution that would support such a large deployment outside the firewall and be scalable as their customer base grew and new features were added. That tool had to seamlessly integrate into the MyTASC platform and pull from its large data volume and disparate data sources, which include both structured and unstructured data. The BI solution also needed to access phone data—which comes out of the Company's call center—as well as data from its electronic workflow system and survey data from spreadsheets produced in the marketing department.

An analytics solution was chosen for its scalability, and its ability to integrate with MyTASC and draw from multiple data sources. Called "MyService Center", the solution adds new functionality to the MyTASC web portal, including a series of dashboards, scorecards, and performance metrics. MyService Center offers TASC customers better accessibility, visibility, and accountability. Those customers are now able to view call volumes related to their business that come into the TASC call centers, as well as call handling times, claims throughput, and the number of card transactions TASC is handling on a daily basis on their behalf. The impact on TASC's business has been rapid, with a whole new level of visibility now available, resulting in improved customer experience and faster time-to-market.

As an initial stage in the process, EIM can be used to capture and extract data from key documents such as proof of identification, cover letters, and signed agreements. In the evaluate stage, background checks are conducted to verify incoming applications for a new account. Account representatives can then collaborate digitally with new clients in a secure file share to exchange current information such as proof of identity and proof of address and to establish and update personal details associated with the account. As well as making the process faster and more efficient, BPM technologies help to make sure that the entire process is auditable for proof of compliance. An EIM framework couples BPM with collaborative platforms and customer communications tools to provide a seamless experience across applications and content formats—from paper to digital.

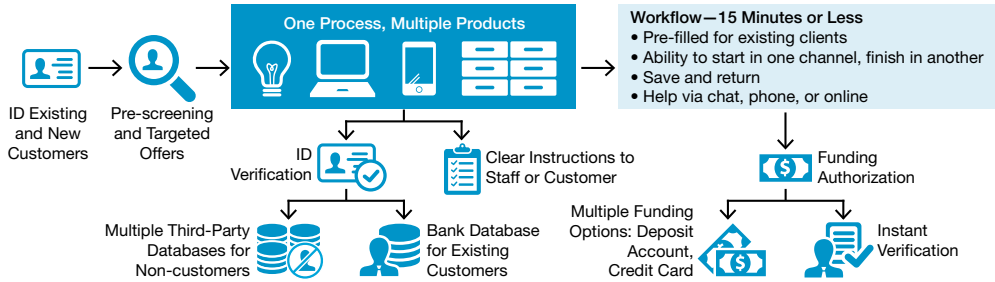


FIGURE 3.14: Automated Onboarding Process Flow

In a market where products and services have been commoditized, the provider with the highest level of service and most effective onboarding process will win more new clients and gain competitive advantage.

Linking EIM to Business Value

FIs must combine information across many sources, both internal and external. They need to be able to manage customer call records, customer emails, claims data, and information from CRM systems and payment systems. But they also need to be able to discern which information is valuable, which is critical for keeping, which to dispose of, and how to harvest information to sustain its value. In order to unlock the potential of their information, FIs need strong EIM solutions and strategies, infused with analytics and process management capabilities.

EIM unites the front office with the back office. It helps financial institutions simplify their business through process automation and standardized information management. It is a transformational technology that empowers FIs to extract the value from their information to make it more accessible, meaningful, and secure. When its value is realized, information opens up new opportunities to accelerate the business across the entire ecosystem.

Two things are certain in the digital world: digital information will be ubiquitous and managing it will be key to success. Currently less than 15 percent of organizations are implementing strategic information management to drive their projects and outcomes. This is changing as more organizations are realizing the strategic importance of managing their information effectively.[13]

As data is commoditized, organizations will uncover and apply unique information for differentiation. The closer and tighter the connections between structured and unstructured data, the more value can be extracted from it. Bringing this information together—connecting business suites with information suites—is a unifying force that produces a powerful foundation for innovation.

While ERP and other structured data-source platforms have been optimized over the past 30 years, EIM presents rich business opportunities. EIM replaces the disjointed and paper-based systems of the past with a consolidated and digitalized single source of the truth. EIM technologies support information in its many formats and connect it for deeper insight, better performance, and greater opportunity. We'll take a closer look at how competitive advantage is created through managing consumer-related information in the following chapter, "Digital Engagement".

[13] Michele Goetz, *"Are Data Governance Tools Ready for Data Governance?"* Forrester Research, June 25, 2014, *http://blogs.forrester.com/michele_goetz* (accessed July 2014).

CHAPTER 4

DIGITAL ENGAGEMENT

CHAPTER 4

Digital Engagement

"An engaged customer builds a bond with their bank or credit union that every financial institution would covet… 71 percent of engaged customers say they will use their current bank for the rest of their life."[1]

The traditional model for Financial Institutions (FIs) is based on a complex network of branches, advisors, and agents. It has persisted for decades—until now. Digital technologies and market pressures have combined to introduce new, disruptive business models. The Cloud and mobile devices are accelerating the time it takes to bring innovative products and services to market. The digital consumer has emerged with new needs and purchasing habits. New digital marketing strategies are required to engage with these consumers and deliver experiences that exceed expectation. In an industry where customer acquisition is the top priority, creating exceptional customer experience is the key differentiator that will deliver competitive advantage.

Customers who are fully engaged bring additional revenue, greater wallet share, and the potential to deliver a lifetime of value. They are more likely to rely on the FIs they have relationships with for additional products and services, giving firms the opportunity to cross-sell and upsell their products and services. And in turn, FIs are expected to listen to what their customers want and use this information to shape their products, services, and channels to fully engage their customers.

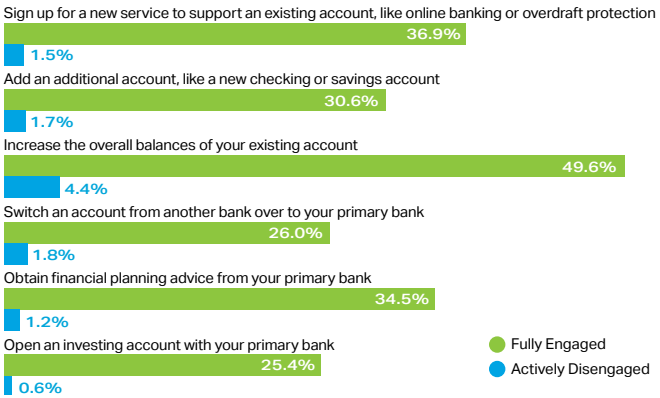


FIGURE 4.1: Engaged Customers Will Bring a Lifetime of Value[2]

[1] Jim Marous, *"9 Secrets to Building Customer Engagement in Banking,"* The Financial Brand, March 11,2014, *http://thefinancialbrand.com/37507/bank-cross-selling-onboarding-engagement-marketing/* (accessed April 2015).

[2] Ibid.

Currently, FIs are struggling to digitalize their products and services. Maintaining high service levels while improving margins is a constant challenge. To deliver seamless and engaging experiences across multiple channels, FIs need to be able to extract value from their information, optimize and personalize the delivery of this information, and manage it securely. A winning formula requires a comprehensive Customer Experience Management (CEM) solution—one that incorporates customer insights, omni-channel delivery, responsive design, and targeted communications. To transform and drive growth, FIs must deliver compelling experiences through the contextual understanding of their customers, while adhering to established information governance policies and standards to guarantee security and privacy.

Digital is for Everyone

Customer experience is defined as the sum of all experiences over the duration of a relationship between a consumer and an organization that delivers products and services. The ideal outcome is a consistent experience that delivers relevant content, products, and services across multiple touchpoints. Over the past two decades, customer satisfaction in financial services has been declining.

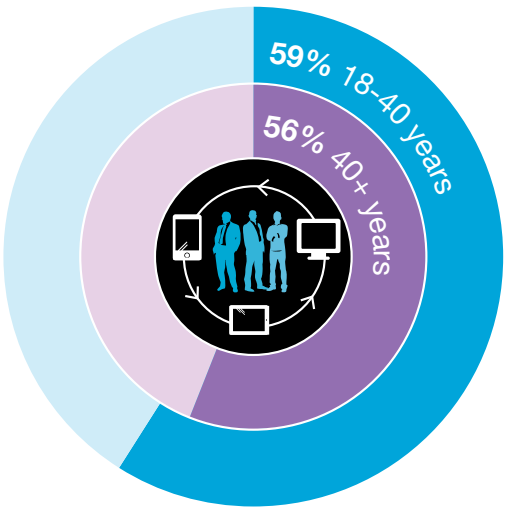


FIGURE 4.2: Digital Access to Products and Services is Cross Generational[3]

[3] *"Understanding Financial Consumers in the Digital Era,"* CGI Group Incorporated, 2014.

In a global survey, less than 40 percent of customers reported positive customer experiences with their financial institution last year.[4] On average, nearly two out of three consumers would switch banks for better products and services.[5] Trust in established financial brands is wavering after the recent financial crisis, the Occupy Wall Street movement, and rising fees. This level of dissatisfaction opens up the playing field for new entrants to capture market share. Amidst industry disruption, FIs must work harder than ever to attract new customers and retain their current ones, while cutting costs and continually innovating.

Millennials have now overtaken Generation X in the workforce.[6] As they earn more income and acquire more capital, Millennials are first-time home buyers and the investors of the future. They have grown up as digital natives, are fickle, and they believe that the ways we access our money and pay for goods and services will change over the next five years. Millennials trust digital providers like Facebook and Amazon more than they trust their local bank branch. In fact, 33 percent believe they do not require a bank at all and 73 percent would be more excited if a financial offering came from a tech company rather than their nationwide bank.[7]

While Millennials are clearly a demographic to target, the use of digital technology to access financial services is not based on generation (or even income): digital is for everyone. Digital devices enable access to information and services, whenever and wherever, making digital the preferred channel. By 2019, 87 percent of customers will primarily access their accounts online or using a mobile device.[8] This move to digital is reflective of a shift in how consumers—of all ages—are interacting with their world today.

Financial consumers want choices in how they transact, whether it be using cash, debit cards, credit cards, PayPal, or mobile wallets. They also want to be able to access their financial information at any time. The more real-time the interactions are, the more readily consumers can access a complete view of their wealth—from total spending to the value of their investments as they fluctuate. FIs of the future will play an advisory role that makes recommendations on loans, budget allocations, investments, and insurance policies based on consumer behavior and spending habits.

[4] Jim Marous, *"Top 10 Retail Banking Trends and Predictions for 2015,"* The Financial Brand, December 2014, *http://thefinancialbrand.com/46189/2015-top-banking-trends-predictions-forecast-digital-disruption/* (accessed May 2015).

[5] *"Understanding Financial Consumers in the Digital Era,"* CGI Group Incorporated, 2014.

[6] Richard Fry, *"Millennials surpass Gen Xers as the largest generation in U.S. labor force,"* Pew Research Center, May 11, 2015, *http://www.pewresearch.org/fact-tank/2015/05/11/millennials-surpass-gen-xers-as-the-largest-generation-in-u-s-labor-force/* (accessed May 2015).

[7] *"The Millennial Disruption Index,"* Scratch Viacom Media Networks, 2013, *http://www.millennialdisruptionindex.com/wp-content/uploads/2014/02/MDI_Final.pdf* (accessed May 2015).

[8] Ibid.

Digital is creating opportunities for FIs to be more than just a place to deposit money or purchase insurance. On a global basis, only seven percent of people currently consult their banks for advice.[9] New business models are needed to build new levels of engagement. An enduring FI and consumer relationship is based on the successful exchange of information. FIs have access to very detailed customer information and consumers expect to be rewarded for this with value-adds like targeted offerings, information, discounts, and other loyalty programs. Consumer expectations are rooted in FIs helping them to achieve life-enhancing goals like spending wisely and saving money—contributing to an overall improved quality of life. At the same time, technology is forcing established FIs to rethink how they offer products and services, and make them better.

In the following feature, Citibank exemplifies how FIs must shift their business models to focus on the customer first in order to deliver exceptional experiences and differentiate themselves in a crowded and competitive marketplace.

Mobile Engagement

"With Bitcoin, Apple Pay, and better peer-to-peer payment solutions, consumers will easily integrate device-driven payment experiences into their daily lives and will find greater preference for these simple and seamless ways to transact with businesses…"[10]

Mobile shoppers represent a shift toward a mobile-centric lifestyle in which information, goods, and services are increasingly accessed through mobile devices. Mobile devices constituted one in four online purchases last year.[11] Digital consumers expect digitally focused experiences that provide greater value than content that is optimized for web pages or basic apps. Mobile presents FIs with opportunities to deliver more targeted products and services using killer apps that combine context and mobile features with content and analytics.

To date, FIs have focused on replicating their online services on smartphones and tablets. Most major banks offer mobile apps that help consumers make routine transactions or locate the nearest ATM. A recent study identified that 63 percent of smartphone users interact with their bank regularly using a mobile app, which can be compared to less than half of this percentage for insurance and investment management. Currently, FIs are not taking advantage of the pervasiveness of mobile devices and their rich functionality to create more personalized offers, build communities around their brand, and develop sophisticated services.

[9] *"Understanding Financial Consumers in the Digital Era,"* CGI Group Incorporated, 2014.

[10] Jim Marous, *"Top 10 Retail Banking Trends and Predictions for 2015,"* The Financial Brand, December 2014, *http://thefinancialbrand.com/46189/2015-top-banking-trends-predictions-forecast-digital-disruption/* (accessed May 2015).

[11] Jaimy Szymanski, Brian Solis, and Rebecca Lieb, *"The Inevitability of a Mobile-Only Customer Experience,"* Altimeter Group, 2014.

Citibank

Citibank is the consumer division of Citigroup, a publically traded financial services multinational headquartered in New York City and the largest bank in the U.S. based on total assets. Citibank operates around the world with 3,777 branch locations in 36 countries. In addition to offering standard banking transactions, Citibank markets insurance, credit cards, and investment products. Citibank's online services division is among the most successful in the industry claiming about 15 million users. This success is due in large part to the company's focus on digital innovation. The bank collaborates with technology vendors on leading-edge solutions for their business. Citibank leads the way in terms of adopting new technologies and transforming their services to surpass the expectations of their digital customers.

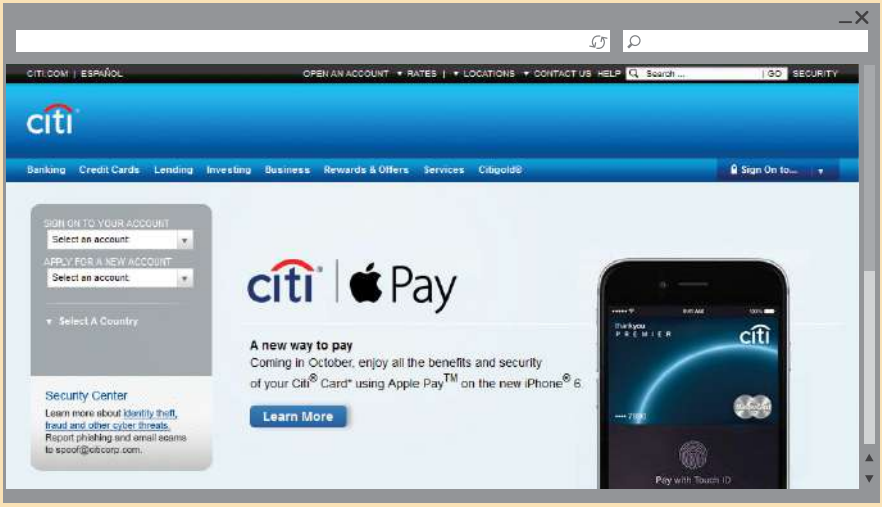


FIGURE 4.3: Citibank Introduces New Ways to Pay Digitally

What follows are excerpts from an interview with Simon Chiang, Head of International Cards, Global Consumer Technology at Citibank. In the interview, Mr. Chiang discusses the bank's state-of-the-art card technology and how the industry has been disrupted by digital technologies and the demands of the digital customer.

"The financial services industry has completely transformed itself and its services for the digital customer. As customers become more connected, they want to access their financial information and services online, using their mobile devices, on demand, from any location.

They are looking for more convenient and faster ways to make purchases. This has required us to re-invent our processes, moving them online and leveraging technology for fast, accurate, and secure information exchange between consumers, merchants, their banks, and other trading partners.

To support the digital customer, payment methods have evolved. From credit cards to debit cards to pre-paid mobile cards, technology enables these digital transactions. In addition, mobile payments—or making payments with a smartphone—are gaining traction with many consumers. The Apple iPhone 6 and Apple Pay, for example, provide consumers and merchants respectively with Near Field Communications (NFC) capabilities to enable 'pay-by-touch' transactions. NFC makes use of short-range wireless technologies to detect the customer within short physical distances.

With many exciting technology changes impacting financial transactions, Citibank is launching Apple Pay in the U.S., and it will soon be rolled out to the international market. While mobile payment is gaining traction, broad user acceptance will take some time. People—especially those over the age of 45—are used to carrying and paying with plastic credit cards. They need to be convinced that mobile payment is a secure method of transacting. Despite this barrier to adoption, we predict that within ten years, 50 percent of payment transactions will be made using smartphones. We expect to roll out new merchant terminals with NFC capabilities over the next five to ten years. To support this move to mobile, we are working hard to promote the advantages of mobile payments and drive user acceptance.

We realize security concerns are top of mind for users, especially when they are making payments online or sharing financial information. But a new technology called 'tokenization' introduces heightened levels of security for payments made at point-of-sales (POS) terminals, either by card or by mobile device. With tokenization, sensitive customer data is encrypted at the point where it is captured (the card is swiped or detected wirelessly) and sent to the merchant's payment processor where it is decrypted and the transaction is authorized. A token representing the entire transaction is then sent back to the retailer indicating approval. With tokenization, sensitive customer data doesn't reside on the user's device. As well, customer data is not actually shared with the merchant. Instead, it is the token that stays on file and is stored on the merchant's network as proof of purchase.

At Citibank, we are focused on meeting the needs of the digital customer: we stay on the cusp of new advances in technology and we are always exploring innovative ways to serve them. But, ultimately, the technologies we adopt need to improve our customer experience. As our processes move toward digital channels, the customer experience is paramount. We strive to give each customer a consistent experience across all our channels, including their mobile devices, the Internet, ATM, branch, and Interactive Voice Response (IVR) channels. We want our brand to be consistent, regardless of channel, and the experience to be personalized and relevant. Collecting, managing and leveraging customer information allows us to better understand our customers and tailor the Citibank experience to their needs.

To this end, we have invested a lot of resources into the area of predictive analytics. We are using all the consumer data we capture to understand our customer's spending patterns. This data allows us to profile a customer, segment them, and push product or service offerings to him or her at the right time. To

do this, we also use geo-fencing to define geographical boundaries around a given retailer—whether it be a store in a mall or a specific POS terminal. When a customer with a relevant profile crosses the boundary, this triggers the delivery of 'location specific' advertisements to their mobile device. Geo-fencing fosters engagement with customers using the most highly contextual, personal, and relevant channel possible: their mobile devices. It's the most targeted advertising a brand can do right now. It's where hyper-local meets hyper-relevant.

Along with helping to deliver an optimized customer experience, mobile and other disruptive digital technologies are significantly impacting the financial services industry. Our business has been transformed and continues to be transformed by new technologies that have changed our markets, shifted our channels, and modified the way we engage and operate. Information and its effective management has given us a competitive edge and helped us not only to succeed but also to establish ourselves as innovators in our industry."

FIGURE 4.4: Mobile - Know Your Customer in Context

FIs can use mobile engagement to change the way they market, sell, and deliver services to consumers. Mobile technology gives users access to their accounts and markets at their convenience. It enhances these services with the ability to offer proximity-based and contextual information for innovative and more personalized banking services. Mobility not only gives salespeople the opportunity to close deals more quickly with real-time information and quotes, but it can also enable them to reach new customer groups with innovative mobile-based offerings.

When mobile features are combined with targeted apps and back-end processes, mobile creates opportunities to strengthen customer relationships through richer and more satisfying experiences. More progressive insurers, for example, are taking advantage of mobile capabilities like GPS, cameras, sensors like telematics, and notifications—and integrating these into core applications to make insurance claims more efficient. Examples include insurance policies that are based on a "pay as you drive" usage, which integrates cars, mobile phones, and technologies like Apple's CarPlay® and Android Auto. Using their mobile phone cameras, customers are able submit photos for auto or home claims, accelerating claim settlements and reducing loss adjustment expenses. Allstate Insurance has introduced an app that enables customers to conveniently file for claims immediately following an accident using mobile phone cameras.[12]

Advanced mobile technologies provide greater services, superior experience, and stronger security. Both GPS and biometric identification can be used to augment payments to validate identity or detect fraud. Some FIs are replacing face-to-face interactions with low-cost virtual meetings through video-enabled ATMs, calls, and mobile web conference apps. The Internet of Things (IoT) promises to enhance customer experience by connecting sensor-based data with applications to warn consumers about theft or fire, help them document their losses, and streamline the experience by submitting claims using a mobile device.

[12] Val Srinivas, Sam Friedman, and Jim Eckenrode, *"Mobile Financial Services,"* Deloitte University Press, 2014.

FIGURE 4.5: Mobile Insurance

Mobile context creates opportunity. When it is combined with customer analytics, it helps FIs determine customer expectations to better understand and meet their needs. Mobile is a critical channel in the customer journey. Successful FIs will strategically plan to understand their customers and meet their mobile needs at every touchpoint. In the digital world, FIs will be tasked with re-platforming processes, channels, and applications for mobile enablement.

Inside the enterprise, mobile solutions have the capacity to improve external customer-facing services and internal operations. Along with ease and convenience, the access to real-time information that mobile devices provide allows for faster and more informed decision-making. Wealth management consultants, financial advisors, insurance agents, mortgage lenders, and other representatives can pull up real-time information about customer accounts, portfolios, and transaction history when meeting with clients outside of the office. The ability to safely scan or directly import enrollment forms, loan applications, and other documents using mobile devices that are securely connected to the corporate network empowers representatives to quickly process customer data. From a back-office perspective, mobile devices give FIs the option to digitalize their processes and information, improving operational efficiencies and cutting costs associated with printing and mailing documents to customers, as well as eliminating lengthy response times.

Despite the opportunities and benefits that mobile presents, FIs have yet to mobilize their products and services. Out of 63 percent of digital enterprises, only 17 percent have implemented an integrated mobile strategy.[13] In the digital world, FIs will be required to invest in mobile engagement to integrate the experience across transactions, payments, and loyalty programs.

[13] Jaimy Szymanski, Brian Solis, and Rebecca Lieb, *"The Inevitability of a Mobile-Only Customer Experience,"* Altimeter Group, 2014.

FIGURE 4.6: Mobile Access to Investment Portfolio Management

Social Engagement

The quality of customer experience in the financial services industry is declining. With new entrants flooding the market, social provides an additional channel to deepen customer engagement. Some banks are taking advantage of the levels of engagement that social offers. RBC in Canada, for example, gives customers access to their accounts through Facebook but they manage all monetary exchanges and transactions on the back end. Other banks in developing nations are building their entire operations on top of sites like Facebook and providing transactional access using mobile phones.[14]

Despite these examples, many FIs are underutilizing the social channel. In a recent study, 42 percent of the banks surveyed said they have no plans for transactional capabilities via social media, and 58 percent stated they would not offer access to account information on social media sites.[15] As an important target market, Millennials have identified a desire to access their finances on social networks. In fact, up to 44 percent of consumers that use social media sites use them to interact with financial institutions specifically.[16] In order to stay relevant in the digital world, FIs will need to embrace all the channels that their customers use. Social networks give FIs additional ways to attract customers, improve brand presence, provide real-time information, deliver customer support, and reward loyal customers to increase overall customer satisfaction.

[14] Tom Groenfeldt, *"Bank Clients Want Social Media Account Access,"* Forbes, April 25, 2014, *http://www.forbes.com/sites/tomgroenfeldt/2014/04/25/bank-clients-want-social-media-account-access-capgemini/* (accessed May 2015).

[15] *"World Banking Report 2015,"* Capgemini and Efma, 2015.

[16] Brenna Keough, *"9 Social Media Marketing Solutions for Banks and Credit Unions,"* The Financial Brand, March 4, 2015, *http://thefinancialbrand.com/50594/social-media-marketing-strategies-in-banking/* (accessed May 2015).

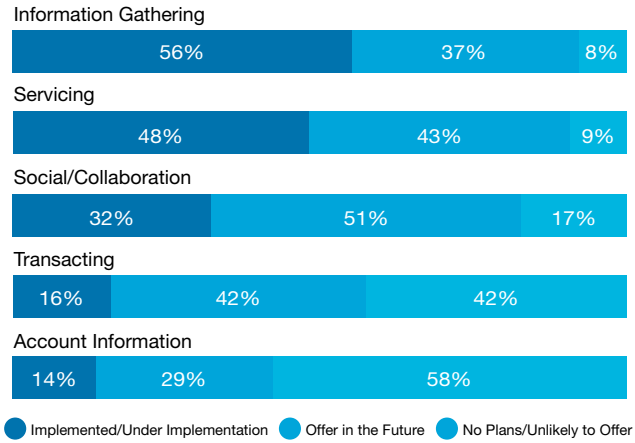


FIGURE 4.7: How Banks are Implementing Social Media

Using platforms like Twitter, YouTube, and Facebook, FIs can attract new customers and grow their business. Customer acquisition is a top priority for FIs—and an expensive investment. FIs typically spend from $70 to $300 to attract a new customer. This cost can be reduced by as much as 30 percent using social media. Despite this number, only 33 percent of FIs today are using social channels to acquire new customers, in contrast to the retail market, which uses 73 percent, with an average cost per customer of $22.[17]

Once new customers are acquired, FIs can use social media to maintain an ongoing dialogue with their customers. Social media sites give FIs the opportunity to cross-sell and upsell products and services to a captive, opt-in audience. Customers who interact with companies via social media buy up to 40 percent more products and services.[18] Additionally, FIs can mine their social networks or video sharing platforms for sentiments, comments, likes, and other information to gain insight into their buyers. Applying analytics to social networks helps FIs target consumers with the right messages at the right time. Customers benefit from real-time customer service, special rates, promotional offerings, and loyalty programs. FIs benefit from delivering more personalized services, the ability to refine their campaigns, and even the opportunity to crowdsource products and services.

[17] Mandy McEwen, *"3 Ways To Improve Digital Marketing For Financial Services,"* Mod Girl Marketing, January 2014, *http://www.modgirlmarketing.com/digital-marketing-financial-services/* (accessed May 2015).

[18] Michael Chu et al, *"The social economy: Unlocking value and productivity through social technologies,"* McKinsey Global Institute, July 2012.

As well as providing insights into customer personas and purchasing patterns, social sites are a cost-effective way to generate interest and increase awareness. FIs can use social communities to share relevant information, market updates, policy information, investment advice, and reward key advocates of their brand. Traditional and expensive marketing campaigns are circumvented as FIs directly connect with their customers to discover their needs and increase trust and loyalty in the process. Using social media, FIs are able to more effectively deliver their messages to their younger demographics, higher income earners, and even the "under-banked" with greater impact, addressing their financial needs at a specific moment in time.

As part of the marketing mix, social sites can be used to augment advertising with a flexible model that can be tested and refined for greater affordability and effectiveness over time. This levels the playing field as smaller FIs are able to compete with more established brands, enabling community-based brands to disseminate their message with wider reach. When social media strategies are effectively implemented, they improve overall marketing effectiveness and can boost revenues by as much as 5.2 percent.[19]

Likewise, FIs can be more productive and reduce costs by using social media tools internally to provide a seamless and rich collaborative experience for employees. Across all industries, organizations that make use of social media tools have experienced a 20 percent increase in employee satisfaction, are up to seven percent more productive, and have discovered that when employees are engaged, retention rates increase by as much as 87 percent.[20]

Empowered employees can connect immediately, exchange information, and participate in conversations in real time. Digital tools like social and video help to ensure that marketing, sales, and customer support teams are aligned to manage cross-functional channel interactions. Giving customer-facing employees access to the same self-service tools that customers use produces superior outcomes—more agile organizations, happier customers, and even cost reductions of up to 80 percent by digitalizing processes such as new account opening and loan origination.[21]

FIs can leverage both social and mobile channels to increase customer engagement and deliver more satisfying customer experiences. They can also leverage these channels to collect customer data that will help them to understand and know their customers.

[19] Mandy McEwen, *"3 Ways To Improve Digital Marketing For Financial Services,"* Mod Girl Marketing, January 2014, *http://www.modgirlmarketing.com/digital-marketing-financial-services/* (accessed May 2015).

[20] Frederico Herrera, *"The Digital Workplace: Think, share, do,"* Deloitte Canada, 2011.

[21] Annette Tirabasso and Kimberly Spears, *"The Silver Lining in Lending: Turning Doubters into Online Believers,"* Deloitte Development LLC, May 2008.

A 360-degree View of the Customer

FIs have exhaustive data about their customers, including transaction histories, contract center records, and other sources. The Internet, mobile banking, and social networks also produce a lot of useful information about customers. But finding the business value in that data can be difficult. Analytics technologies help banks to increase revenue and loyalty by improving customer satisfaction. When analytics are combined with emerging technologies, customer data can be used to maximize engagement through rich digital experiences, creating new income streams for FIs and producing more detailed customer data.

In the digital world, successful FIs will rely on analytical tools to gain a 360-degree view of the customer. Types of analytics FIs can leverage to improve efficiencies and customer experience include purchasing patterns, social media, website metrics, sentiment analysis, standard reports, customizable dashboards and alerts, and predictive modelling. Dashboards and alerts, for example, present users with a self-service, user-created environment where they can interact with, visualize, and filter information to identify trends and drill down to view specific details. Overall wealth can be assessed based on account performance, transaction history, and spending. Updates are contextual and specific, based on the federation of information across applications and repositories.

FIGURE 4.8: Using Analytics to Assess Overall Wealth

Analytics can transform static statements into dynamic interactive portals that engage individuals and institutional clients in a low-touch, highly interactive solution that optimizes customer experience. By merging relevant, targeted information and embedding analytics into their online offerings, FIs are making it possible for customers to explore other financial avenues while they perform their routine tasks.

Across every channel, data and interactions enable deeper connections with consumers on a more emotional level, helping FIs shift to a partner-based advisory role and better meet customer needs. Demographic data can be combined with contextual, locational, channel, sentiment, and/or behavioral data to determine customer content preferences and build buyer personas. A deeper understanding of the customer has become a strategic objective in the financial services industry. In the feature below, DNB Finans is applying analytics and Business Intelligence (BI) to keep consumers informed and improve customer satisfaction levels.

In the digital world, the traditional sales funnel will be replaced by an orbital model, centered on the customer and defined by interactions and long-term relationships. Conversations will be direct and feedback immediate. As guardians of consumer finances and highly confidential information, FIs will need to ensure security to build trust. New digital marketing strategies will help them to further leverage their data and services to deepen engagement.

Mastering Digital Marketing

According to research, 90 percent of marketers believe that connecting digital marketing tactics improves overall marketing return on investment. To adapt in the digital world, FIs will have to adopt digital marketing campaigns that enable them to engage with their customers in new ways. Instead of identifying customer needs sporadically, based on major life events, they will engage with customers on a constant basis, providing the support they need to complete ongoing financial tasks and transactions in their moment of need.[22]

Established FIs can no longer rely on physical interaction; instead they must assume the role of financial advisor, providing insight and recommendations to their consumers on a persistent basis. Their focus will shift to a digital marketing strategy that creates compelling customer experiences at every touchpoint—both digital and physical—through omni-channel delivery, responsive design, digitalizing the customer journey, and targeted communications and information.

[22] "*The Future of Customer Acquisition*," The Corporate Executive Board Company and Tower Group, 2015.

DNB Finans

DNB Finans anticipates a return on investment for the analytics and reporting system within 2.5 years.

FIGURE 4.9: DNB Finans

DNB Bank Group in Norway is Scandinavia's second largest bank, employing 13,430 people and managing total assets worth €250 billion ($273 billion U.S.). Its subsidiary, DNB Finans, is one of the largest finance companies in the Nordic region. In the private sector, the organization has a dominant position in the car financing market with more than 300,000 financed vehicles in its portfolio.

DNB Finans is always looking for new ways to add value for its customers. The most valued services it can offer are those that help businesses control costs by providing greater visibility on their spending. To this end, the Autolease division of DNB Finans wanted to deepen the BI it provided its clients. For example, the system could provide up-to-date statistics to help customers keep track of all car-related costs, including information about fuel use, CO2 emissions, leasing costs, damage reports, and fraud alerts. At the same time, the Company needed to establish customized cost-center structures so that clients would be able to monitor activity by business unit. It was important to DNB Finans that the software would be easy to use without training—the goal was to achieve a user experience that was similar to consumer social networks like Facebook.

The Company rolled out a BI and reporting solution to be used by more than 30,000 leased car customers. The solution is highly intuitive, featuring colorful visual representations of data, including dashboards for users and logical controls for fraud detection and easy administration of car fleets. Since the deployment, DNB Finans has seen customer satisfaction levels rise from 4.4 to 5.1 on a scale of 1 to 6 for "quality of reporting solution". The system has also drawn an additional 31 percent in user logins, increasing activity on the car financing system. DNB Finans anticipates a return on investment within a short 2.5 years. Its customers now have early visibility into issues like excessive mileage or fuel-related fraud, and are able to pinpoint the business units responsible, enhancing their ability to act and increasing their loyalty through valuable business information. This solution gives the Company a significant competitive differentiator in a crowded marketplace.

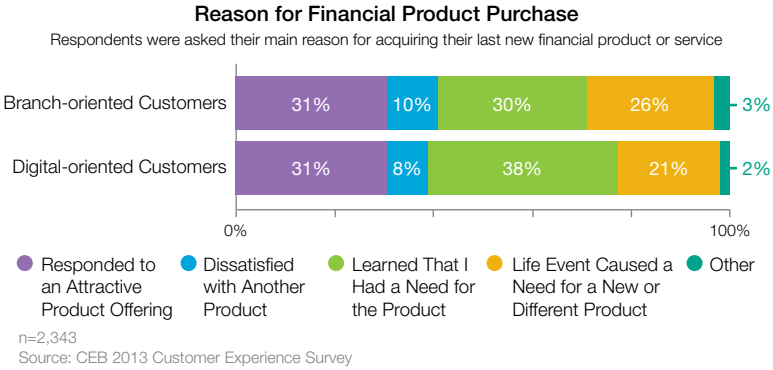


FIGURE 4.10: Persistent Engagement Through Digital Marketing

The Omni-Channel Experience

The dynamic of engagement has changed. Today, reaching consumers requires a complex, multifaceted approach across many channels. Banking provides a good overview of this required approach. Over the past 20 years, the average number of branch-based banking transactions has declined by 45 percent in the U.S., Canada, and Europe.[23] People are increasingly turning to digital channels to conduct financial transactions. Despite this trend, banks must please all types of consumer, and each consumer requires a mix of marketing approaches across a unique and targeted mix of channels.

A branch-oriented bank customer prefers to purchase new products and services through the branch, whereas digitally oriented customers rely on digital channels to conduct research, transact, and purchase new products. Branch-oriented customers are more likely to visit the branch weekly, several times a month, or monthly. Digitally oriented customers only visit their local branches once every couple of months or less. In fact, 13 percent of digital customers never visit the branch and 14 percent visit their branch once a year. A growing number of customers prefer to purchase products through digital channels and rarely interact with their physical branch.[24]

While digital technologies have created new customer touchpoints with increased opportunities to engage, face-to-face interaction remains a significant sales and engagement channel. Consumers use many channels to interact with FIs. In fact, 88 percent of customers interact with their banks using at least two channels, and 46 percent use three or more in a year.[25] Leading FIs have to be laser focused on ensuring the consistency and relevancy of messages they deliver across all channels. This approach achieves superior results in return on marketing investments, customer satisfaction, and revenue.

[23] Alyson Clarke, "*The Future of the Branch Lies in Digitally Empowering Employees*," Forrester, November 25, 2014.

[24] "*The Future of Customer Acquisition*," The Corporate Executive Board Company and Tower Group, 2015.

[25] Tiffani Montez, "*The State Of North American Digital And Multichannel Banking 2013*," Forrester, April 2, 2013.

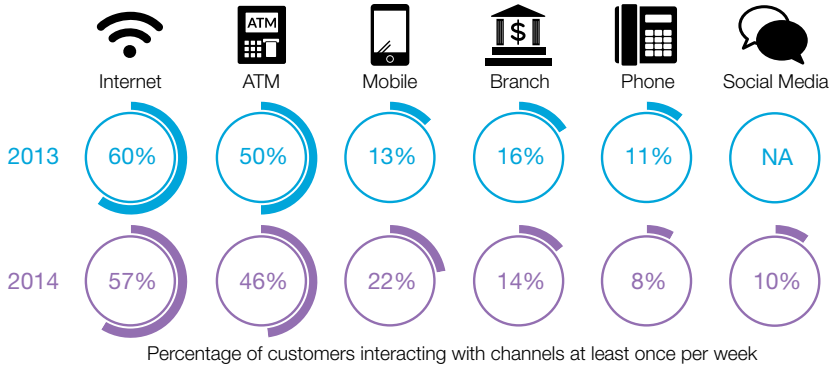


FIGURE 4.11: Channels Customers Are Using to Interact With Their Banks

Engagement with financial brands is evolving from a multi-channel experience to an omni-channel experience. Omni-channel focuses on meeting consumer needs by pulling together programs to provide a consistent brand experience across channels, platforms, and devices. As customers become more mobile, a consistent experience becomes vital. If a customer visits a retail bank website on a desktop but switches to a smartphone at the time of purchase, the mobile view should maintain the same look, functionality, and content as the desktop view. Customers do not see individual devices or channels; they look for a consistent and familiar brand experience.

An adaptive and responsive approach helps marketers fuel an ongoing conversation with the consumer. Using responsive design, FIs can manage a single site that caters to all device platforms, sizes, and resolutions. A single video can be dynamically rendered to adjust to the screen size of a mobile device, a website, and a stadium jumbotron. An adaptive design extends the experience with closed captions or plays the audio in a listener's preferred language. Tethered syndication allows each touchpoint to talk to other available touchpoints to optimize experience. Consistently branded content creates a more satisfying end-user experience and enables FIs to positively impact the customer journey.

It's All About the Journey

Customer journeys document the experience customers have from initial desire through to fulfillment. This includes all points of engagement or the touchpoints that create the overall brand experience. Currently only one-quarter of organizations across all industries have completely mapped the customer journey to understand digital touchpoints.[26]

[26] Jaimy Szymanski, Brian Solis, and Rebecca Lieb, *"The Inevitability of a Mobile-Only Customer Experience,"* Altimeter Group, 2014.

FIGURE 4.12: Consistent Branding Across Channels and Devices

Customer journeys are based on data collected across various touchpoints—transactions, interactions, social media sites, and devices. Analyzing this data leads to customer insights, and these must be tied back to actions that drive automated, internal processes and the delivery of content and services. This should all happen on the fly, in response to customer needs, to influence their decisions at the moment of need.

FIs will be required to engage customers at every stage of their digital journey because two-thirds of the decisions that customers make are informed by their experiences that mark the journey.[27] In Figure 4.13, a hypothetical customer journey of a consumer buying a car is portrayed. A prospect watches a video commercial posted to YouTube and follows it to the manufacturer's website for more information. A GPS system on their phone alerts them to a dealer located close by. Before they even visit the dealership, their bank sends notification to let them know that they are pre-approved up to a certain amount. A promotional price may be offered if the dealer and the bank are partners. Because the entire experience or journey is orchestrated to capture preferences and facilitate a seamless experience, the bank is able to engage with the consumer in the moment of need. The value of the information collected at each touchpoint is used to increase empowerment, reach, and insight.

[27] *"Cisco Consumer Experience Report for Automotive Industry: survey of 1,511 consumers in 10 countries,"* Cisco, May 2013.

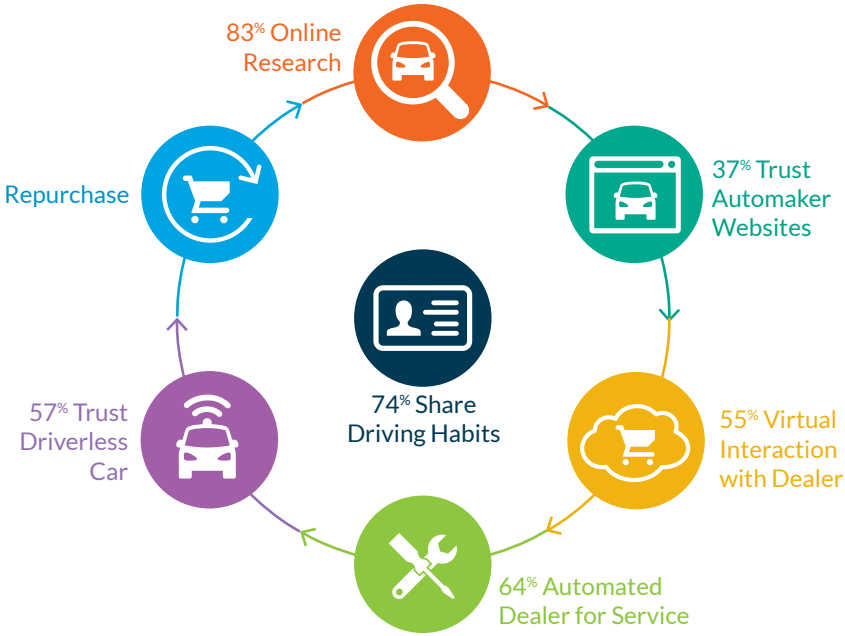


FIGURE 4.13: Financial Services Touchpoints in a Car Buyer's Journey[28]

Effectively managing customer data is critical to optimizing a customer journey. If a firm can predict customer behavior, it has a better chance at delivering what a customer expects. This is referred to as "contextualization", and it defines digital experiences that adapt to a consumer's context.[29] To deliver a contextual experience, FIs can use tools that combine historical (buying behavior including barcodes or pathways through a website), situational (geo-location), and demographic (profile-based) data. Content is targeted and personalized, anticipating the needs and buying behavior of each consumer to offer location-based products or services at the most opportune moments to buy.

Targeted Customer Communications

Streamlined communications give banks, insurance companies, and wealth management organizations the opportunity to engage with their customers using the right channel to offer services at exactly the right moment in their buying journey. The most effective way to do this is to target different audiences with different messages, focusing on products and services with the greatest appeal for each segment.

[28] Edwin van Bommel, David Edelman, and Kelly Ungerma, *"Digitizing the Consumer Decision Journey,"* McKinsey & Company, June 1014, *http://www.mckinsey.com/insights/marketing_sales/digitizing_the_consumer_decision_journey* (accessed May 2015).

[29] Ron Rogowski, *"Digital Customer Experience Trends to Watch, 2013,"* Forrester Research, 2013.

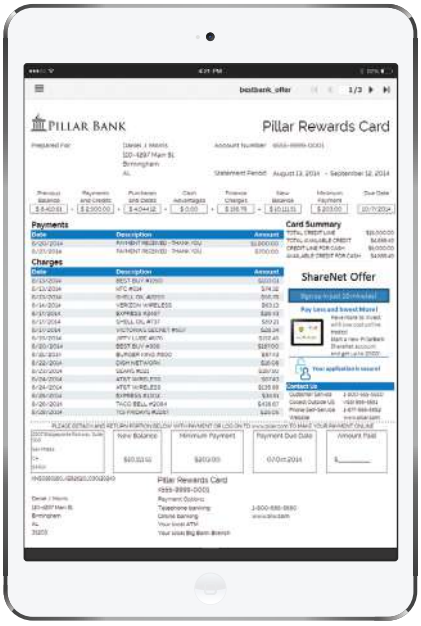


FIGURE 4.14: Targeted Correspondence Increases Loyalty and Profitability

Dynamically generated customer communications give FI marketers direct, hands-on capabilities for creating and launching marketing campaigns as well as ongoing promotions, for example, to accelerate the adoption of a new credit card product, a time-sensitive loan-rate offer, or a new benefit tied to a higher account status. Upsell and cross-sell campaigns can be delivered directly to customers through regular communications, such as statements or notices or as part of a customer-initiated conversation with a call center or bank staff. Marketing materials like these can be created and launched automatically for higher efficiency.

FIs require access to accurate data to manage consumer correspondence. Information is consolidated from multiple back-end systems to create a single portfolio view of each customer. This information is then combined with the context of the customer's current situation to automatically produce targeted communications. When correspondence is part of a digitalized process, manual handling and human error are significantly reduced, thereby increasing overall efficiency and customer satisfaction.

Every financial customer wants to be treated as a known individual. This is dependent on making sure that recommendations are relevant to a person's profile and history—their data, including clicks and transactions. Streamlined communications based on accurate data help FIs produce more timely exposure to offers and increase profitability. This is demonstrated in the following feature in which FWD is using streamlined customer communications to deliver innovative products and enhance customer experience.

FWD

Streamlining customer communications has given FWD a competitive advantage by allowing them to deliver a more personalized and consistent experience that exceeds customer expectations.

FIGURE 4.15: FWD

FWD is the insurance business arm of the private investment group, Pacific Century Group. FWD's business spans Hong Kong, Macau, Thailand and the Philippines, offering life insurance services, as well as general insurance, employee benefits and financial planning services in Hong Kong. FWD also has a brand presence in Indonesia. FWD's strategic focus is to leverage technology to enhance customer experience, deliver innovative products, and invest in talent to create a leading Pan-Asian life insurer that changes the way people feel about insurance.

To meet customer expectations and drive new business, FWD needed to improve the quality of their customer-facing communications, as well as the business processes behind them. FWD saw the opportunity to build new relationships with customers and deepen their levels of trust and confidence through improved information exchange. They were looking for a solution to engage more consistently—and profitably—with customers, while improving the efficiency of underlying business processes. To add to the challenge, this solution would need to work across multiple interfaces, and in multiple languages.

FWD rolled out a Customer Communications Management solution across four locations (Indonesia, Macau, the Philippines, and Hong Kong). The implementation has streamlined communications and enabled FWD to deliver a personalized and consistent experience that exceeds customer expectations. With improved operational efficiency and direct control over content, business managers can react faster to changing market conditions to seize new opportunities, using direct hands-on communications to increase customer retention and revenue. The solution is positioned to support FWD as its business grows—expanding into new languages and interfaces, all with minimal demand on IT resources. In the insurance industry, delivering exceptional customer service is what sets agencies apart. Optimizing their customer correspondence has given FWD competitive advantage through optimized customer engagement and experience.

Seamless Information Flows

As digital engagement progresses beyond a simple point-and-click, FIs will streamline communications based on integrated information flows across the business. In order to deliver a consistent end-to-end experience across many touchpoints, FIs will need to integrate front- and back-office technologies and processes with a complete information strategy that delivers individualized customer experiences at each point of engagement.

FIGURE 4.16: Disjointed Digital Engagement

Within many FIs, the current technology layers that support customer engagement are numerous and disjointed, consisting of different applications from a variety of vendors. At the customer interface, rich digital solutions are required to support the evolution of a brand's publishing points—from tablets to kiosks to mobile devices. Behind the customer-facing applications are the systems ranging from Web Content Management (WCM) to Customer Relationship Management (CRM) systems and various BI and analytic tools. In an ideal system, each technology works to optimize digital engagement and extend to the virtual business network. The connections between these systems should be relatively easy to track, but how does the digital FI bring this all together for accuracy and consistency?

A Customer Experience Management (CEM) platform combines software applications that help organizations create richer, more interactive digital engagement across devices and channels without sacrificing information governance and compliance. CEM empowers the digital FI to capture audience expectations, process requests, search for relevant content, curate user-generated content, assess consumer activities for analysis, and present actionable data to create exceptional digital experiences. Video, rich media, and personalized content can be created collaboratively, published seamlessly, and shared ubiquitously to surprise and delight customers at every turn.

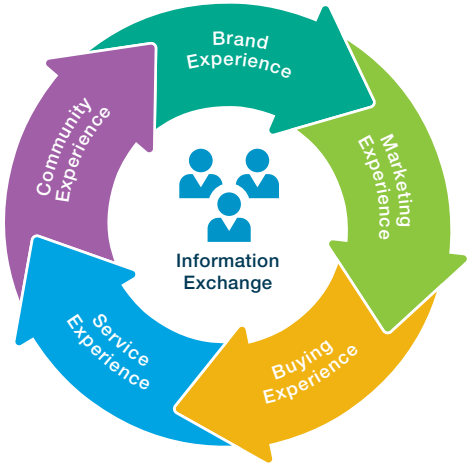


FIGURE 4.17: CEM Creates Value Across the Customer Lifecycle

Information Management Drives Differentiation

With improved customer experience comes increases in customer acquisition, retention, and efficiency. In the digital world, FIs will focus on re-architecting their back-office systems, consolidating their data, and creating digital front-end services that are consistent across every channel. From mobile devices to smart watches and even cars—FIs will digitalize the entire customer journey to target consumers with products and services when and where they need them. Improved customer experience relies on an effective CEM solution and an underlying EIM strategy. Armed with these solutions, FIs can transform unstructured data sources into levers of competitive advantage and profitability.

In the digital world, FIs will consolidate customer experience solutions on a single engagement platform. This will empower the enterprise to maximize the potential of its information to reach new markets and gain competitive advantage. As digital disruption triggers the creation of new engagement models, their reach will extend outside the enterprise and all along the supply chain. In the following chapter, we will look at how the financial services supply chain is being disrupted and how firms can digitalize key processes for greater collaboration, information exchange, and business agility.

CHAPTER 5

THE FINANCIAL SUPPLY CHAIN

CHAPTER 5

The Financial Supply Chain

"The financial services industry is in the early stages of a significant digital transformation. With investment in fintech rising to $12 billion in 2014, the financial services industry is well funded to drive unprecedented change. Historically on opposite sides of the playing field, smart fintech firms and financial institutions are beginning to see that they need one another to thrive."[1]

Digital technology is giving rise to global, highly interconnected, and complex business networks. Digital disruption holds great potential for increased engagement and collaboration. In a global economy, Financial Institutions (FIs) will have to integrate their operations and collaborate seamlessly with partners or counterparties to reduce costs while satisfying the high expectations of the digital customer.

Today's volatile marketplace demands that FIs have best-in-class technology, people, and processes to remain competitive and profitable. Leaders in the financial services industry must increase efficiencies, maximize existing resources, and enable transparency across the financial supply chain to better manage liquidity and increase profitability. This is critical in an increasingly global economy, as customers and corporations expand their business activities across borders and time zones. Maintaining efficient operations are further complicated by mergers and acquisitions, outmoded legacy systems, and global regulations.

The previous chapter examined how technology-based transformation is impacting the customer experience and engaging consumers in new ways. In this chapter, we'll take a look at how digital technology is transforming the financial supply chain, specifically in terms of how information is exchanged between counterparties to optimize FI supply chain efficiencies. As integration and collaboration are key, we'll examine how digital business integration capabilities are helping FIs cope with growing volumes of cross-border exchanges of capital, communications, and commerce.

The Financial Services Supply Chain

In the digital world, an enterprise's linear value chain will be replaced by a dynamic network of suppliers, partners, and customers. As financial supply chains morph into dynamic systems, the digital supply chain will rely more on third parties. Digital technology is making this integrated model possible by enabling specialized companies to communicate, collaborate, and exchange information in real time. The end result

[1] *"FinTech Rising: How to Create Synergies with Financial Institutions,"* Yodlee Interactive, May 2015, *https://www.brighttalk.com/webcast/12339/155173* (accessed May 2015).

is a tightly interconnected network of business partners collaborating to serve both consumers and corporations. By embracing emerging technologies, the digital supply chain can deliver the improved efficiencies, transparency, and performance required to better manage change, complexity, and globalization.

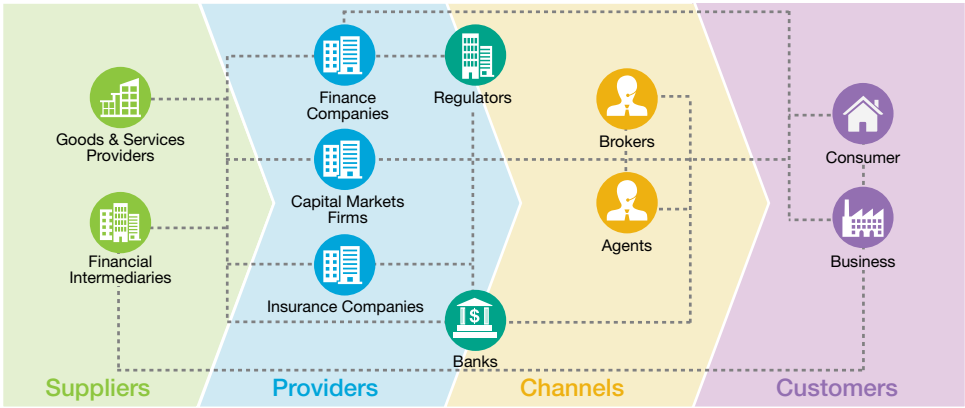


FIGURE 5.1: Financial Services Supply Chain

A financial supply chain sits on top of the physical supply chain and covers the flow of transactions and communications between counterparties, whether they're buyers or suppliers managing cash flow, working capital, or risk factors. Business partners in financial services range from corporations to government agencies to payment networks. Much like the physical supply chain for goods and services, the financial supply chain is wide and deep with an amazing variety of financial counterparties and connection points.

Based on the concept of the physical supply chain in trade business, the financial supply chain focuses on the payment aspect of trade, from the creation of a purchase order to its settlement. Visibility into the movement of information impacts all the participants in a supply chain to help them make informed decisions in a timely fashion. Synergies can be created by combining information, collaborating around this information, and infusing it with analytics for business insight.

FIs are striving to accelerate their supply chains and make them more transparent. Streamlining and digitalizing payments are key to achieving both. Corporate treasurers are focused on this because many traditional processes are manual. A good number of transactions are still paper based, costly, and prone to human error. There are costs in every aspect of the supply chain. Organizations want to digitalize trade information and automate payment processes so they can focus on their business. Real-time payment processing is becoming a requirement in today's digital, on-demand marketplace. Digitalization allows information to be transformed into real-time, actionable data.

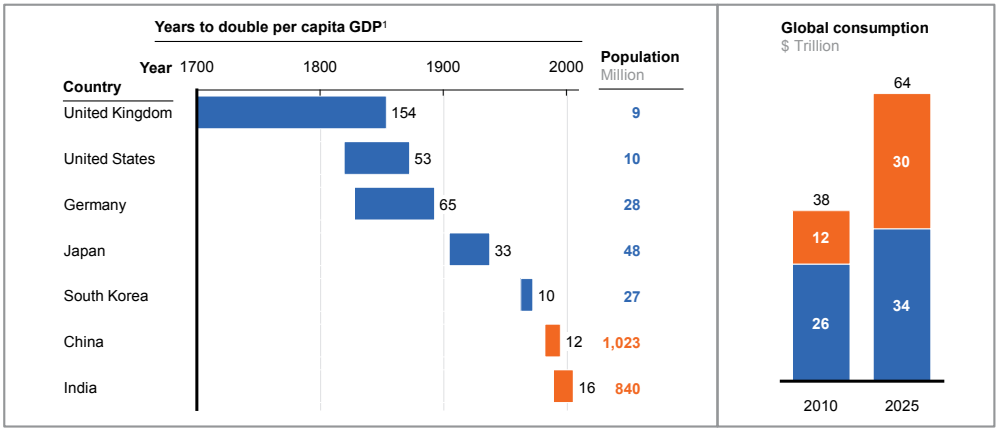
Real-time insight into the supply chain means that organizations can more efficiently manage their trade transactions as they occur, giving them more opportunity to move money around and make proactive business decisions. A greater visibility into transactions benefits banks, for example, by enabling them to offer more-timely and better financing, or Just-In-Time financing.

Digital supply chain management helps FIs expand their reach, broadening the processes and services they offer. Having tight and frequent connections with their partners and customers gives them more opportunities to offer innovative solutions that incorporate both supply chain financing and services. On a global level, this involves integrating their processes into their clients' and partners' processes. Globalization is driving FIs to contemplate digital business models to serve their corporate clients and customers across their business networks.

A Global, Digital Economy

A global economy is putting strains on today's supply chain as it struggles to assimilate increasing amounts of cross-border exchanges of goods, commerce, and communications. Digital technology makes it possible for the smallest company to participate in the global economy—from anywhere in the world—enabling emerging economies to play a much larger role in the global economy. Lower barriers to entry result in higher levels of competition—from all parts of the globe.

In emerging economies, incomes are rising faster, and at a greater scale than at any point in history



1 Time to increase per capita GDP in purchasing power parity (PPP) terms from $1,300 to $2,600.

SOURCE: Angus Maddison, *The world economy: Historical statistics*, OECD, 2003; *Resource Revolution: Meeting the world's energy, materials, food, and water needs*, McKinsey Global Institute, 2011; McKinsey Global Institute analysis

FIGURE 5.2: Rapid Rise in Emerging Economies' Incomes[2]

[2] *"Global Flows in a Digital Age: How Trade, Finance, People, and Data Connect the World Economy,"* McKinsey & Company, April 2014.

Based on stiffer competition, businesses are focusing on their area of specialty and outsourcing other operations. They are migrating from a vertically integrated model in which end-to-end supply chain activities are managed in-house to a highly specialized, highly outsourced supply chain model. Organizations in every industry are outsourcing everything from customer service, tax, accounting, and IT to strategic planning and marketing. In fact, it's difficult to name an industry that has not become highly specialized and dependent on business partners for success.

With an increased number of businesses participating in the global economy, prosperity around the world is rising, especially in emerging economies. As illustrated in Figure 5.2, it took 154 years for the U.K. to double their per capita Gross Domestic Product (GDP) during the Industrial Revolution, yet China and India have doubled their per capita incomes in one-tenth of that time.[3] The new economy will herald in an additional 1.8 billion consumers in 2025, nearly all from emerging markets.[4] As these populations pursue economic interests and expand their operations internationally, cross-border trade is putting additional strains on the financial supply chain.

International Expansion

"The modernization of back-office systems is led by two drivers: expansion and innovation."
– Gartner

Over the last few decades, there has been an enormous explosion in cross-border trade, and these volumes will grow. Between 1980 (1.8 trillion) and 2011 (17.2 trillion), there was a tenfold increase in cross-border trade with volumes set to increase by 2025 (64 trillion). Nearly 60 percent of this increase will take place between emerging economies.[5] The challenge for financial supply chains will be to support growing volumes of cross-border transactions while maintaining performance, security, and compliance with both local and international regulations.

Foreign banks are moving into new geographies and bringing with them a customer-centric business model in place of the standard product-centric model. As their clients increase their geographical footprints, FIs are expanding their operations internationally. Over the past few years:

- The Bank of America (U.S.) and UBS (Switzerland) received banking licenses in Brazil.
- JPMorgan Chase (U.S.) and Morgan Stanley (U.S.) won approval to form securities joint ventures in China.

[3] *"Global Flows in a Digital Age: How Trade, Finance, People, and Data Connect the World Economy,"* McKinsey & Company, April 2014.

[4] Ibid.

[5] Ibid.

- ICBC, Bank of China, and the Agricultural Bank of China were approved by the Federal Reserve to expand their operations in the U.S.
- Citi (U.S.) and Standard Chartered (U.K.) are planning offices in Iraq to support global power, oil, telecommunications, and construction clients.

As the volume of global transactions expands, the pace of exchange accelerates. In the digital world, financial supply chains will need to facilitate huge increases in cross-border exchange and cope with soaring volumes of cross-border data, communications, and commerce between networks of suppliers. In response to the pressures brought on by globalization, end-to-end supply chain visibility is becoming a top priority. Effective strategies for dealing with these pressures include integration and connectivity.

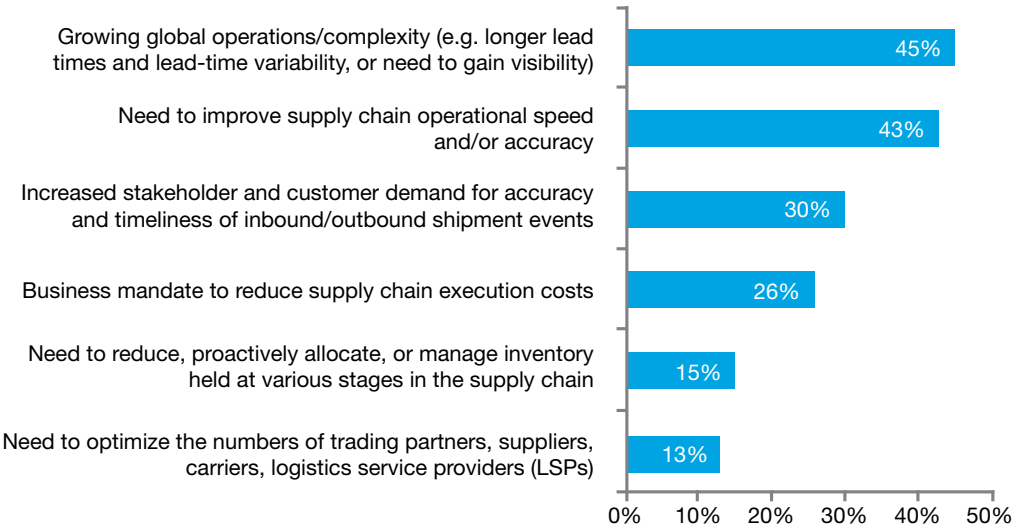


FIGURE 5.3: Growing Global Operations – A Driver for Supply Chain Visibility[6]

Back-office Modernization

While FIs continue to expand and explore new business growth, there continues to be a focus on cost reduction across the industry. Cost reduction is a driver for back-office modernization. Many FIs struggle to rationalize their back-office accounting and payment systems after mergers and acquisitions. According to research, banks in Europe and North America are spending up to 90 percent of their IT budgets on maintaining legacy systems.[7] FIs are challenged to find the budget required to migrate clients from legacy systems and bring functionality up to par on end-state systems.

[6] Bob Heaney, *"Supply Chain Visibility. A Critical Strategy to Optimize Cost and Service,"* Aberdeen Group, May 2013.

[7] Phil Falato et al, *"Backing up the Digital Front: Digitizing the Banking Back Office,"* Capgemini Consulting, 2013, *https://www.capgemini.com/resource-file-access/resource/pdf/backing_up_the_digital_front25_11_0.pdf* (accessed May 2015).

Typical global FIs run on mainframe systems with tightly focused technology stacks and siloed information—making them slow to respond to change. Legacy platforms are expensive to upgrade and require special skill sets to maintain. Often, the more outmoded they become, the more costly they are to manage. Integrating old systems with new systems can add up to significant long-term investment and operating expenses. Adopting a modern platform can result in process efficiencies that reduce IT operating costs by 20 to 30 percent; development costs by 20 percent; application and infrastructure costs by 25 percent; and service costs per policy by 30 percent.[8] Platform modernization empowers FIs to respond quickly to make product changes or introduce new ones, reducing time-to-market by as much as six months.[9]

FIGURE 5.4: Back-office Modernization

In a highly competitive industry, the solution is to replace legacy systems with investments in digital technologies and channels. Digital strategies based on integration, collaboration, and modernization will be most effective in balancing the mandates to grow the business and reduce costs. If FIs don't deliver on these strategies, there's a good chance they'll be disintermediated. Back-office modernization not only results in operational efficiencies, it also enables greater collaboration between established FIs and fintech startups through increased digital capabilities based on open source tools and adoption.

Delivering superior responsiveness will depend on tight synchronization of data as well as the movement of information, transactions, and funds between counterparties, based on modernized systems and infrastructures. In the following feature, Banca Popolare di Sondrio (SUISSE) SA has modernized their back office and implemented a content management solution to achieve the levels of speed, efficiency, and agility required for operational excellence.

[8] Brian DeMaster, *"The Digital Insurer: Reducing Costs and Time-To-Market Through Life Platform Modernization,"* Accenture, 2013.

[9] Ibid.

Banca Popolare di Sondrio (SUISSE) SA

The solution allowed BPS to migrate more than ten million documents and associated metadata at a rate of 300 to 400 documents per minute.

FIGURE 5.5: Banca Popolare di Sondrio (SUISSE) SA

Banca Popolare di Sondrio has a history dating back 140 years. This bank shaped the economic development of the Italian region of Valtellina and then expanded into Switzerland in 1991. Four years later BPS (SUISSE) SA was founded. The bank, governed by Swiss law and wholly owned by the parent company, is experiencing rapid growth and has 22 operating units carrying out a broad range of diverse transactions.

Along with this rapid growth came an increase in the number of documents BPS (SUISSE) SA had to manage. Their legacy archiving system was inflexible and unable to manage the metadata, authorization, security, and the processes associated with the growing volume of documents. The Company needed a content management solution that could migrate documents from the old system and integrate external information systems without impacting usability or adoption by changing the existing interface.

A new content management system enabled BPS (SUISSE) SA to migrate more than ten million documents and associated metadata at a rate of 300 to 400 documents per minute. The solution's central archive provides an overview of documents, allowing employees to easily search for and retrieve documents. It integrates seamlessly across the bank's systems, enabling employees to access information using a familiar interface without hindering adoption or productivity. Previously complicated tasks, such as customer branch changes, are now automated and instant. Changes can be implemented quickly and cost-effectively, and third-party applications can be integrated to add value and agility. The system supports strict monitoring and authorization applications for the handling of highly sensitive data to ensure compliance and security. Since implementing the solution, BPS (SUISSE) SA has increased employee efficiency, automated and simplified processes across the supply chain, and improved data security, all while keeping costs under control.

Accelerating Processes to Hyper-Drive

"Over 80 percent of retail banking executives report that increasing efficiency and cutting costs are high impact drivers of IT investment." – CEB Tower Group

To meet the challenges of a digital economy, organizations must digitalize their business processes. This goes beyond merely converting paper records to digital or automating process steps. It requires close examination of key corporate processes, understanding the needs of all stakeholders, determining new outcomes based on these needs, and then working back and leveraging digital technology to fundamentally re-invent processes.

In many FIs, current back-office operations are manually based and highly inefficient. In fact, only 30 percent of banking executives feel that their processes and initiatives are connected between departmental silos. An average mortgage application changes hands manually 35 times before it is completed.[10] When these manual processes are combined with newly introduced regulations, FIs are producing massive amounts of paper. According to TD Bank in Canada, each employee produces 10,000 pages of office paper each year. By their estimates, processing paper checks costs the industry almost $100 million a year in transport alone.[11] Back-end processes that are manual are more prone to human error, which can be costly. Inefficiencies in the back office can negatively impact customer satisfaction and the overall customer experience.

Many FIs lack the digitalized processes needed to lower costs associated with paper and storage, human error, and non-compliance. Most believe their current operational processes are not adaptable to new demands. They are limited by their current back-office IT systems in their abilities to introduce new products and services and acquire new customers. In the wake of increasing compliance requirements, shrinking margins, and evolving customer demands, FIs can expect the digitalization of processes to be a major lever in improving productivity and reducing costs.

Ideally, FIs should digitalize core business processes from end to end, in their entirety. The benefits of digitizing information-intensive processes are numerous. Costs can be reduced by up to 90 percent and turnaround times improved by several orders of magnitude.[12] Errors can be reduced. New channels and new routes to the customer can be leveraged. Replacing manual, paper-based processes with digitalized processes and documents enables FIs to collect data to better understand process performance, costs, and risk factors. Real-time reports and dashboards can alert managers to address

[10] Phil Falato et al, *"Backing up the Digital Front: Digitizing the Banking Back Office,"* Capgemini Consulting, 2013, *https://www.capgemini.com/resource-file-access/resource/pdf/backing_up_the_digital_front25_11_0.pdf* (accessed May 2015).

[11] John Armstrong, *"Banking in 2023: what's a branch?"* The Globe and Mail, April 30, 2013, *http://www.theglobeandmail.com/report-on-business/economy/canada-competes/banking-in-2023-whats-a-branch/article11644689/* (accessed May 2015).

[12] Shahar Markovitch and Paul Willmott, *"Accelerating the Digitalization of Business Processes,"* McKinsey & Company, May 2014.

problems before they become critical. Over and above these benefits, digital technology helps to build more streamlined processes to improve business efficiency, as illustrated in the follow feature about Mercer.

Increasing Business Agility

In order to compete, FIs need to maintain superior levels of process excellence, while rapidly responding to the changing needs of their market. Process changes that take months to implement are no longer acceptable or viable. Creating processes that are agile and flexible is a strategic priority. Digital technologies such as Smart Process Applications (SPAs) and Dynamic Case Management (DCM) help FIs automate key processes such as client onboarding, client reporting, and loan origination and servicing.

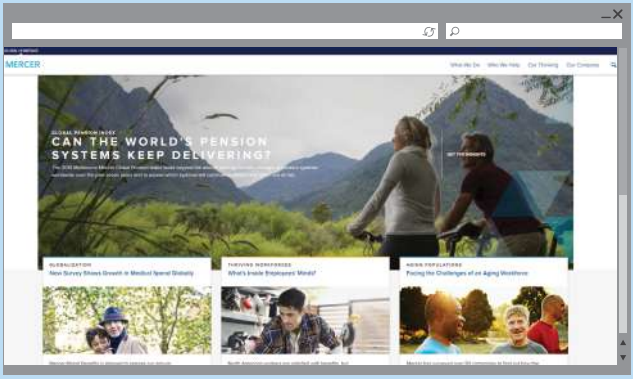
Client Onboarding

Client onboarding, for example, is traditionally a manual, paper-based process that often leads to duplicate data entries, lack of management visibility into the entire process, and disconnected customer service. The paperwork associated with account opening can be rejected, which incurs costs associated with time and resources. In a market where products are perceived as comparable, the provider with the highest level of service and most effective onboarding process will win more new clients and gain competitive edge. By digitalizing onboarding processes, banks, credit unions, and other FIs can ensure the consistent and accurate capture and processing of application forms, whether received on paper, online, through a branch, or a call center. Automating the process helps to enforce confidentiality of information and compliance with regulations, while giving FIs a complete view of the customer, from their source documents to third-party information, account profile, and application status.

Client Reporting

In the financial services industry, asset management, money management, and mutual funds are very competitive businesses. Differentiation is hard to establish. Investment firms are evaluated by their ability to deliver the client's results in a format that the client dictates which can often be time-consuming, manual, and costly. By automating the client reporting process and re-deploying resources, wealth and asset managers can increase operational efficiency, make time to engage effectively with clients, enhance client communications, and strengthen their brand for competitive advantage. Using automation, FIs can deliver more accurate reports in real time, based on market changes. Automated services are available through a self-service portal that is easily accessed by customers and managed by FIs. This allows customers to choose their preferred channel of information delivery and format for communications and helps FIs to deliver more accurate information and satisfying customer experiences.

Mercer



The integration of BPM into existing systems has allowed Mercer to rationalize key processes and increase overall business efficiency and visibility.

FIGURE 5.6: Mercer

Mercer is a global consulting leader in talent, health, retirement, and investments. Mercer helps clients around the world advance the health, wealth and performance of their most vital asset—their people. The Company is spread across 43 countries and has more than 20,000 employees.

Mercer's Benefits Administration business employs a consultative, outcomes-based approach to benefits administration to deliver unparalleled guidance, transparency and innovation to increase the effectiveness of their clients' health benefits and retirement programs. Investing in leading technology is a large part of Mercer's approach to strengthen the impact and outcomes for clients and plan participants. Their technology investments—driven by the ever-changing marketplace, their own development road map, and client feedback—ensure the delivery of robust, scalable administrative solutions.

One such example is Mercer's investment in a BPM (Business Process Management) platform to streamline administration processes such as document management and health plan carrier file transmission. With BPM integrated into their existing systems environment, Mercer has rationalized key processes and increased overall business efficiency and visibility.

Loan Origination

Many FIs centralize their operations around loans and credit. Bank and financial institutions have a fluctuating volume of consumer lending and are facing a highly competitive market and rising costs. On average, it takes 30 to 45 days and $2,250 to $3,400 to process a mortgage loan, for example, from the point of sale through to closing. FIs are under constant pressure to shorten loan processing cycles and reduce manual exception processing. Automation provides an efficient and agile platform for their disparate lending applications.

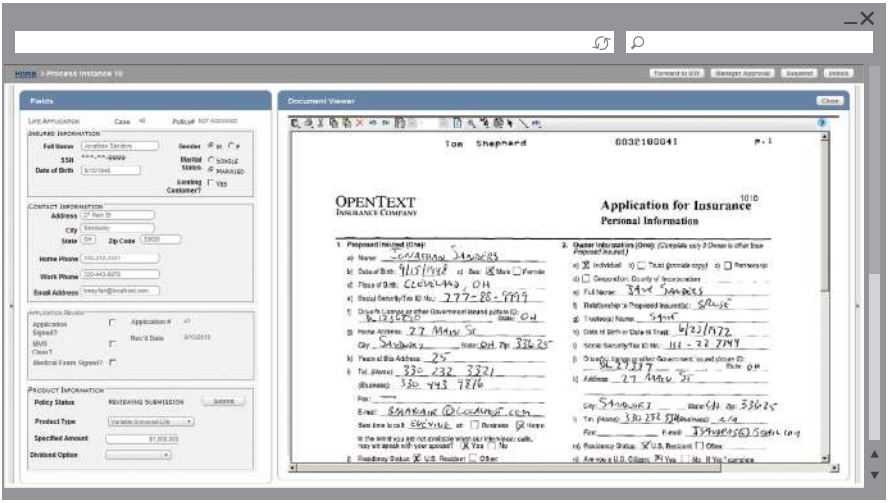


FIGURE 5.7: Digitalizing Loans Processing

Digitalized loan processing gives banks, lenders, and underwriters an efficient and paperless loan service. A case management and process automation platform can be used to digitalize all of the activities involved in loan processing, from loan application through to servicing set up and loan sale. With manual steps removed, the costs associated with time, resources, and errors are all but eliminated, and efficiency and loan closure rates are improved. Digitalizing the process remodels back-office operations as the system can intelligently route the required pieces of information in a mortgage process, for example, to appropriate parties (branch associates, external agents, back-office processors, loan pricing and approval participants and supervisors) for approvals. Dashboards and real-time metrics give FIs visibility into the entire process, from end to end, meaning they have tighter governance and control over the process of loan applications and comply with guidelines like Know Your Customer (KYC). By providing highly efficient document capture, reducing the complexity of application and assessments, and removing the need for time-consuming compliance training, the solution speeds cycle time and increases productivity.

FIGURE 5.8: Real-time Visibility into Metrics

Automating the loan origination process helps FIs accelerate the process for faster time-to-revenue through the clear management and visibility into tracking results, status, and overall performance. Rapid and accurate responses creates customer goodwill and enhances experience. While costs are reduced through the elimination of paper-based, manual tasks that include handling, storage, filing, and routing, BPM helps FIs meet rapidly evolving government regulations and compliance policies with highly adaptable process management.

For insurers, in a market where profits are declining based on lower interest rates and fewer agents, insurance companies can improve both the client and agent experience through automated claims processing. Digitalizing processes results in greater economies of scale, as fewer people can handle more claims. On the underwriting side, automating new business and underwriting processes drives operational improvements for significant bottom-line impact. Automated processing systems help insurers gain a better understanding of the risks involved in coverage. Digitalized underwriting helps insurance companies more accurately select, plan for, and price policies based on risk, reducing costly rework and resulting in more satisfied clients and agents.

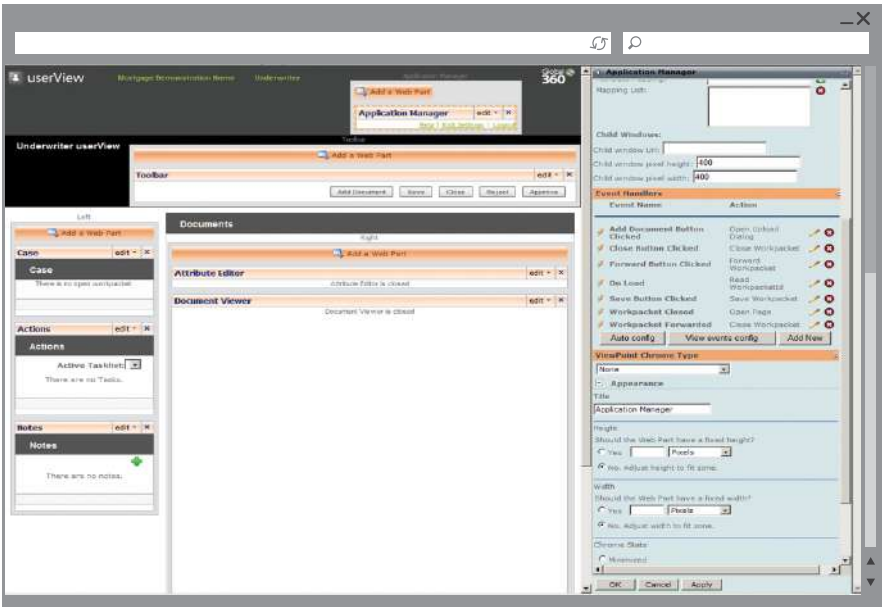


FIGURE 5.9: Automating the Underwriting Process

Automating processes is critical to ensuring financial supply chain efficiencies and effectiveness. Digital leaders are more likely to incorporate automation tools to synchronize and manage information and financial flows across the extended global supply chain.[13] Integration and connectivity through back-office automation are key to digital transformation, bringing processes, people, and information together to function more efficiently. This also allows for seamless connections between counterparties. The speed and agility of supply chain operations will continue to be enhanced by BPM applications that synchronize data and exchange supply chain transactions with increased speed, accuracy, and security.

The Information Supply Chain

To effectively orchestrate today's highly outsourced and globally distributed supply chain, FIs must tightly coordinate the flow of communications and commerce across their entire business network. B2B integration is a set of technologies that facilitate the real-time, automated transfer of information, money, and goods and services, creating an "information supply chain" for the enterprise. It empowers a tightly integrated network of employees, suppliers, and partners to exchange communications and commerce in ways that are rapid and accurate and make decisions that are timely and intelligent.

[13] Bob Heaney, *"Supply Chain Visibility. A Critical Strategy to Optimize Cost and Service,"* Aberdeen Group, May 2013.

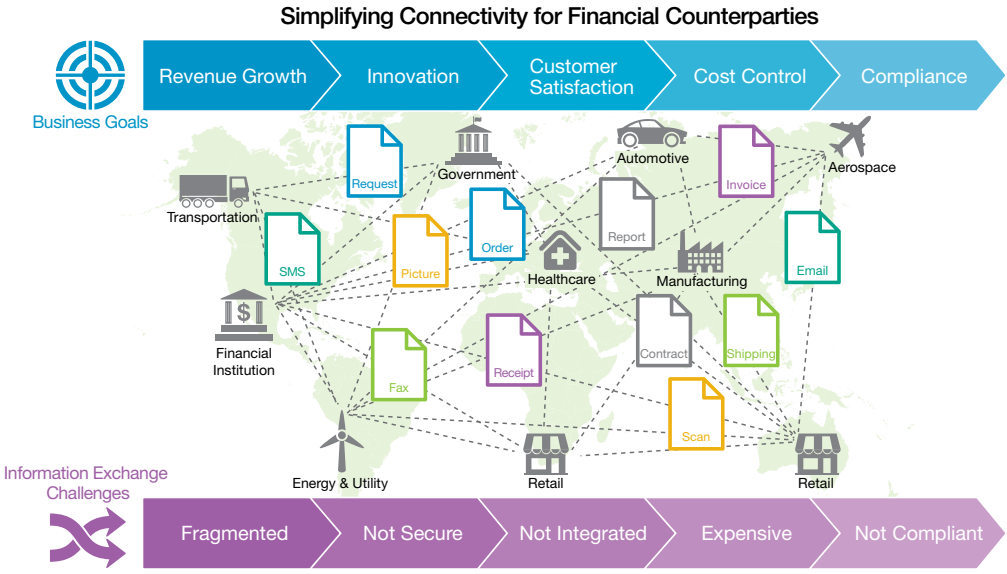


FIGURE 5.10: Business-to-Business Integration

B2B integration streamlines electronic transactions between business partners, giving FIs access to their financial counterparties with managed, hosted services and transactional solutions to automate and simplify connectivity. With the complexity and frequency of business transactions, B2B integration involves a heightened degree of coordination, data synchronization, and transaction automation.

Many different kinds of financial transactions flow between FIs and their clients, whether they're commercial banks, life and health insurance firms, property, financial data services firms, or managed care and securities firms. Typical financial industry transactions include payments and cash management, securities exchanges, and trade and foreign exchanges, as depicted in figure 5.11.

A number of new regulations and requirements are impacting the way financial services firms exchange transactional information. Some examples include the Payment Card Industry; Data Security Standard (PCI-DSS) in the credit card industry, which protects credit card holder personal information, and the Gramm–Leach–Bliley Act (GLBA) in the banking sector, which protects the privacy of customers. Complying with these requires FIs to adopt new standards of communication such as eXtensible Business Reporting Language (XBRL) for Securities reporting, as well as methods for secure information exchange such as Electronic Data Interchange (EDI).

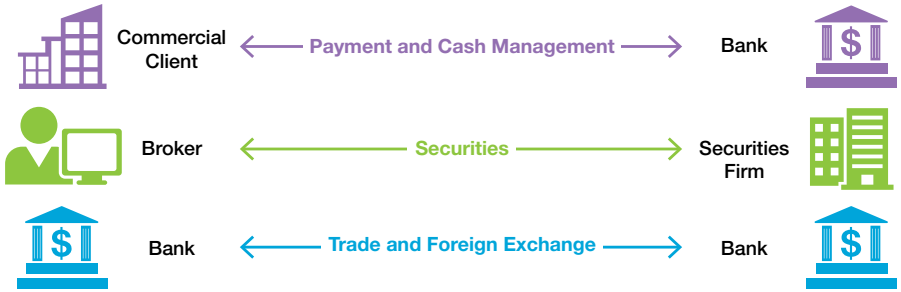


FIGURE 5.11: Typical Financial Industry Transactions

To further complicate information exchange, global expansion has introduced over 100 different e-commerce file formats and communication standards currently in use throughout different industry sectors and countries around the world. Payments within the Single European Payments Area (SEPA), for instance, must comply with the European Payment Council's SEPA directive requiring provision and maintenance of International Bank Account Numbers (IBAN) and SWIFT Bank Identifier Codes (BIC) with other bank details in vendor and customer records. In some countries, to leverage the benefits of low-cost national clearing systems, payment data must be in the local language, such as Chinese, requiring specific character sets to process payments. Taken together, these and other challenges require the highest quality connectivity and integration solutions to drive complex accounting, financial supply chain, treasury, and managerial accounting functions.

Improving communications and connections with third parties is critical; so critical, in fact, that it has been identified as a leading priority for CEOs and CFOs and the top priority for treasurers. One of the ways that FIs can achieve this goal is through B2B integration services combined with secure information exchange.

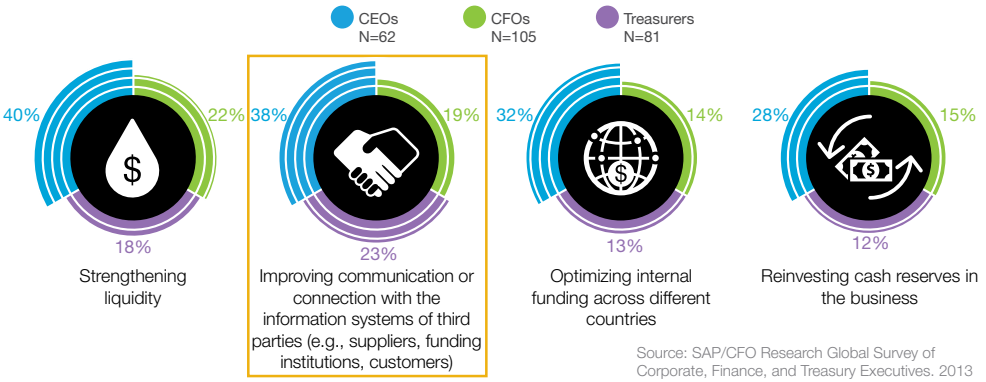
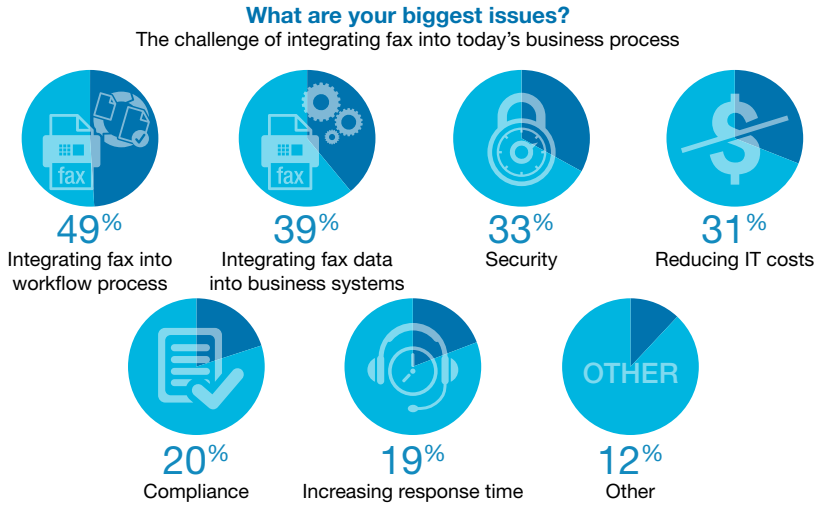


FIGURE 5.12: Improving Connectivity Is a Priority for CEOs, CFOs, and Treasurers

Secure Information Exchange—in the Cloud

Corporate treasury departments often juggle multiple priorities: maintaining liquidity, optimizing cash flow, securing finance, controlling risk, and managing bank relationships. To manage these priorities effectively requires access to complete, timely, and accurate financial data from financial partners. Payment instructions, lockbox reports, intraday transaction files, foreign exchange trades, and securities confirmations are all essential to monitor and manage an organization's financial health. Corporate treasury departments strive to automate and integrate the data they need regarding cash positions, interest rates, payables, receivables, and foreign exchange rates. Fortunately, there are many different options available to choose from in order to connect to financial counterparties, including online cash management portals, direct host-to-host connectivity via various security and communications protocols like EDI networks and fax, and the industry standard, SWIFT network connectivity.

Faxing, for example, is ubiquitous in financial services. Many organizations still use traditional fax machines, which means there are often hundreds of fax machines spread out across an enterprise. A reliance on traditional fax machines incurs high document distribution costs, can present compliance issues, and doesn't integrate easily with other applications, such as email, or processes. Faxes can be delivered to the wrong person or lost. There are the obvious associated costs with maintaining individual fax machines with paper, toner, and separate phone lines. Finally, standalone fax machines do not maintain an audit trail that tracks critical details or provide protection for sensitive data, both necessary in a highly regulated industry.



Source: OpenText Survey Report, December 2012, Spiceworks Voice-of-IT (www.spiceworks.com/voice-of-it).

FIGURE 5.13: Integrating Fax-based Information with Processes is a Challenge

From electronic faxes and cloud services to large managed file transfers—these services generate truly massive amounts of data and are often tied to other process or applications with very specific collection parameters. As the ways to connect increase, so do challenges for partners in the financial supply chain. The resources, technology, and time dedicated to each service can cost anywhere from $15,000 to $35,000 per channel. A lack of standards leads to inflexible file format options and an inability to integrate information with Enterprise Resource Planning (ERP) systems. Reconciliation challenges from disparate systems result in limited visibility into cash and payment status. Organizations experience performance and capacity constraints and the inability to switch or add banking partners easily. Finally, FTP solutions, faxes, and large email attachments do not provide the level of data security and compliance that FIs require.

Commercial banks, payment processers, treasury departments, and global custodians need flexible and agile B2B integration capabilities to ensure that information is securely and compliantly exchanged. Automated solutions for high-volume data transfer between banks and their corporate clients give FIs the flexibility they need to exchange information in preferred file formats, network protocols, and security standards.

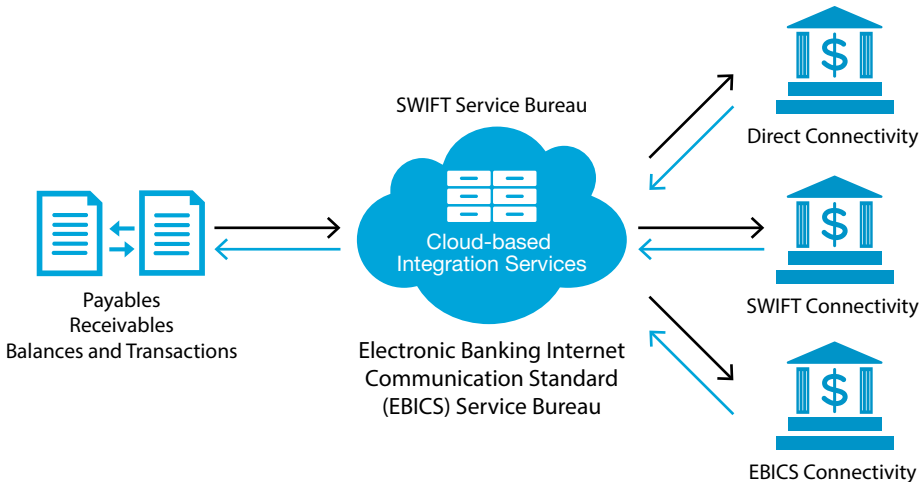


FIGURE 5.14: Eliminating Proprietary Connections with B2B, Cloud-based Integration

Often initiated by the implementation of shared service centers and rationalization of banking relationships, improved connectivity generates significant benefits. Information can be aggregated more quickly and frequently, giving organizations greater treasury visibility and control over their global liquidity. Cash flow can be optimized as cash conversion cycles, automated cash applications, and electronic invoices are streamlined.

Standardized processes simplify fee structures, eliminate redundant services, and reduce complexity. Improved cash flow and streamlined payments and collections helps to increase working capital efficiency. And finally, reduced manual reconciliation and data aggregation improves audit compliance.

With integrated information exchange solutions, FIs can exchange critical data or transactions electronically. Through secure fax, email, and managed file transfers, they can safely move information between organizations, regardless of which business system it resides in. Transactions can be completed in ways that are fast and secure. Data integrity and security are built in to protect against threats of internal information leaks and cyberattack. Information exchange empowers FIs to accelerate and control how information is delivered across the business network.

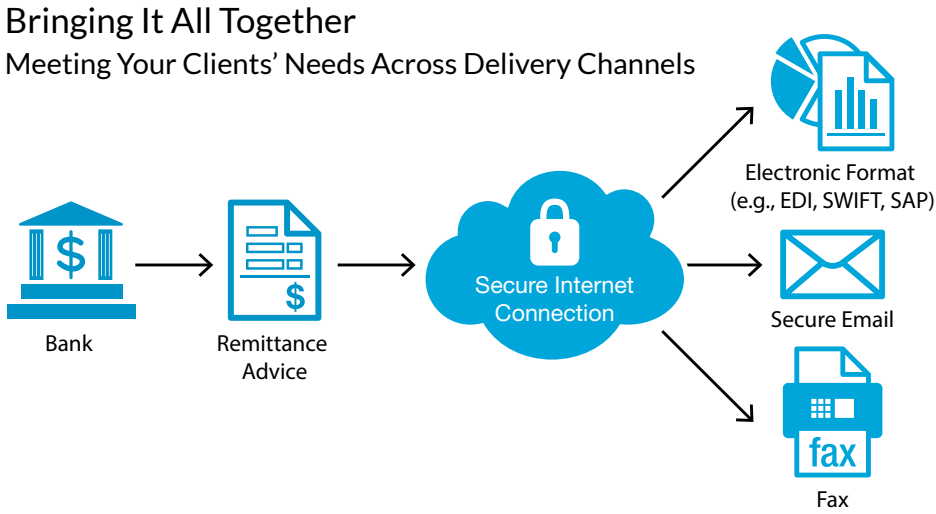
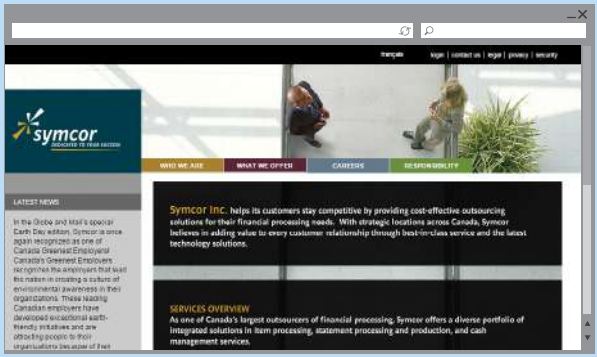


FIGURE 5.15: Secure Information Exchange

B2B integration connects FIs and their corporate clients, allowing them to exchange critical financial data in a secure, reliable, and cloud-based environment. Through integration with existing systems, organizations all along the financial supply chain can increase straight-through-processing and visibility into their financial transactions. Time-to-market is accelerated through the efficient onboarding of new suppliers in emerging markets and mapping of data such as purchase orders and commercial invoices. Business Intelligence (BI) integration gives FIs broader capabilities to meet client needs, lowers barriers to client connectivity, and speeds time-to-revenue, as illustrated in the following feature about Symcor.

Symcor



"With single fax solution, we're able to save over $6,000 per month in maintenance and support fees and over $77,000 annually in long-distance charges. With less technology to refresh, we anticipate an additional $230,000 in savings over five years."

TED NEAL, SENIOR MANAGER, WINDOWS SERVERS, SYMCOR

FIGURE 5.16: Symcor

Symcor is one of Canada's leading financial processing services providers, supporting major banks as well as retail and telecommunications companies. With over 3,000 employees in offices and operational facilities from coast to coast, Symcor delivers cost-effective outsourcing solutions for financial processing, including a diverse portfolio of integrated solutions in item processing, statement processing and production, and cash management services.

Despite dramatic shifts in communication technology, Symcor still relies on faxing for document delivery both internally and externally to organizations around the world. The reason is simple: as part of a comprehensive information exchange strategy, fax provides a secure and reliable way to exchange business critical information. Security, compliance, and cost control were top of mind when Symcor sought out the deployment of a network fax server solution. These goals continue to drive the evolution of Symcor's fax solution strategy, as it strives to reduce costs and boost security while centralizing and integrating its fax technology.

Symcor replaced multiple legacy fax technologies with a single enterprise solution that supports services across all lines of business, allowing the Company to increase efficiency and reduce expenses. Using existing telephone/data lines, Symcor has seen an immediate return on investment—giving customers a higher level of service with high availability and disaster recovery. The solution has saved the Company $8,000 per month in support and maintenance. Symcor has evolved the solution to support Fax over IP (FoIP) to tap into the enormous amounts of unused voice network bandwidth. The Company channeled the FoIP services over its voice network, with an estimated savings of over $100,000 annually. Symcor anticipates an additional $300,000 in savings every five years with less server technology to refresh. With the high-performing solution, Symcor delivers exceptional service and rarely has to open a service ticket, much to the delight of its clients.

Collaboration in the Cloud

In order to grow and diversify, FIs will need to embrace a new kind of collaboration—with fintech startups, tech companies, counterparties, suppliers, and other FIs—enabled by supply chain management. In the growing financial services ecosystem, fintech startups will need access to financial services systems that banks and other large, traditional FIs offer. This will become increasingly important as the smaller startups face increasing regulatory scrutiny. Banks and established FIs are experienced in dealing with intense regulatory pressures. They also house volumes of consumer data that many startups need access to.

On the flipside, startups have the focus and agility that permits them to move fast in bringing new products and services to market, unencumbered by dated legacy systems. They can leverage disruptive technologies for much faster time-to-market and revenues. And many are not limited by regulatory compliance when they use an established FI to manage transactions or commerce on the back end.

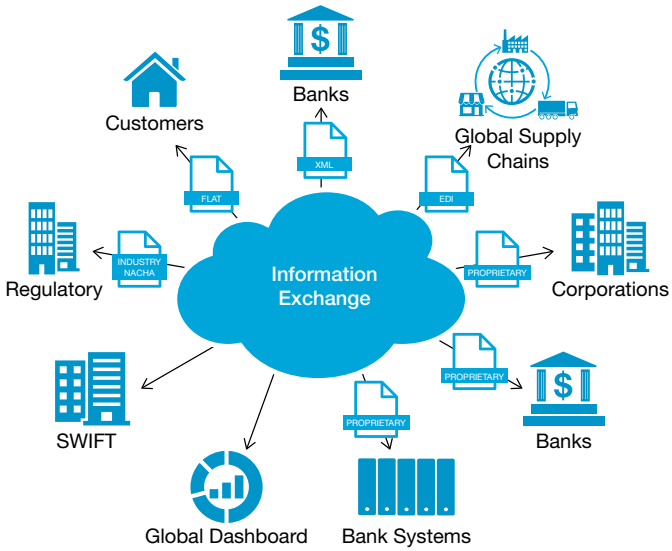


FIGURE 5.17: A Cloud-based Integration and Collaboration Platform

Established and emerging FIs are starting to collaborate in areas of mobile payments, small business lending and services, and B2B commerce. Startups have a broader mindset that can help FIs transform their operations and products and services to a wider consumer base. FIs can partner with startups to help provide the services, data, consumer base, and best practices that fintechs lack. Effective collaboration across the financial supply chain requires FIs and their clients to synchronize their master data, gain visibility into the operations of other partners, and coordinate their efforts to fulfill

transactions. While these activities have historically occurred via B2B integration on private EDI networks, many companies are now shifting their operations to the Cloud.

Cloud-based platforms for B2B integration are ideally suited to facilitate collaboration between multiple partners. With a cloud-based model, each partner can place relevant, internal data outside their firewall where it can be exposed for external parties to consume. Collaboration in the Cloud ensures all partners have access to a common source of master data. They can be confident that it's more accurate and secure.

Using strategic partners allows FIs to focus on the core competencies they provide for their clients, while leaving functions like onboarding, connectivity management, and data integration to a partner who specializes in these areas. For example, in a data-intensive industry such as securities, being an expert at managing client onboarding, daily exchanges of critical data files, and online communities are a requirement, but not a core competency. Outsourcing to the Cloud presents FIs with a transformational opportunity to widen the scope of business process re-engineering and technology initiatives. It helps overcome resourcing challenges.

Firms that are already outsourcing administrative processes are considering the same approach for extending this to include other non-core competencies such as client onboarding and connectivity, back-office and data integration, and post-trade transaction processing. Outsourcing these functions can drive efficiency and growth while meeting the needs of clients. With firms needing to invest in strategic capabilities and comply with regulations, outsourcing non-core functions can be a powerful tool in global expansion that speeds innovation and increases flexibility in developing business applications to meet client needs.

There are many benefits provided by partnering and deploying key functions to the Cloud, especially when firms have limited IT resources. Software-as-a-Service (SaaS) enables FIs to move from capital investment to an operational cost model, while the Cloud supports the development environment.[14] The result is lower total cost of ownership and investment in a more flexible platform moving forward. These are just some of the reasons why business is shifting decidedly to the Cloud. In a digital future, half of all large enterprises will adopt a hybrid cloud computing model with data stored partially on cloud servers and partially onsite. Supply chains will follow suit, increasing their reliance on a cloud computing platform for B2B integration and supply chain collaboration. Integrating both local and outsourced operations into a single, shared connectivity structure facilitates international expansion and cross-geography collaboration practices for consistency, compliance, and accuracy. In the following feature, KeyBank is using cloud-based managed services to digitalize commercial transactions and optimize transparency along its supply chain.

[14] Brian DeMaster, *"The Digital Insurer: Reducing Costs and Time-To-Market Through Life Platform Modernization,"* Accenture, 2013.

KeyBank

Headquartered in Cleveland, Ohio, KeyBank* is one of the nation's largest bank-based financial services companies, with assets of approximately $95 billion. Key companies provide investment management, retail and commercial banking, consumer finance, and investment banking products and services to individuals and companies throughout the U.S. and, for certain businesses, internationally. With nearly 14,000 employees, KeyBank provides banking services and products to two million retail, small business, corporate and investment clients.

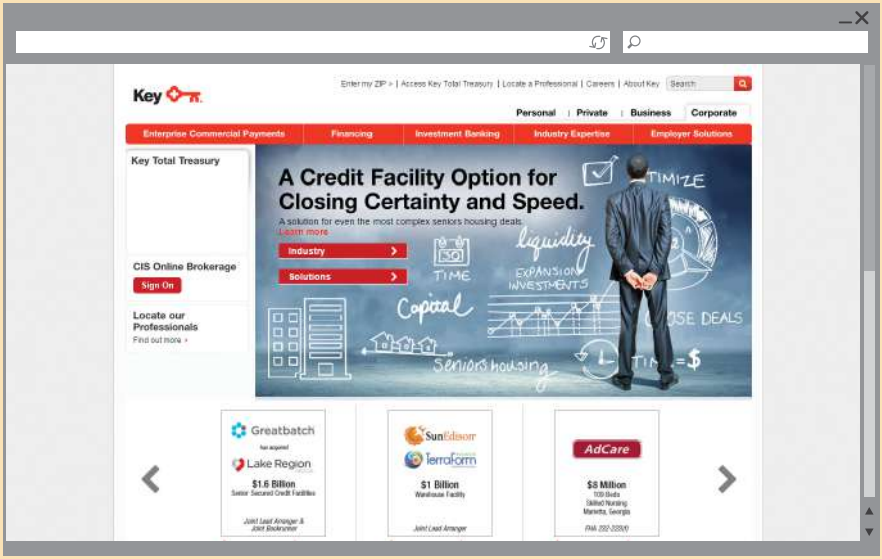


FIGURE 5.18: KeyBank

John Sciano, VP and Sr. Channels Product Manager on KeyBank's Enterprise Commercial Payments team, is responsible for managing and developing online delivery channel products for KeyBank's treasury management clients. In the following excerpts from an interview, Mr. Sciano describes how digital technologies are helping KeyBank to deliver new and competitive products and services to clients and create a workplace that appeals to Millennials.

* The information and recommendations contained herein is compiled from sources deemed reliable but is not represented to be accurate or complete. In providing this information, neither KeyBank nor its affiliates are acting as your agent or is offering any tax, accounting, or legal advice.
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"Like most banks, we have cash management products and services that have been in the market for years. Services like lockboxes, control disbursement accounts, and account reconciliation are fairly developed, and most competitors offer these products and services. But, we've entered the digital age, and our clients want to be able to access our products and services using digital channels. So, over the past few years, we've undertaken some innovative and transformative projects to deliver the treasury management products and services our clients want.

Disruptive digital technologies like the Cloud and mobile devices have all played a significant role in our transformative journey, allowing us to deliver many of our products via web and mobile channels.

Every day, KeyBank supports hundreds of incoming and outgoing file exchanges for our corporate clients. About 75 percent of our file transfers are processed through the Trading Grid in the Cloud. Before we implemented B2B integration technologies (like Managed Services and the Trading Grid), clients were limited in terms of what file formats they could send or receive using our file transfer services. We didn't have a way to handle unsupported files, which meant the client had to spend time and resources figuring out how to format the files themselves, involving their IT staff, or hiring a consultant.

By partnering with a third-party, we're able to offer a synchronized, streamlined, and standardized Managed File Transfer (MFT) service. One of the biggest benefits we've realized by partnering is that we now have the flexibility to handle additional client file formats and transmission protocols that were previously not supported. This is really beneficial for clients that don't use standard file transfer formats or want to use a more complex transmission protocol. Partnering has allowed us to go a step above and deliver a service that is convenient and secure.

Security is a daily battle for everyone, especially when it comes to safe use of online channels. We continually offer training and education to help clients minimize their risk and keep their businesses protected. We also help our clients by providing multi-factor authentication for higher risk modules such as ACH and wire transfers—and now our new File Transfer module. This extra layer of security helps us protect our clients as they transact with KeyBank.

Treasury professionals want to be able to do things better, faster, and cheaper. Our dedicated payments advisors have expertise across a broad range of industries, which ensures that they understand our clients' specific needs. We're constantly looking at our data to identify and uncover trends about what our clients are doing so we can help them work more efficiently. Our goal is to help our clients run their businesses better every day.

Mobility is critical to our clients. We've developed digital channels that have a mobile component to them. Clients can easily retrieve basic information such as account balances or recent transactions. They can also approve wires and ACH payments. We know clients are increasingly using their mobile devices to conduct business. So, we incorporate this need into our product planning process. We have a number of mobile solutions in the queue that will allow our clients to get updates, alerts, provide authorizations, etc.

Millennials are driving a lot of this change. We're seeing many new, young faces in the workplace. KeyBank's workforce is very diverse, and we pride ourselves on that. We're finding that Millennials have a different approach to work. They want to be able to work from home, or remotely. We're accommodating these different work styles by providing mobile work stations. So, if an employee works from home full time, but has to come in for a meeting, we have cubicles set up specifically for them. We're retrofitting many of our facilities to include

these mobile work stations because we know the flexibility to work remotely or from home is near and dear to Millennials.

Technology is disrupting how we do business. We continue to bring new and exciting treasury management solutions to the table for our clients. We are acutely aware of what's going on in the industry. Simply talking to our clients is one of the best ways we find out about their day-to-day challenges. Clients really appreciate when we take a consultative approach and ask them what they think, or what they need—especially on a one-on-one basis. Our sales force maintains an interactive dialogue with our clients, and we get some really great ideas from them. Ideas that form the foundation for change.

Communication plays an important role in managing change. For example, when we converted from the previous MFT service to the new one, we reached out to every single client to provide new credentials, URLs, parameters, etc. We did the same thing when we transferred our clients over from our prior file transfer module to the new one. That was a big undertaking. So, we did it in phases. We sent letters and emails, and provided training for them. Then, over the course of a weekend, we flipped the switch and went live with the new module. It was a lot of work—a lot of communicating with clients—but it was extremely successful. Because the new module was intuitive, the transition was virtually seamless and we had very few questions. Even though it had a new look and feel, it was familiar to clients. So, they were very comfortable with it and receptive to it. We couldn't have done that without a partner. Partnering allowed us to get the solution to market faster, and for a much lower cost. Communicating to clients ensured the successful adoption of the solution."

A Rich Network of Value

Recent innovations in supply chain management have expanded B2B integration networks with value chain support services in a managed service business environment. Many organizations are opting for an outsourced, SaaS, or Platform-as-a-Service (PaaS) approach for their B2B integration activities to reduce the complexities of connecting with partners, support multiple information exchange protocols, and deal with messaging and security standards.

As organizations depend on third parties to oversee all their day-to-day transactions, the B2B integration network is being layered with more value. Solutions for BPM, Enterprise Information Management (EIM), and big data analytics add value to networks. As information from faxes, email, SMS, and EDI transactions flows across the network, B2B integration helps to broaden the B2B network that connects transactions, process collaboration, payments, information, and business intelligence.[15]

Incredible value can be derived by collecting, managing, and analyzing information from various business applications across the network. As a platform for the digital enterprise, EIM can provide new intelligence for a multitude of purposes beyond optimizing the supply chain. Integrating the following technologies controls the flow of information across the enterprise with partners, suppliers, and customers each adding a layer of value to the ecosystem:

1. **EIM** - Both unstructured and structured information flows across the extended enterprise. EIM consolidates all information for a single version of the truth, uniting front- and back-office ERP systems to manage information transparently and securely throughout its lifecycle.
2. **B2B Integration** - Companies need to connect to a variety of external partners using many different communication protocols and document standards. B2B integration and information exchange capabilities can be applied to manage and secure data exchanged between trading partners.
3. **Internet of Things (IoT) Networks** - As devices, machines, and sensors connect to the Internet, they will need to exchange big data and information with organizations across business networks and supply chains.
4. **Internal Systems** - In order to integrate information from IoT devices into back-end enterprise systems, information will need to be exchanged through dedicated Application Programming Interfaces (APIs). Many APIs are currently in development, and in the near future, they will be available for integration with B2B, ERP, and other systems.

[15] Bob Ferrari, *"GXS-The Hidden Gem in B2B Information Services and Application Support,"* The Ferrari Consulting and Research Group LLC and the Supply Chain Matters Blog, June 14, 2012, *http://www.theferrarigroup.com/supply-chain-matters/2012/06/14/gxs-the-hidden-gem-in-b2b-information-services-and-application-support/* (accessed July 2012).

The combined end result is a comprehensive and automated platform for the management and exchange of financial supply chain information. The platform enables partners in a business network to produce, access, and consume information with a secure and managed approach. With EIM and B2B Integration, the financial supply chain is empowered to connect, collaborate, and re-invent itself to lead in 2020.

The Digital Supply Chain: A Strategic Imperative

In the digital world, all organizations will depend on supply chain operations to deliver superior customer experience. While the digital age provides exciting ways of engaging customers and opportunities for revenue growth, it also requires FIs to radically change or, in many cases, completely overhaul their supply chain processes. Their operations need to scale, shift, and contract depending on business and market requirements. New channels need to be leveraged and new markets serviced.

Increased flexibility and agility is the key to success, and FIs are achieving this by digitalizing core business processes and adopting emerging technologies for increased flexibility, cost savings, and improved performance. Today's leading financial organizations are assembling service processes rapidly with SPAs, automating service processes with DCM, and delivering 24/7 engagement with self-service capabilities. B2B integration is providing sophisticated synchronization of data and transactions for the automated exchange of transactions, commerce, and information. Analytics are delivering incredible insights for supply chain optimization. The IoT is enhancing the richness of information by creating value chains that are intelligent and instrumented. Managing all of this information across a collaborative platform is the key to supply chain optimization and B2B integration in efficient, secure, and compliant ways.

To meet the challenges inherent in the financial supply chain, FIs will depend on digital technology for increased global collaboration, seamless communication, real-time insights, and action. With globalization and expansion comes new requirements to comply. The challenges of information risk, governance, and compliance in the financial services industry are examined in the next chapter.

CHAPTER 6

DIGITAL GOVERNANCE AND COMPLIANCE

CHAPTER 6

Digital Governance and Compliance

"By as early as 2016, 20 percent of CIOs in regulated industries will lose their jobs for failing to implement the discipline of information governance successfully."[1]

Today's Financial Institutions (FIs) are operating in a new environment. Since the financial crisis of 2008, banks and investment firms have watched as the regulatory reform process moves from policy to implementation. Global regulatory reforms have banks, brokers, and investment managers struggling to comply with a myriad of financial regulatory challenges and market developments. These challenges are further complicated by increasing transaction volumes, mergers and acquisitions, emerging payment markets, fintech products and services, the constant pressure to strengthen balance sheets, and mandatory reporting requirements.

As FIs adjust to the new regulatory landscape, they are taking proactive steps to re-evaluate the implications of reforms and thinking more broadly about how this impacts their business. In an industry where the financial, legal, and reputational consequences of non-compliance can be substantial, FIs do not have the luxury to test the effectiveness of existing information Governance, Risk Management, and Compliance (GRC) programs. New demands to stay compliant and competitive will require enhanced business models for better information management and connectivity.

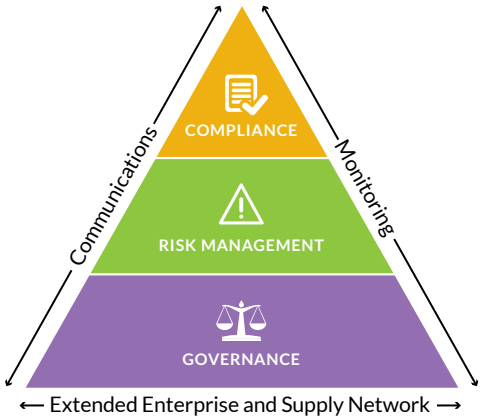


FIGURE 6.1: EIM - An Effective Platform for GRC[2]

[1] Bill O'Kane and Andrew White, et al., *"Predicts 2012: Information Governance and MDM Programs Gain Traction,"* Gartner Inc., *http://www.gartner.com/id=1856616* (accessed July 2013).

[2] Amelia Ho, *"Compliance Management: A Holistic Approach,"* ISACA Journal, 2009, *http://www.isaca.org/Journal/archives/2009/Volume-5/Documents/jpdf0905-complinace-mgt.pdf* (accessed June 2015).

Strategies for managing GRC will help FIs maximize the value of their information while minimizing risk. For many firms, finding this balance will be critical for survival. This chapter explores the current regulatory landscape in the industry, requirements for effective information governance and risk management, and how Enterprise Information Management (EIM) provides a sustainable platform for GRC, enabling FIs to put policies and controls in place to address compliance issues while making critical information available to improve performance and deliver competitive advantage.

A Complex Governance Landscape

In the wake of the 2008 financial crisis, regulatory agencies, investors, legislators, and the general public are more focused on FI practices and compliance performance than ever before.

The financial services industry faces unprecedented regulatory challenges in the coming years. Many FIs are struggling to improve their ability to respond to regulatory compliance as they seek to recover income lost from traditional revenue streams. While they strive to meet the demand for customer-centric services, FIs must respond to regulatory scrutiny, provide accurate reporting on risk exposure, and standardize and digitalize compliance processes.

In today's global marketplace, the regulatory landscape for FIs is complex, especially for the larger, global firms. FIs are subject to industry-specific regulations and standards as well as regional or national regulations. According to these regulations, FIs are held accountable for their actions and must be able to access years of historical data in response to requests for information at any given time.

In the U.S., the Dodd-Frank Wall Street Reform and Consumer Protection Act, more commonly referred to as the Dodd-Frank Act, has brought the most significant changes to financial regulation in U.S. history since the Great Depression. Its passing has impacted both the financial regulatory environment and every aspect of the country's financial services industry. It requires FIs to maintain records for at least five years. Like Dodd-Frank, Basel guidelines (banking laws and regulations issued by the Basel Committee on Banking Supervision) mandate the retention of transaction data for three to five years. Sarbanes-Oxley requires firms to maintain audit work papers and required information for at least seven years. The U.S. Congress enacted the Fair and Accurate Credit Transactions Act (FACTA) to make it more difficult for U.S. persons to hold financial assets outside the U.S., and all complying firms must be able to search their records and report assets and identities to the U.S. Treasury. To comply with these regulations, corporate records must be properly maintained and available on demand.

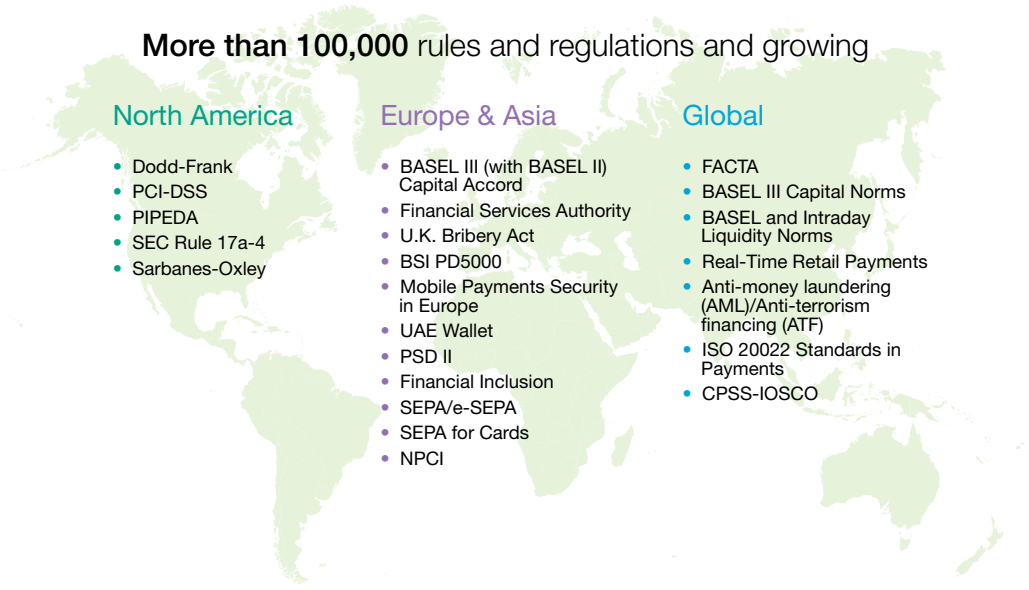


FIGURE 6.2: Global and Regional Regulatory Pressures[3]

Canadian banks and investment services are facing more stringent regulations that came into effect after the 2008 financial crisis. One example is Basel III, introduced as a global standard to introduce more requirements on bank liquidity and leverage. While these regulations were intended to counter the failures of U.S. and European banks, they are impacting Canadian FIs that conduct business all over the world.

Globally, Australia, Brazil, Canada, China, Hong Kong, India, Japan, Mexico, Saudi Arabia, Singapore, South Africa, and Switzerland have adopted Basel III capital norms. In many countries, FIs are regulated for anti-money laundering and fraud by both national and international directives. European FIs must comply with regulations according to Markets in Financial Instruments Directive (MIFID), Single Euro Payments Area (SEPA), ISAE3402 and industry standards like PCI-DSS, local regulations like the Data Protection Act, and regulations from the Financial Services Authority (FSA) around maintaining records for a specific amount of time. In a global economy, there are further provisions of data protection for transferring information outside of the European Union (EU), within the EU, and from the EU to other countries.

The financial industry's multi-faceted regulatory environment is even more complicated when regulations are overlaid with compliance frameworks, like the COBIT IT management and governance framework, and standards, such as National Institute of

[3] *"Key Regulatory and Industry Initiatives,"* Capgemini, *https://www.worldpaymentsreport.com/kriis#Heat-Map-of-KRIIs-Global-and-Regional* (accessed June 2015).

Standards and Technology (NIST). Alongside pressure from governments, consumers, and regulatory bodies, these frameworks and standards have generated an increasing demand for integrated information governance, compliance, and information risk management technology solutions.

At the same time, digital technologies are introducing concerns about fraud, ethical behavior, and data security. With the proliferation of big data, social media, cloud computing, and Bring-Your-Own-Device (BYOD) policies around mobile device usage, governance has become a major concern for FIs. As smartphones and tablets become ubiquitous, many organizations have lagged in implementing security safeguards to counter mobile threats.

> A compliance failure can result in litigation, financial penalties, regulatory constraints, and reputational damage. An effective GRC program accomplishes many critical goals, helping to protect consumers and investors and ensure that the markets are fair, efficient, and transparent. When implemented successfully, GRC reduces risk and crime, and helps to maintain consumer confidence in the financial system.

Many FIs have minimal control over their operational systems and business processes that capture data required for compliance and litigation purposes. Governance is a major challenge, given the complexity of information systems. Processes and controls can be put into place to give visibility into how information flows throughout an organization. An integrated approach to managing information provides effective solutions for GRC.

In the digital world, IT budgets will have to significantly increase to meet the current and future governance and compliance requirements. The majority of FIs (61 percent) expect to increase their IT investment by 25 percent over the next few years to comply with regulations.[4] But digital governance goes beyond controlling regulatory information, and when implemented correctly, it uncovers the value of information in its many formats for improved operational performance.

Good Governance Is Good Business

Information governance is the practice of implementing policies, processes, and controls to manage information in support of regulatory, legal, risk, environmental, and operational requirements. As volumes of enterprise information increase, so too does the need for digital governance to ensure that this information is managed, secured, and searchable. From a technology perspective, governance relies on integrated electronic

[4] John Ginovsky, *"Compliance needs tech booster,"* ABA Banking Journal, July 21, 2014, *http://www.ababj.com/blogs-3/making-sense-of-it-all/item/4774-compliance-needs-tech-booster* (accessed July 2014).

records management, archiving, e-Discovery, and storage optimization.[5] These technologies are applied to manage information throughout its lifecycle, from creation or capture and classification to long-term archival or deletion.

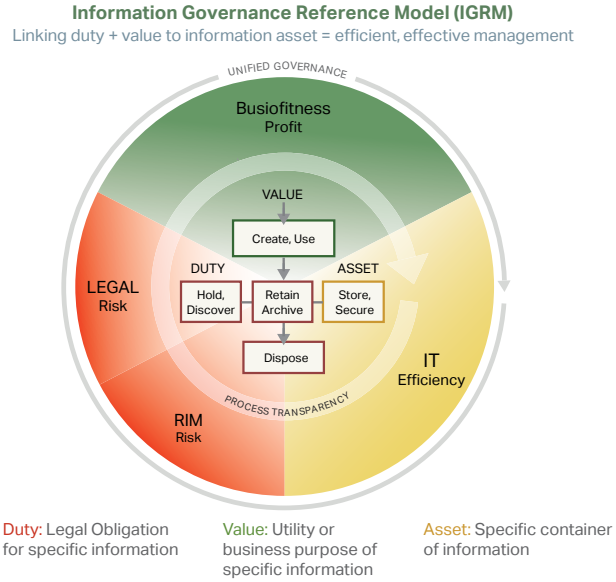


FIGURE 6.3: Information Governance Reference Model[6]

Successful information governance programs demand that companies balance the needs and priorities to mitigate legal and business risks with the costs required to manage both unstructured and structured information. For a formal digital governance strategy to be effective, key resources and stakeholders need to be identified, empowered, and supported; policies must be incorporated into relevant processes; education and training should be provided to all employees; technology infrastructure optimized; and the appropriate solutions implemented to support secure and reliable operations.

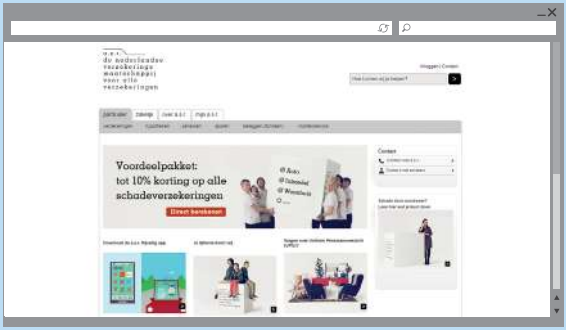
> Information governance is more than just "records management": it is a means to manage risk, ensure compliance, and achieve operational excellence and competitive advantage from enterprise information.

In the following feature, ASR Nederland is demonstrating how good governance is good for their business, enabling them to comply with regulations and providing strategic advantage through improved customer service.

[5] Alys Woodward and Carla Arend, *"OpenText in Europe: Information Governance and Cultural Transformation,"* IDC, April 22, 2014.

[6] EDRM: *http://www.edrm.net/projects/igrm* (accessed July 2014).

ASR Nederland



Using a combination of business process modeling and operational improvement solutions, ASR has been able to streamline and modernize existing processes while responding to legislative change.

FIGURE 6.4: ASR Nederland

ASR Nederland is the third-largest insurance company in the Netherlands. It offers insurance products, such as pensions, life insurance, non-life insurance, occupational disability, and health insurance contracts to Dutch retail and corporate clients.

One of ASR's core business processes is disability income insurance. Previously, this claims process was paper driven. Both medical and technical information were kept in one folder and accessible to unqualified personnel, consequently leading to a non-conformance of the Dutch privacy law. In addition, ASR required a significant amount of storage space to store the continuously growing folders. ASR recognized the need for a solution that would improve business processes, enable collaboration between departments, reduce costs across the organization, and permit only authorized access to information to comply with regulations.

Using a combination of business process modeling and operational improvement solutions, ASR has been able to modernize existing processes while responding to legislative change. For example, medical and technical information related to disability claims are now separated and only accessible to qualified personnel—helping ASR comply with privacy legislation. As well, the entire claims management process can be measured to give management visibility into processes. The flexible environment supports a new way to benchmark so that business activities can be monitored across numerous divisions. The solution gives ASR an enterprise-wide standard claims processing system that has dramatically improved internal efficiencies and increased productivity. Employees now process 80 percent of claims on time, which has led to a 25 percent reduction to the claims processing team, and services costs and indemnity have been significantly reduced—all of which enable ASR to deliver new products faster, comply with regulations, and provide better customer service.

Compliance as a Driver for Digital Governance

As illustrated in the above feature, firms are placing greater importance on information governance. In a recent survey, executives in financial services identified information governance as very important to their business.[7] The more data an organization stores and manages, the greater the risks for security breaches and non-compliance.

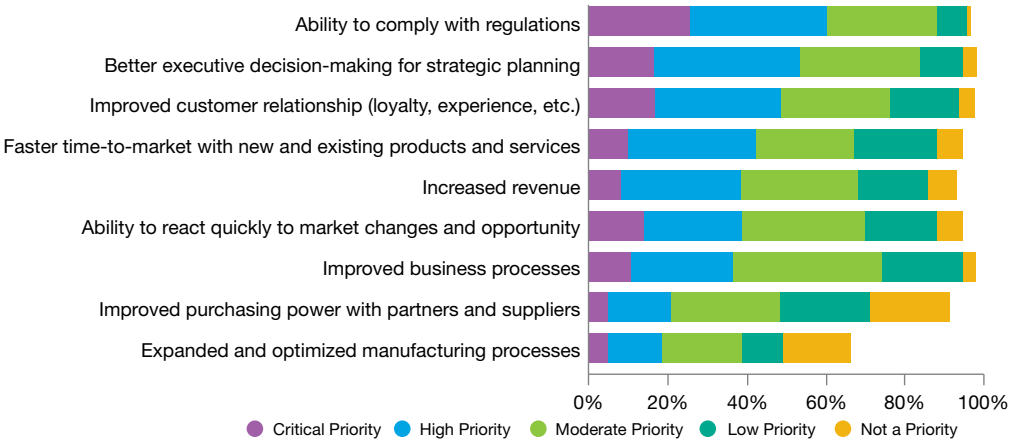


FIGURE 6.5: Compliance is Key Driver for Information Governance[8]

Despite the growing awareness of the importance of governance, organizations are often caught unaware in cases of litigation or non-compliance. As we have witnessed over the past two decades, it is often a compelling event that impacts the business, and this drives stakeholders to take action. When they find themselves faced with a major lawsuit or the e-Discovery process, organizations often struggle to identify critical information within their systems. Sorting through volumes of information for relevant records can lead to excessive spending on legal reviews and, in many cases, fines related to the inability to defensibly demonstrate that information has been produced in a timely manner. The same can be true of an investigation related to a regulatory audit. When a firm has faced one of these situations, the cost and business disruptions are often the drivers of governance initiatives.

[7] David Horrigan and Alan Pelz-Sharpe, *"451 Data: Information governance falls flat despite the hype,"* 451 Research, February 20, 2014.

[8] Michele Goetz and Henry Peyret, et al., *"Data Governance Equals Business Opportunity. No, Really,"* Forrester Research, *http://www.forrester.com/Data+Governance+Equals+Business+Opportunity+No+Really/fulltext/-/E-RES83342* (accessed June 2015).

As illustrated in Figure 6.5, regulatory compliance is the most significant driver of an information governance program. Up to 70 percent of data management professionals consider compliance a critical or high priority.[9] Over and above regulatory compliance, firms that adopt information governance experience additional benefits, including business continuity, savings on storage and infrastructure, unimpeded knowledge sharing, stronger security and privacy, and the ability to respond quickly and proactively to investigations of all types.[10]

The Benefits Outweigh the Costs

> "I didn't know…" – **KEN LAY, FORMER CEO, ENRON**

With enforcement, fines, and business reputation at stake, the cost of non-compliance outweighs the cost of investing in digital governance. A global study of multinational organizations revealed that the cost of compliance was more than $3.5 million U.S., significantly less than the $9.4 million in costs for failing to comply with regulations.[11]

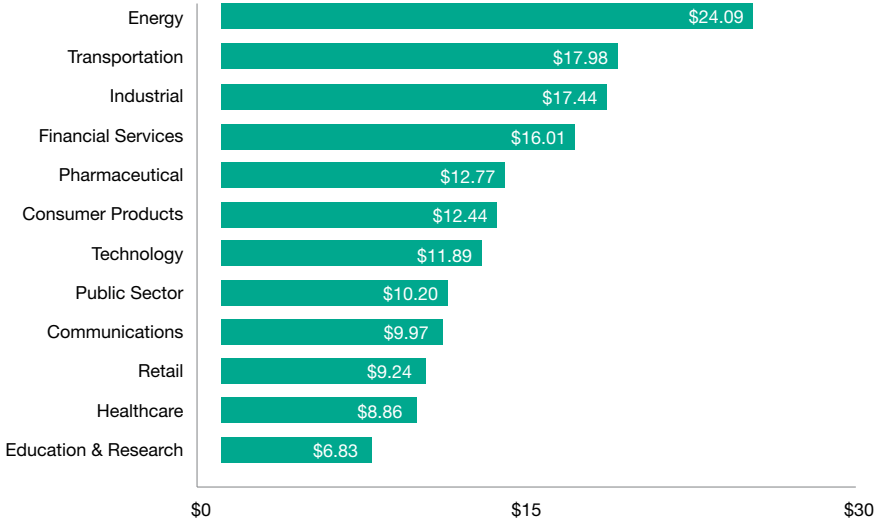


FIGURE 6.6: Compliance Costs by Industry (in Millions of USD)[12]

[9] Michele Goetz and Henry Peyret, et al., *"Data Governance Equals Business Opportunity. No, Really,"* Forrester Research, *http://www.forrester.com/Data+Governance+Equals+Business+Opportunity+No+Really/fulltext/-/E-RES83342* (accessed June 2015).

[10] Ibid.

[11] *"The True Cost of Compliance,"* Ponemon Institute, January 2011, *http://www.tripwire.com/tripwire/assets/File/ponemon/True_Cost_of_Compliance_Report.pdf* (accessed June 2015).

[12] Ibid.

Non-compliance costs are the costs that result when an organization fails to comply with legal obligations. On average, companies budget approximately $1.5 million U.S. per year to comply with laws and regulations.[13] Compliance costs are based on activities that organizations use to meet specific rules, regulations, policies, and contracts that are intended to protect information assets.

There are greater benefits associated with compliance beyond mitigating risk and avoiding penalties. In theory, if an organization is complying with regulations, it should also be achieving higher levels of efficiency and performance through effective information governance. Regulations are based on demands that describe optimal business operations. By practicing active compliance, FIs are ensuring that their businesses adhere to industry-established best practices and procedures. Compliance gives organizations the mandate to take measures that can uncover value—proactive measures like best practices, employee training, internal controls, and benchmarking.

Information governance plays a key role in empowering FIs to comply in a cost-effective and efficient manner. It ensures smooth operations, proper delegation of authority, and the management of risk. Governance helps to overcome the inertia of "silos"—organizational, functional, and process silos—and reduces the challenge of tracking, monitoring, and reporting on regulations. To minimize error and control costs, firms need to have a framework in place to help manage these processes and controls and inform all employees about the necessity of implementing governance while meeting reporting and auditing demands.

Data Security

There is a correlation between investing in compliance and enforcing information security. As digital technologies have evolved, so too have information security threats. Attacks today are multi-stage, hard to discover, highly targeted, and on the rise.

The *Global State of Information Security® Survey 2015* found that security breaches have increased year-over-year. The total number of security incidents detected climbed to 42.8 billion in 2014, an increase of 48 percent from 2013. That's the equivalent of 117,339 incoming attacks per day, every day.[14] The annual cost of cybercrime to the global economy ranges from $375 billion to $575 billion.[15] As we see in the following figure, the costs of data breaches vary by sector, with heavily regulated industries such as financial services having the highest per capita data breach cost ($145).[16]

[13] *"The True Cost of Compliance,"* Ponemon Institute, January 2011, *http://www.tripwire.com/tripwire/assets/File/ponemon/True_Cost_of_Compliance_Report.pdf* (accessed June 2015).

[14] *"Managing Cyber Risks in an Interconnected World: Key Findings from The Global State of Information Security® Survey 2015,"* PriceWaterhouseCoopers, September 30, 2014.

[15] Ibid.

[16] Pierluigi Paganini, *"Reading 2014 Ponemon Cost of Data Breach Study, Security Affairs,"* March 8, 2014, *http://securityaffairs.co/wordpress/24717/security/ponemon-data-breach-study.html* (accessed June 2015).

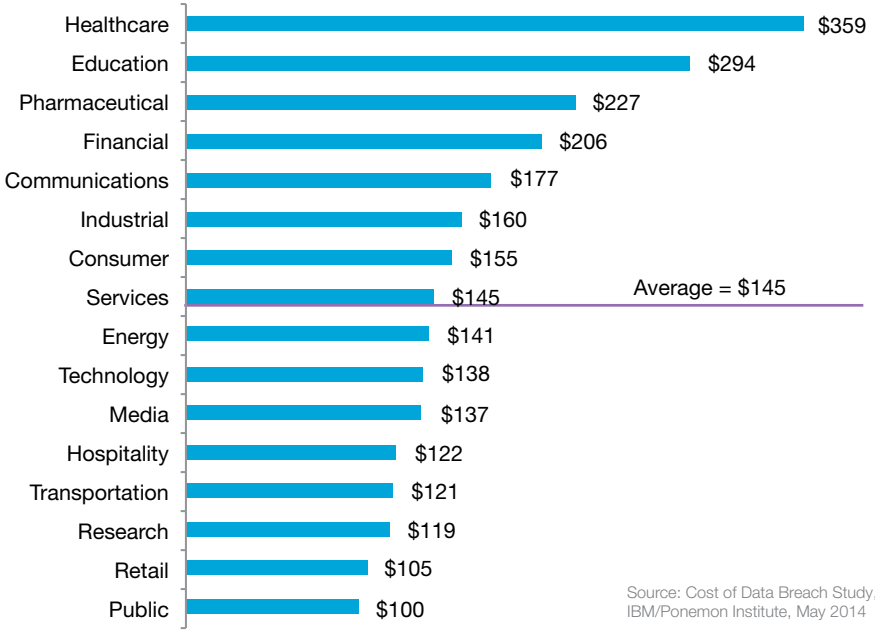


FIGURE 6.7: Per Capita Cost by Industry of Data Breaches[17]

Over the past year, every industry sector across the globe experienced a cybersecurity breach. Financial services is no exception. In the U.K., payroll information and bank account numbers belonging to 100,000 people were stolen by an insider and published online. In South Korea, 105 million payment card accounts were exposed in a security breach. In the U.S., JPMorgan Chase disclosed that the names, addresses, phone numbers, and email addresses of 83 million account holders had been exposed in one of the biggest data security breaches in history.[18] In the Middle East cyber thieves stole over $45 million from the worldwide ATM accounts of two banks.[19] In one of largest bank thefts ever, cyber criminals targeted more than 100 banks and other FIs across 30 nations.[20] Examples of data breaches are global and plentiful.

[17] Pierluigi Paganini, *"Reading 2014 Ponemon Cost of Data Breach Study, Security Affairs,"* March 8, 2014, *http://securityaffairs.co/wordpress/24717/security/ponemon-data-breach-study.html* (accessed June 2015).

[18] John Leyden, *"JPMorgan Chase mega-hack was a simple two-factor auth fail,"* The Register, December 23, 2014, *http://www.theregister.co.uk/2014/12/23/jpmorgan_breach_probe_latest/* (accessed June 2015).

[19] *"Managing Cyber Risks in an Interconnected World: Key Findings from The Global State of Information Security® Survey 2015,"* PriceWaterhouseCoopers, September 30, 2014.

[20] David E. Sanger and Nicole Perlroth, *"Bank Hackers Steal Millions via Malware,"* The New York Times, February 14, 2015, *http://www.nytimes.com/2015/02/15/world/bank-hackers-steal-millions-via-malware.html?_r=0* (accessed June 2015).

When there is a security breach at a financial institution, it typically makes headlines and garners both public and legislative scrutiny. Financial impact may include decreased revenues, disruption of business systems, regulatory penalties, and erosion of customers. Non-financial impact may include reputational damage, the pirating of products, diversion of research and development information, impacts to innovation, and loss of sensitive information such as mergers and acquisitions plans and corporate strategies.

Banking and financial institutions are the biggest targets of information security breaches and cybercrime because they maintain personal data across many business applications, this includes online transactions and electronic communications that contain confidential and personal information. Their infrastructures are weak, often consisting of combined legacy systems with new technologies that run across a highly distributed (and in some cases, global) network of branches, call centers, and websites. Their security solutions are complex and vulnerable.

From organized crime syndicates to hacktivists, vulnerabilities permeate all levels of IT systems. While many firms have good external defenses in place, the real threat of a security breach comes from unauthorized internal access to sensitive data. Current and former employees have become the most-cited perpetrators of cybercrime. The rise of the mobile workforce has contributed to this, increasing risk through the lack of clearly defined or implemented BYOD policies to lost or stolen devices and the accidental sharing of confidential information across devices. Due to increasing amounts of information shared between firms and their partners, a growing area of concern for data breaches includes third parties and the lack of policies that protect the data exchanged in these relationships.

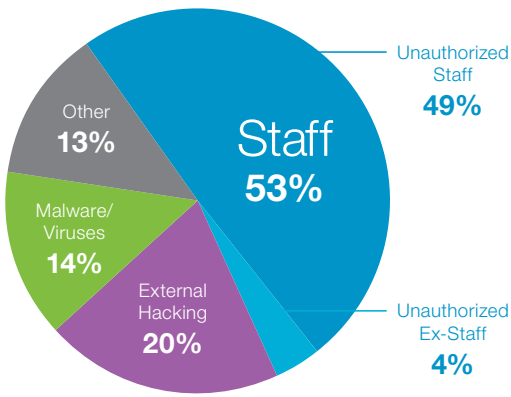


FIGURE 6.8: The Most Likely Source of a Security Breach[21]

[21] Mark Barrenechea and Tom Jenkins, *"e-Government or Out of Government,"* OpenText, 2014.

Regulators are starting to address cyber risks. When information needs to be retained for litigation or compliance purposes, the information must remain intact, defensible, and discoverable. Without the requisite controls and discovery mechanisms, information can become a threat to the firm. It could be the defense of a lawsuit or an audit—in either case, compromising the information represents both a financial and a competitive risk to the firm.

Removing Risk via Information Management

Information governance, compliance, and information risk management are closely related. In fact, organizations that implement information risk management can reduce the cost of compliance programs by as much as 50 percent in the first year.[22] This is because with a controls framework in place, it's often easier for firms to comply. Today's global financial ecosystem requires a stronger focus on a risk-based approach that prioritizes information as an organization's valued asset with considerable perceived threat. NIST recommends that organizations identify and classify their most valuable information assets and monitor their data across their business network. A strong GRC framework helps to combine technologies, processes, and people to mitigate risk.

FIGURE 6.9: Policies and Controls Mitigate Risk

[22] Debra Logan, John Bace, and Lane Leskela, *"Use a Process Framework for Compliance and Think Long Term,"* Gartner, May 2004.

Despite best efforts, no real risk can be mitigated to a zero percent likelihood of occurring, and some risks are 100 percent likely to happen. So how can FIs determine which risks to mitigate and which consequences to prepare for? An effective tactic is defensible deletion, which involves consistently governing, classifying, and managing information. Keeping all data leads to high storage and infrastructure costs, as well as increases in the costs of litigation when content must be searched, examined, and reviewed from all of its sources. With the high volume of content in the financial industry, this approach is less tenable.

Not all information is created equally, and not all information exposes an organization to the same risk. Identifying information that is critical to continued business operations allows FIs to craft policies that result in expending resources where it provides the biggest benefit. Identifying information that, if lost or disclosed, would cause nothing more than a minor nuisance prevents organizations from expending resources where there is little appreciable gain.

The protection of information should be holistic, covering all bases to avoid information risks that might violate legislation, cause non-compliance, or adversely impact the organization's ability to perform.

The Need for Holistic Information Management

Financial services is a data rich industry. In the wake of new legislation and standards, most notably the Dodd-Frank Act, finding effective and efficient compliance solutions is complex. Demonstrating that privacy of information laws are followed and providing transparent reporting are just starting points. Answering to regulatory audits and requests for information in a hyper-timely manner is an emerging requirement. Perhaps most importantly, though, progressive firms are channeling resources to make sure that information and process management systems are flexible and agile enough to respond to an ever-changing regulatory landscape.

In the middle of the present regulatory overhaul, FIs will continue to face capability challenges relating to connectivity, compliance, and the expansion of existing infrastructures. Areas such as information management, new business models, reporting, and analytic functions have all become significant pain points that need to be addressed.

Data Management Challenges

Among the top challenges for FIs in complying with the new regulatory framework is the need for better data management. The amount of data they must integrate and consolidate, the demand on data availability, and the need to ensure consistency are problematic as mergers and acquisitions become more prevalent. For this reason, the

amount of manual processing, siloed data, inefficiencies, and lack of standardization have created substantial obstacles to compliance and performance.

A unified repository helps FIs overcome silos to consolidate and aggregate data. Analytics can then be applied to provide a multi-dimensional view of transactional data at all levels. Without this transparency, it becomes difficult to re-use data and documentation across various business units when following standardized processes to comply with regulations. Sharing data between different departments necessitates adopting an enterprise-wide infrastructure that permits systematic information exchange across automated processes.

The Impact on Business Models

Forward-looking FIs are reevaluating their current business models to effectively integrate and govern regulatory compliance on an enterprise-wide scale. Moving well beyond basic compliance, successful business models will integrate stress testing, capital management, collateral management, strategic planning, and information risk management. Additionally, business requirements need to have the flexibility to adapt to and accommodate new rules to govern risk and eliminate redundancies across information initiatives.

As they restructure their operating models, proactive firms will find their efforts resulting in a broader long-term strategy that improves industry practices. This strategy ensures that, as regulatory requirements continue to evolve, systems become more resilient and can adapt to reforms across jurisdictions that impact risk, finance, and treasury functions. With industry regulators focusing on the rebuilding of FI balance sheets and capital adequacy, the demand on scarce technology budgets will be stretched to the breaking point. In the digital world, FIs may make their investments in compliance processes and technology by outsourcing them or partnering with cloud-based service providers.

Increased Reporting Requirements

A critical part of evolving regulatory and compliance management is the increase in reporting. Unfortunately, existing manual processes that were established to consolidate, analyze, and provide informational reports to the board and regulators lack the efficiency needed to produce comprehensive scenario-analyses and stress-test results that adequately meet reporting demands.

From the single transaction level to aggregated enterprise analysis, enhanced reporting capabilities must provide full access to transactional, derived, or calculated data on all financial instruments and between various business units as required. The capability of extracting and summarizing aggregated information for mandatory reporting purposes will require IT infrastructures to function across channels and in real time. Without this

functionality, it will be difficult to provide consolidated reports, results of calculations, scenarios, stress tests, and time-sensitive compliance feedback for resolution purposes.

For effective GRC, FIs need to have the right controls in place to manage their information and provide accurate reporting on the implementation of these controls. These controls not only protect the accuracy and security of data, they also ensure that the right data is protected. Only then can data be stored, managed, analyzed, and retrieved to ensure that the firm operates optimally and efficiently.

In the following customer feature, Boubyan Bank is adopting digital models for information and process management to improve operations and comply with regulations.

EIM Delivers Key Elements for Success

To keep pace with new regulatory changes and increases in cybercrime, enhanced information management technology and automation capabilities will be critical. The primary goal moving forward for FIs should be in developing stronger decision-making frameworks and tools, capable of accurately assessing functional capabilities that can improve overall enterprise-wide compliance and information risk management functions.

As an efficient and large-scale data management platform, EIM provides the backbone for an effective GRC program. It helps to ensure the security, integrity, and accessibility of financial services data. When an electronic investigation (audit or legal review) is initiated, systems have to be examined, information identified, and policies well understood and documented. If policy is maintained centrally, then one central source can be understood, documented, and defended. This approach results in significantly less cost and time invested, instead of examining each and every system of record for corporate information. The application of EIM breaks down silos within the enterprise and helps to create the connectivity, formats, and systematic reporting required to comply with policies and regulations.

When organizations have disparate systems and no overall governance, content deletion becomes very difficult and ineffective. EIM connects procedural guidance with documentation, process execution tools, reporting and audits, and integration with Enterprise Resource Planning (ERP) systems—all across the business network. It brings consistency and scale to the management and preservation of information by incorporating records management with solutions for archiving, email management, search, and e-Discovery.

Boubyan Bank

"Automation has removed many mundane tasks and the alerts that are provided ensure they are able to meet their Key Performance Indicators (KPIs)."

SHADI ABU SHAMMA, PROJECT MANAGER AT BOUBYAN BANK

FIGURE 6.10: Boubyan Bank

Boubyan Bank, headquartered in Kuwait City, was established in 2004 as an Islamic bank working in accordance with the Islamic Shari'a. Boubyan's culture encompasses a focus on customers' needs, working as a team to exceed expectations with the highest standards of integrity and professionalism. Through careful, planned growth, the bank achieved profits exceeding 20 million Kuwaiti Dinar ($67 million U.S.) in 2014. The bank provides a range of financial services to individuals and corporate clients, from day-to-day banking to credit cards and loans.

Like most FIs, Boubyan operates in a compliance-driven environment. Business processes must be documented, and interactions and transactions with clients recorded. From account opening and loan application to ongoing correspondence and account servicing, a full audit trail is required. As the bank grew, it was challenged to comply with regulations based on its reliance on manual, paper-based processes. Documents shared by email were often lost, misfiled, or duplicated. As a result, processing times for client applications were excessively long. Boubyan needed a solution that would automate workflows and provide compliant, long-term archiving and reliable retrieval capabilities for more than one million documents.

Boubyan implemented a content management solution, rolling it out across all the Bank's departments. The new solution automated previously manual workflows, accelerating the processing of applications. Where the loan application processes used to take several days, employees can now confirm application status within 15 minutes—while the customer is still in the branch—to deliver high standards of customer support. The solution also provides a scalable platform for the capture, processing, and management of documents across the enterprise. The central repository makes it easy for employees to quickly search for and retrieve documents in a fully compliant and audited environment. In addition, the solution delivers valuable real-time reporting and dashboards for insight into processes that can be further streamlined in order to meet service level standards, all so that Boubyan can continue to improve operations and enhance customer service.

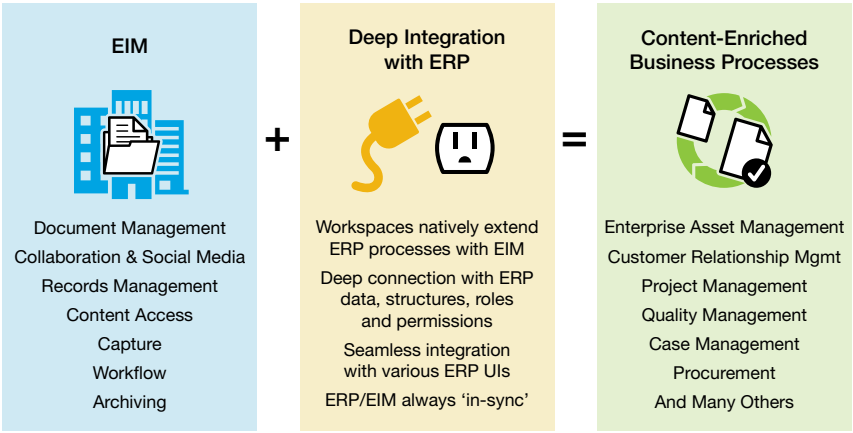


FIGURE 6.11: EIM is a Part of a Fully Integrated GRC Management Solution

Across the business network, the strategic deployment of a third-party cloud-based service to protect valuable data allows the necessary connectivity, translation, and aggregation both internally and externally, providing substantial competitive advantage. An aggregated reporting program connects FIs with their partners and counterparties, providing accurate daily feeds of regulatory and compliance data on behalf of the client or their firm. At any given time, and in various formats, data can be loaded and delivered across channels to increase global management oversight. This helps to prove that the right data has been retained at the right time and is securely and cost-effectively accessible.

EIM gives organizations the ability to apply governance across departments, content, application silos, and networks. EIM manages the lifecycle of enterprise content, while embedding information directly into processes to give content a consistent context. Effective records management allows content like emails, documents, faxes, and paper files to be classified as business records and managed to comply with governance and regulatory requirements. By combining structured and unstructured data to align operations, it connects the flow of information across the enterprise to add value to organizational activities. In the following interview, Fluor is digitalizing its processes and information to align operations and comply at a global level.

Information Flows: Time-to-Compliance

Around the world, FIs face growing challenges from increased regulation. The entire industry is under tremendous pressure to implement greater rigor and disciplined information governance. EIM helps FIs to accelerate their time-to-compliance and ensure their content is safe, secure, and complies with regulations. Let's examine how EIM helps to manage time-to-compliance to combat money laundering.

Fluor

Fluor is one of the world's largest publicly traded engineering, procurement, construction (EPC), maintenance, and project management companies. Fluor works with governments and clients in diverse industries in over 80 countries to design, construct, and maintain complex and challenging capital projects, including manufacturing plants, refineries, pharmaceutical facilities, healthcare buildings, power plants, and telecommunications and transportation infrastructure. Clients depend on the expertise of Fluor's 40,000 employees operating globally to deliver capital projects safely, on schedule, within budget, and with the quality they expect.

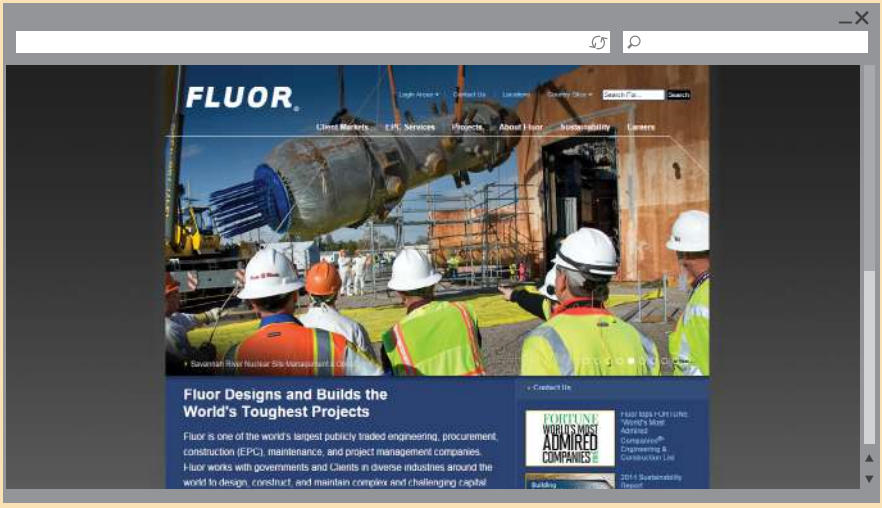


FIGURE 6.12: Fluor – Digitalizing Information and Processes to Comply

Below is an interview between Dave Guzman, Senior Director of Finance Systems & Business Process Integration at Fluor Corporation and Tom Jenkins, Executive Chairman of OpenText.

TOM JENKINS: Can you describe your role at Fluor?

DAVE GUZMAN: *The main objective of my team is to provide leadership and hands-on project management for the global finance organization in the improvement of work processes and the selection and development of financial systems. We give business units and country controllers the automated system solutions they require to support business growth in new countries, regions, business lines, and new business execution models. I specifically*

provide management oversight on high impact, finance-led system and work process initiatives, including accounts payable, records management, financial planning, governance, risk, and compliance.

Can you give us an idea of the scope of some of the projects Fluor has been involved in?

We often work in very remote locations, for example: building copper mines at 15, 000 feet in the Chilean Andes; oil refineries in the Saudi desert; transportation highways in the U.S., as well as major infrastructure projects and power plants across most of the world.

With this large scope comes enormous challenges and complexity, from supply chain management to vendor invoice management to human capital management in remote offices.

Yes, definitely. Some of our biggest challenges are to execute routine transactions in a remote location—processes we take for granted in local offices. Construction projects involve a lot of people, from vendors to employees. In a remote location, routine transactions like processing a vendor invoice, an expense report, or a paycheck, are critical and very paper-reliant. We require paper for everything—no change order, no purchase order—no work. Often, we set up a company to support these transactions for the duration of a project. So we might create and shut down a company within a three-year cycle, for example.

How do you manage paper in terms of transaction volume for vendor information management, for example?

From a finance perspective, we process about 40,000 to 50,000 invoices per month, so that's over 10,000 per week, and globally, that translates to about 600,000 invoices in various languages across approximately 40 countries every year.

How many vendors do you support?

We have approximately 100,000 vendors in our database, but in an active and ongoing basis, we make payments to over 13,000 different vendors per year.

Wow. And your payment processes have to meet all the regulatory requirements in each country.

Right. We have to keep careful track of all of them, especially in accordance with local tax reporting, such as Form 1099 in the U.S.

How do you implement processes in your systems to comply with new regulations in new countries? Do you do it in batches or on a case-by-case basis?

We normally manage it on a case-by-case basis per country. When it comes to regulations, each country has its own flavor. In the U.S., for example, there are different regulations on how to treat vendors. Since we're a U.S. company, we focus on North America and Europe first because those are the countries with the highest transaction volume. Batch type processing isn't very effective for us. In some extreme situations, in lower volume countries for instance, we have to do it manually. We'll use human intervention when it makes the most economic sense.

Describe the process. Do you use a pre-packaged set of processes?

We have a single instance of SAP® with assorted EIM solutions, so we just set up a new project, activate a new company code when necessary, and everything is ready to go. It's a very standardized process that we use globally. To connect our unstructured and structured information, we link everything back to the SAP document number. Everything in our EIM repository is linked to a FI (SAP) document number.

So, rather than dealing with hybrid architectures or the Cloud, you manage it all on-premises?

Yes. We do it all on-premises using the SAP architecture to categorize information in a single instance into industry groups, business lines, countries, with different road maps for financial consolidations, external reporting, internal reporting, etc.

Have you completely removed paper from your processes?

Actually, we've just implemented records management this year, and that's the biggest transformation story we have to date. Most of the countries we operate in still require paper; the country controllers are still putting that paper into boxes, filling out the retention form, sending them off to a long-term retention warehouse, retrieving them occasionally for audits, and then sending them back to the retention facility for a fee. At the end of the retention period, they have to destroy these records for another fee. Using records management, we have updated all of our policies for finance, including our retention policies. This means that if the country does not require paper, then we won't store the paper. We did a survey across our country controllers and discovered that 70 percent of our transactions can be maintained digitally, rather than on paper. We're actually seeing more and more vendors relying on digital invoicing in countries that are more advanced, like Australia, the Netherlands, and other countries in Europe.

Does your bandwidth in remote offices support this increased use of electronic invoicing?

We don't have too much of a problem with latency. Our shared service centers are in India, the Philippines, and Poland. We house four terabytes of financial documents in our records management system, and data retrieval is fairly fast and seamless. Overall, it takes less than ten seconds to retrieve a document. In the U.S., it's very quick, usually about a second or two. We run a user experience survey periodically to assess the latency we're experiencing around the world. We've found that when there is an issue, it's usually dependent on the country's infrastructure instead of Fluor's internal network.

Looking ahead, over the next ten years, what do you figure will be your next big challenge?

As of January 1, 2015, we've digitalized our entire records management process for financial transactions. We are now looking at processes that can be mobile-enabled. For example, we have a project in the pilot phase right now around mobilizing certain processes for our construction staff at a refinery in the U.S. Our original business case assumed devices using Wi-Fi, but our client requested cellular connectivity due to potential safety and IT security issues. Since the costs for cellular connectivity were not in our original business model, we're now facing a challenge to justify the business case to the client to integrate mobility at the construction site. There are also other things to take into consideration from a usability perspective, like the logistics involved in switching from clipboards to mobile devices. Setting up charging stations for several hundred tablets must also be enabled onsite, which can be a challenge, as well as dealing with dust, rain, and harsh weather or damaged devices.

How will you give the Millennials access to information? They'll want to bring their own devices to work, and they'll want access to information and apps.

At the jobsite, we're looking at putting a tablet into the foreman's hand to give them access to information on the ground. Mobile access would allow them to monitor things like concrete pours, number of welds, the quality in the field, safety statistics, footage of pipeline being installed—and all of this forms the basis of a very accurate progress report for the client, which is very important. Clients want access to dashboards and status reports on a regular basis.

Regarding financial transactions within SAP, we'll examine the need for mobile access or mobile apps where it makes sense to access or process information quickly in a remote setting. For example, even though we're a global construction company, we don't have high demand to pay a vendor on a smartphone because the approver normally needs to validate specific information that might reside back in the home office. The approver can typically wait until he or she returns to their office to approve payment or process an expense report. A mobile time sheet, on the other hand, makes better business sense because our weekly time sheets normally drive payroll and billings to our clients. If an employee does not submit a time sheet, the employee might not get paid correctly and our clients will not be billed on a timely basis. It would be advantageous to be able to do this remotely in certain cases, from a mobile device. Therefore, the timesheet will likely be one of the first mobile apps we develop related to SAP financial transactions.

When you look back now at the digital transformation Fluor has undergone, what was your biggest challenge over the last ten years?

I would say the biggest challenge was employee adoption, especially in terms of moving from analog to digital processes that require online access and electronic approvals for documents like invoices. Everyone was so used to working in a paper-based world. Today, our executives are realizing the big benefits of a paperless office.

Thank you Dave.

Money laundering attracts significantly more attention from government agencies than other economic crimes. The crime stems from the failure to adhere to expected codes of business conduct. Many countries, including the U.S. and the U.K., are committed to enforcement programs with increasingly stringent standards and penalties for money laundering. Money laundering is a risk if a firm neglects to report it. If a firm is diligent in its efforts to review and monitor customer transactions according to the law, they will likely meet regulations. One survey found that 27 percent of FIs experienced money laundering in a specified time period, followed closely by insurance companies at 11 percent.[23]

Money laundering impacts Know Your Customer (KYC) processes, maintaining compliance operations, and information risk management. KYC refers to due diligence that FIs perform in order to identify their clients and ascertain relevant information pertinent to doing financial business with them. Policies are applied to prevent identity theft, fraud, money laundering, and terrorist financing and to regulate the risk in business of lending and investment. A combination of information and process management helps FIs find the balance between acquiring new customers and complying with regulations.

Regulatory compliance requires financial institutions to execute solid information governance policies and ensure transparent record keeping. As part of a comprehensive GRC solution, critical business information can be captured in an EIM system, where it can be de-duplicated, compressed, and archived according to a firm's retention policies. Strong authentication, data encryption, a layered permissions structure, and version control empowers FIs to monitor how data is created, accessed, and used. Archiving ensures that content is stored only once and is accessible in the event of discovery or audit, reducing the time it takes to find information from weeks to mere hours. Auto classification prepares records for archiving and disposition as part of a content lifecycle management strategy. In the archive, the records under investigation can be searched for, and once discovered, holds can be placed. This information can then be automatically exported as evidence in a legal investigation into money laundering.

As a key component of EIM, Business Process Management (BPM) delivers an effective process control engine—initiating processes, defining and distributing tasks, recording their completion, and reporting on the outcomes of a given compliance process. When the process is complete, a full audit is created. Encryption and data compression function as part of the process to optimize storage and security for the archives.

[23] *"Managing Cyber Risks in an Interconnected World: Key Findings from The Global State of Information Security® Survey 2015,"* PriceWaterhouseCoopers, September 30, 2014.

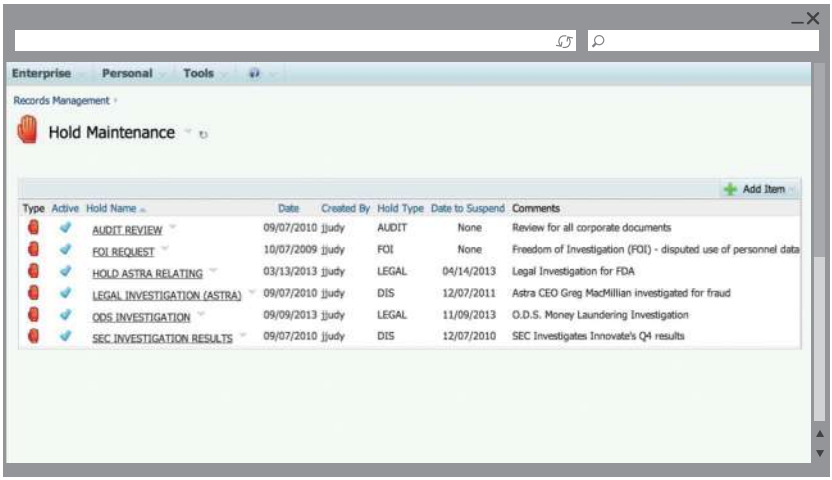


FIGURE 6.13: Hold Maintenance is Part of the Time-to-Compliance Process

The requirements for governance and compliance will only increase with globalization, mergers and acquisitions, and industry consolidation. As information flows across many channels, the lack of governance policies blocks information's path to value. Aligning processes and information on a common infrastructure protects assets while helping to ensure compliance. Procedural guidance can be more readily combined with documentation, process execution tools, reporting and audits, and ERP systems. An integrated information architecture acts as a central nervous system to capture, track, and report on regulatory requirements. By automating processes and integrating information, organizations can transform risk into opportunity by being able to react to changes in regulations more quickly than their competitors.

FIGURE 6.14: Time-to-Compliance Information Flow

Compliance is one of the most significant challenges for FIs. EIM helps to accelerate and optimize compliance strategies. Firms can enforce security and information controls automatically, without placing the burden on legal, compliance, IT security, and other departments. They can establish and demonstrate transparent and allowable disposition policies and procedures, which is critical to meeting the requirements of Dodd-Frank, Basel II, and other international compliance initiatives.

Compliance and Governance Challenges

Some organizations have implemented digital governance programs, faced governance challenges, and been unsuccessful. This may be because they've not achieved strong enough user acceptance of the systems. Governance should be built into systems and processes rather than presented as a manual task for end users. As we can see in the time-to-compliance information flow described above, the key is bringing the governance technology to the user's environment of choice and making it easy to use, enabling them to spend their time doing their daily activities instead of finding ways to get around using the system.

In addition to poor user adoption, governance challenges emerge when commitment from all governance stakeholders is not incorporated into digital governance planning from the outset. Members of the legal and compliance groups, IT, and line-of-business executives should come together to plan and implement an information governance program. Many organizations form a stewardship committee to make critical decisions about the program. Carefully choosing the members of the committee ensures commitment and decision-making power.

Disruptive Technologies and GRC

As connectivity creates zero distance and devices become more powerful, the digital enterprise will be expected to control the flow of information in any format across every channel—from mobile devices and tablets to social media shared in the Cloud. Challenges around compliance and governance will increase as digital content grows and people continue to use mobile devices and social software to create and share information.

In the digital world, the workplace will support a social, mobile workforce. Generation Z will work where and how they want to. Many will use mobile devices and social applications to create and collaborate on their content, resulting in corporate information existing outside the firewall, and more importantly, outside information governance policies. The business ecosystem will require that FIs synchronize data with their counterparties and collaborate outside the firewall. In many cases this will occur via cloud-based platforms and mobile devices.

As mobile devices are adopted by the enterprise, security will be a growing concern. Security on a mobile device is a combination of security over-the-air, over-the-wire, and permission-based access to systems. Using EIM as a platform, mobile devices can verify permissions to a corporate repository or intranet. The mobile platform adopts the version history, audit capabilities, reports, security, and permissions contained with the EIM system. Device governance is provided so that content can be stored and utilized on mobile devices, and if the device is lost, the content can be removed remotely.

Like mobile devices, social media introduces similar concerns around information governance and security. Many FIs are using social media to connect with their customers. Often, social media is used without governance systems in place. Social compliance programs can help ensure governance and protect brand reputation. Organizations with social compliance programs in place are 15 percent less likely to violate requirements governing brands and organizational activities, avoiding costly impacts on brand image and legal repercussions. A social compliance program requires storing and centralizing social content in a secure EIM repository where it can be managed as a corporate record.[24]

As outsourcing to the Cloud continues, and Software-as-a-Services (SaaS) becomes the standard platform for enterprise applications, organizations will be required to manage records in many locations. EIM provides visibility for IT governance and data management and reduces risk by eliminating duplication and supporting automatic disposition of records according to corporate policy. While mobile devices, social media, and cloud computing are paving the way for new opportunities and dramatic increases in productivity, widespread usage must be protected with the robust security and privacy mechanisms inherent in an EIM system.

Balance Matters

EIM helps FIs manage compliance, risk, and governance through established controls for information policies, procedures, business rules, and roles and responsibilities. Internal controls are typically based on processes designed to provide reasonable assurance regarding the effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

Cybersecurity threats will never be completely eliminated and regulatory and compliance requirements will only become more rigorous. Financial services firms have long recognized the need for improved technologies for better innovation. But with impending timelines and uncertainty surrounding regulatory developments, FIs continue to struggle with balancing compliance spending with customer acquisition and developing new products and services. As many of the compliance rules continue to be defined and rolled out, FIs need to adopt an accelerated approach for complying with new regulations while staying focused on client-centric initiatives across the enterprise.

The good news is that a strategic approach to governance and compliance initiatives brings considerable long-term benefits, while improving the quality of a firm's information risk management program. FIs that combine compliance technology investments with client experience and business process improvements are well positioned for success in the future. Preparing for an evolving set of compliance imperatives is an opportunity

[24] *"Social Compliance: Protect Brand Equity and Ensure Governance,"* Aberdeen Group, January 2012.

for the financial services industry to enhance operational efficiencies to better serve commercial customers, while at the same time effectively managing regulatory change across the enterprise. The following chapter explores how EIM technologies are part of an overall strategic approach for digital transformation and how each component works together to balance innovation and opportunity with risk and requirements to comply.

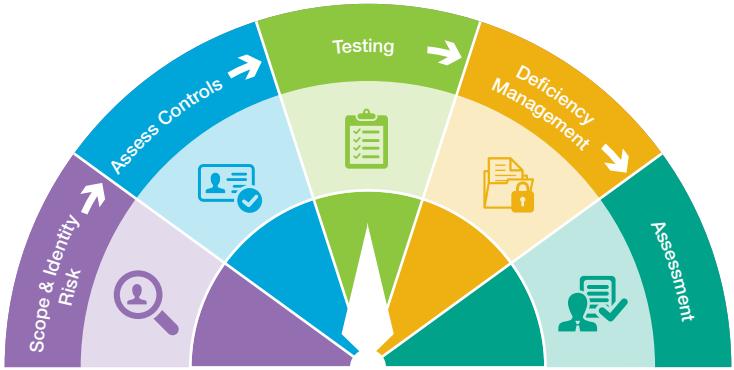


FIGURE 6.15: Internal Process Controls

CHAPTER 7

EIM: BUILDING THE DIGITAL ENTERPRISE

CHAPTER 7

EIM: Building the Digital Enterprise

"Enterprise Information Management (EIM) is the key transformational technology for the digital world."

We live in a time of unprecedented technological disruption. Recent innovations ranging from mobile devices, analytics, and social media to cloud computing and the Internet of Things (IoT) are challenging the established rules of business. What all these technologies have in common is that they enable a new way of using information. Information is not just a cost factor—it has become the key to growth and competitiveness. Information is becoming the core component of a corporate digital strategy.

Information is the new currency in the digital world. It has replaced size, scale, access to resources, and geographic presence as a key driver of competitive advantage for Financial Institutions (FIs). Firms that leverage their information to innovate will be the ones that succeed.

Throughout this book, we have illustrated how digital information lies at the core of interactions, processes, transactions, and experiences. When information is harnessed and protected, the digital enterprise can reach maximum levels of efficiency, impact, and value while reducing security, compliance, and litigation risks.

Amidst these disruptions and the emergence of a digital economy, the goal for every firm is to transform itself in order to take full advantage of information and digital technologies—to become a digital enterprise in the digital world. But how can FIs unlock the power of their information to transform themselves without compromising productivity and security? Enterprise Information Management (EIM) is the transformational technology that helps the digital enterprise thrive in the digital world by enabing a new way to work. This chapter explores EIM as an integrated set of technologies and outlines an agenda for digital transformation.

EIM: A Platform for Transformation

A digital business is one in which digital technology is both pervasive and central to its overall success. It is a business that manages its information across its business network to drive value and competitive advantage, and adopts EIM as its foundational enterprise platform for change.

EIM is comprised of a set of on-premises, cloud, and hybrid technologies and practices that maximize the value of information as it flows across the enterprise. Its core

technologies work together to create an end-to-end platform for sharing, collaboration, analysis, and decision-making, based on the effective management of information to harness its potential while mitigating risk through governance, compliance, and security.

EIM bundles the following core technologies together to add value as information flows across the digital enterprise:

Content Suite: Enterprise Content Management (ECM) solutions for managing enterprise information throughout its lifecycle—from capture through to archiving and disposition—applying secure and consistent governance policies across any type of content. These applications accelerate time-to-value using search and content analytics, transforming enterprise information into valuable insights that drive innovation and power customer engagement. Content Suite is available on-premises or in the Cloud.

Process Suite: Business Process Management (BPM) solutions for flexible, agile business process automation and case management systems that enable employees, customers, and partners to collaborate, streamline operations, and work more efficiently. Process Suite is available on-premises or in the Cloud.

Experience Suite: Customer Experience Management (CEM) solutions for delivering responsive, compelling, relevant, and intuitive user experiences across multiple channels to drive revenue, customer satisfaction, and loyalty. Experience Suite is available on-premises or in the Cloud.

Analytics Suite: High-performing, on-premises and cloud solutions for big data and predictive analytics that provide an easier way to access, blend, explore, and analyze data to better understand customers, markets, and business operations without requiring data experts or additional IT resources.

The Business Network Cloud: Cloud-based Information Exchange (iX) solutions, Business-to-Business (B2B) integration, Managed Services, and the Trading Grid™ for managing the flow of complex or sensitive information quickly, securely, and reliably—within organizations or across a network of trading partners.

In addition to the EIM suites, a development platform called AppWorks™ enables users to create purpose-built applications that assemble and consume enterprise information from across EIM suites in unique and highly customized ways.

This chapter describes each of the core component EIM technologies and services in more detail. It includes stories about FIs that have embraced EIM to address the challenges of information and capitalize on its potential. Each story illustrates the transformational power of EIM.

Governing Information

Compliance is one of the most significant challenges FIs face. As the governance facet of EIM, Enterprise Content Management (ECM) technologies are designed to help businesses manage an exploding volume of information and minimize the risks and costs associated with unmanaged content. Enterprise information is a critical asset in digital business, yet it carries risk if poorly managed. Access to increasing amounts of information requires a comprehensive ECM solution that can address demands for backups and auditing; tighter security; conformity with Dodd-Frank, Basel II, and other international compliance initiatives; data classification (metadata); protection from threats of litigation; effective risk mitigation; and e-Discovery technologies.

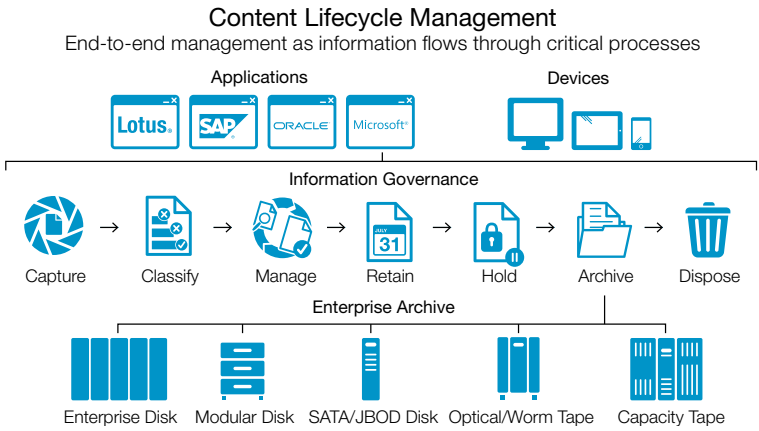


FIGURE 7.1: Managing the Full Lifecycle of Content

With a proven records management component, ECM provides end-to-end management of information as it flows through mission-critical processes. It enables employees and business partners to share and collaborate on documents, control access to them, classify them, and manage versions efficiently.

Many organizations look to their information systems to manage their business processes in the most efficient way possible for competitive advantage through operational excellence and innovation. Virtually all business operations have content associated with them. Within business processes and applications, ECM plays an important role by ensuring that accurate information is made available, actions on content are tracked and audited, and security is maintained.

BPM combined with ECM drives timely decision-making and helps enforce compliance with corporate policy. The ability to create and work with business processes is built into ECM. Businesses build processes to review and approve document sets, create and manage procedures, manage projects and cases, and more.

FIGURE 7.2: Enterprise Content Management[1]

Reducing Risk with Discovery

As a facet of Content Suite, Discovery solutions organize and visualize all relevant information to make it possible to find the right information at the right time. The integrated set of technologies that comprise Discovery enhances an organization's capacity to "remember". The expense and time associated with traditional legal or other information discovery is very high. Having a set of tools available to reduce the data sets retrieved in a discovery and make them more accurate represents immediate savings for any bank or financial institution.

Discovery solutions break down organizational information silos, integrate information from across the enterprise, and amplify the value of information through better access, collaboration, and content re-use. Business insight is gained by capturing, combining, and transforming information to identify relationships, risk, and new opportunities for growth. Improved transparency into outcomes allows for the consistent measurement and monitoring of performance metrics, arming FIs with the information they need to improve productivity and the quality of their performance.

The following story highlights how implementing ECM technologies across the organization has allowed OMERS to evolve into a digital enterprise, leading to greater insights, better business decisions, higher customer satisfaction, and optimized business performance.

[1] Mark J. Barrenechea and Tom Jenkins, *"e-Government or Out of Government,"* OpenText, 2014.

OMERS

FIGURE 7.3: Ontario Municipal Employees Retirement System

"The initial deployment was such a success that we have moved on to transforming business services and have future plans to roll the solutions out in audit, legal, finance departments, and more."

ROGER FAVERO, SENIOR VICE PRESIDENT OF TECHNOLOGY SOLUTIONS, OMERS

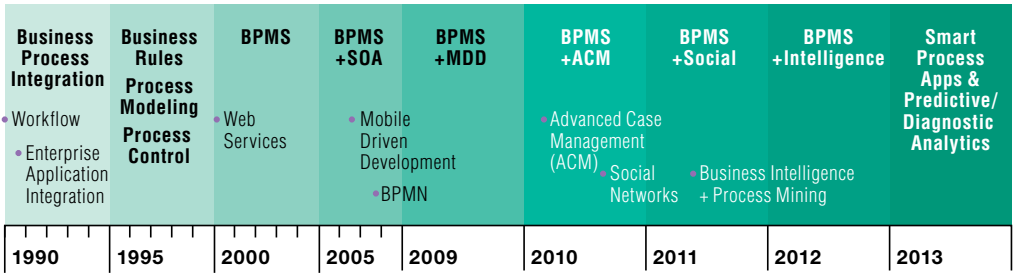
OMERS (Ontario Municipal Employees Retirement System) was established in 1962 to serve local government employees across Ontario, Canada. Today, OMERS represents 982 employers and almost 440,000 members, retirees, and survivors. OMERS manages a diversified global portfolio of stocks and bonds as well as real estate, infrastructure, and private equity investments. OMERS is one of Canada's leading pension funds.

Relationships with customers can span over 60 years, which typically produces volumes of documents, phone calls, transaction records, etc. OMERS recognized that this paper and the data it contained represented a huge opportunity. With the right suite of Enterprise Content Management (ECM) technologies, OMERS could transform its business from a manual, paper-based one into a digital one.

OMERS took a holistic approach to transforming its business. The Company knew it wouldn't be enough to simply deploy new technologies, it would also need change existing processes and the way its employees work. Backed by executive support, OMERS set out to drive a cultural shift by educating employees about the evolving digital landscape and the benefits of technologies. These included enhanced document management and content lifecycle capabilities, easier access to information to support collaboration, and the ability to make better business decisions. A comprehensive ECM system helped to improve customer engagement and reduce operating costs. And this is just the beginning for OMERS. The initial deployment in the pension department was such a success that the Company has moved on to transforming business services and record information, and has future plans to roll the solutions out in the audit, legal, and finance departments.

Digitalizing Processes

Process Suite is one of the core technologies of EIM. Whether conducting thousands of high volume processes per day for case management or running a lower volume of high-value procedures, Business Process Management (BPM) gives FIs greater process visibility and helps to optimize efficiencies.



Source: Forrester Research, Inc. Smart Process Applications Fill a Big Business Gap, August 2012

FIGURE 7.4: The Evolution of BPM

Enterprise Resource Planning (ERP) systems lie at the core of business operations, managing everything from financials and human capital management to case management, vendor invoicing, and other critical functions. Administrative work, like case management, forms the basis of many services and produces volumes of data housed in disparate databases across a business. Data generated by administrative activities is typically numerical and, in many instances, this information is not easily accessible. While ERP systems do an admirable job of executing processes and serving as the system of record, they fall short when it comes to offering process agility and adaptability to changing business requirements. As a result, BPM technology has moved beyond legacy processes and workflows to allow for the rapid modeling and automation of processes and the ability to easily update them. As illustrated in Figure 7.4, Smart Process Applications (SPAs) are evolving to support both structured and unstructured business processes and enable rapid adaptability to exceptions or changing needs.

In a time where customers are increasingly demanding, FIs are constantly challenged to find new ways to perform tasks more quickly and deliver services faster. FIs can differentiate themselves by using BPM to digitalize customer processes for new account openings, onboarding clients, loan and credit applications, and the transfer of funds. By making customer transactions easier and faster, FIs can reduce account opening timelines and loan application abandonment rates, and increase customer retention. In the insurance sector, for example, BPM helps accelerate claims processing to ensure renewals, optimize client management to improve the customer experience and loyalty, and drive operational improvement with new business and underwriting.

BPM solutions amplify the ability to iterate and innovate critical process capabilities and accelerate time-to-value for customers in a compliant and auditable manner, permitting firms to deliver superior customer experiences, faster and without compromise.

In the feature below, Pacific Blue Cross, a leading benefits provider, is using BPM and case management solutions in the Cloud to automate business processes and increase customer acquisition.

Delivering Exceptional Experiences

As one of the foundational suites for EIM, Experience Suite aims to create a richer, more interactive online experience across multiple channels without sacrificing requirements for compliance and information governance.

Customer Experience Management (CEM) powers the world's highest traffic sites, the most compelling mobile experiences, and the most recognized e-commerce portals on Earth. Managing the digital customer experience across multiple touchpoints in the journey, from reading a review or using a mobile app to conducting a transaction, a compelling experience is critical to success in the digital world.

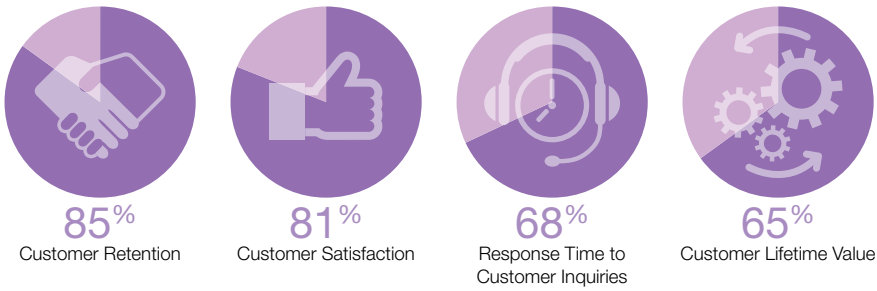


FIGURE 7.5: The Value of CEM

As discussed in Chapter 4, FIs are dealing with an increasingly sophisticated customer base—and it's not just Millennials. Consumers of all ages have higher expectations of their FIs regarding customer experience, which puts additional pressure on firms to deliver.

Pacific Blue Cross

"The platform enables us to be very effective in executing our processes quickly and gives us the flexibility we need to fulfill the demand for our timely services."

AKIKO CAMPBELL, DIRECTOR, INNOVATION CENTRE, PACIFIC BLUE CROSS

FIGURE 7.6: Pacific Blue Cross

Canadian company Pacific Blue Cross (PBC) has been British Columbia's leading benefits provider for over 75 years. Together with BC Life, PBC subsidiary provides health, dental, life, disability and travel coverage for approximately 1.5 million British Columbians through employee group plans and individual plans for those who do not have coverage with their employers.

PBC was burdened with the manual, paper-based new client acquisition process that involved sharing documents across departments. This siloed approach resulted in multiple versions of documents, errors, and inaccurate, redundant, and disconnected data—all of which contributed to causing significant delays. PBC needed a solution that would help them centralize data storage, establish a business process framework, digitalize taskforce management, and seamlessly integrate with their existing Enterprise Service Business (ESB).

PBC selected a solution that combined Business Process Management (BPM) and case management technologies in a single platform. PBC is leveraging several of the built-in capabilities to model, monitor, and improve its processes. Since implementing the solution, PBC has realized substantial benefits, such as leveraging existing IT (ESB) systems; minimizing manual, error-prone processes with automated workflows; improving data quality and reducing redundancy; and providing management with consolidated, real-time monitoring of critical activities through business dashboards. The transformation from a paper-based process to a digital one has significantly improved PBC's business agility, enabling them to set up new customers faster.

Client acquisition and retention are top priorities for FIs. Firms that deliver targeted and tailored experiences will be more successful in acquiring new customers and retaining existing customers. In order to deliver relevant, customized experiences, FIs must turn customer profile information and history into an asset that can be managed and optimized. CEM helps firms manage client relationships, providing them with the ability to treat each customer as a known individual. Using customer information, marketing departments can easily define, create, and launch marketing campaigns that can be delivered through each customer's channel of choice, such as print, web, mobile, SMS, etc.; call center and line of business owners can leverage customer information to more effectively cross and upsell; and demands on IT resources can be reduced by giving marketing teams hands-on ability to adapt pre-approved master templates. CEM solutions also support strong information governance, including regulatory compliance programs, through protected information blocks, document audit trails, and archiving.

CEM delivers a consistent user experience across multiple channels. Media, website, and customer communications management capabilities combine to empower employees to optimize brand experiences.

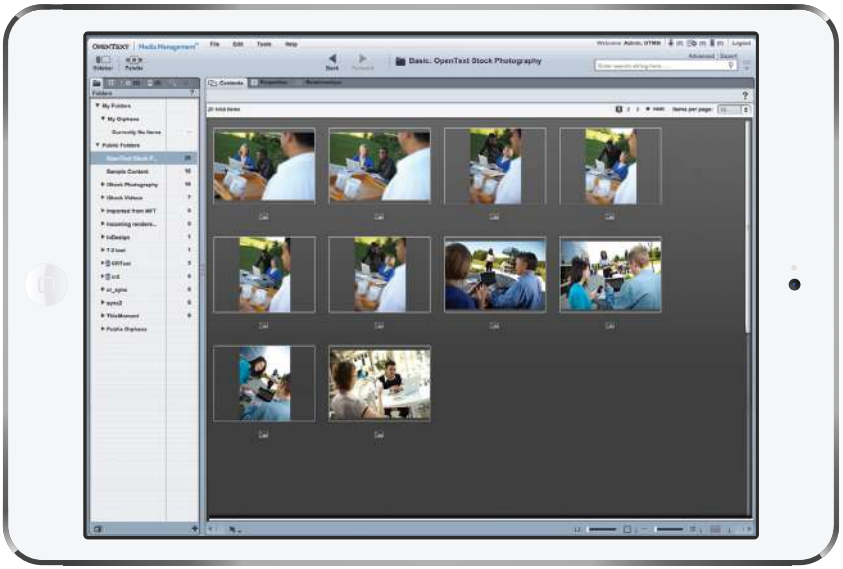


FIGURE 7.7: Media Management[2]

[2] Mark J. Barrenechea and Tom Jenkins, *"e-Government or Out of Government,"* OpenText, 2014.

Improving Insight

The availability of big data has unleashed huge potential in terms of gaining customer insight to inform marketing, product development, and service delivery. On-premises, cloud, and hybrid content analytics solutions provide organizations with leading-edge capabilities to mine, extract, and present the true value of information for improved research and analysis. These technologies transform volumes of data into usable business information to reveal unknown correlations, perform time-series extrapolations for forecasts on data sets, uncover statistical trends in targeted markets, and gain valuable customer insights quickly—all of which can help FIs accelerate time-to-value, ensure loyalty, and reduce attrition.

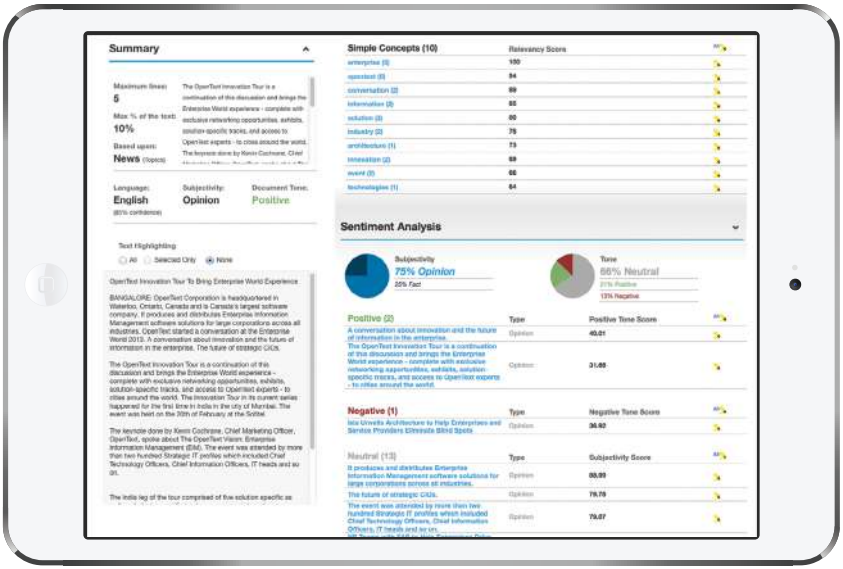


FIGURE 7.8: Content Analytics[3]

Applications for Analytics

Customer satisfaction creates competitive advantage. With analytics applications, FIs can deliver a personalized experience where customers enjoy self-service access to their own account data and history. Along with access to information, customers are given the ability to view and render information visually in different formats and are proactively given recommendations and information about additional products and services that suit their needs.

[3] Mark J. Barrenechea and Tom Jenkins, *"e-Government or Out of Government,"* OpenText, 2014.

Banks are using analytics applications to differentiate their online services from those of many competitors. By merging relevant, targeted information and embedding analytics into their core online offerings, banks are making it possible for customers to explore other financial directions while they perform their routine banking tasks.

Many **asset and wealth management firms** use applications to create and deliver interactive dashboards in a secure and controlled environment that can be updated in real time. Dashboards can display historical and current account information, giving customers a broader understanding of their account activity. Leveraging analytics, firms can deliver personalized information directly into existing systems and on mobile devices to increase revenue and reduce costs because the offers made to customers are highly targeted.

Displaying user trading activity is a basic requirement for **securities companies**. Analytics can turn static statements into dynamic, interactive portals that engage clients. Analytics applications allow securities companies to integrate and display data from multiple sources, capture daily transaction activities to facilitate higher value conversations, and retain data for regulatory scrutiny.

Insurance companies are using analytics solutions to integrate and analyze diverse data to gain a global view of business, proactively detect product opportunities, predict and prevent customer churn, and standardize best practices to speed up strategic decision making.

Analytics help deliver a coveted 360-degree view of customers. Leading FIs are using analytics as a competitive differentiator to provide increasingly tech-savvy customers with advanced, data-driven interactive reporting and seamless analytics functionality.

Securing Transactions in the Cloud

Today's volatile marketplace demands that FIs have best-in-class technology, people and processes to remain competitive and profitable. Decision-makers are being asked to increase efficiencies, maximize existing resources, and enable transparency across the financial supply chain. From banks to insurance providers and credit card processors, FIs are using cloud-based Information Exchange, B2B integration, the Trading Grid, and Managed Services to support their B2B transaction needs.

Information Exchange

Information Exchange defines a set of offerings that support business conversations occurring internally among employees and externally with customers and partners, from electronic faxes and cloud services to large managed file transfers. Information Exchange has traditionally been an *ad hoc* arrangement of fragmented systems that don't talk to each other, increasing business costs and security risks while slowing down transactions. FIs need to incorporate Information Exchange into their business strategy

to support accelerated business transactions with anyone, anywhere, in any format, securely. Integrating messaging on a single platform helps FIs operate more efficiently by increasing productivity, shortening transaction cycles, and improving customer service while removing complexity and risk.

There are a number of complicating factors when it comes to sharing information, such as globalization and increased regulatory pressure. While advances like the Cloud and mobile devices can make Information Exchange easier, security can often prove to be a challenge. Information Exchange solutions help safely move information from where it is to where it needs to be, regardless of business system or device.

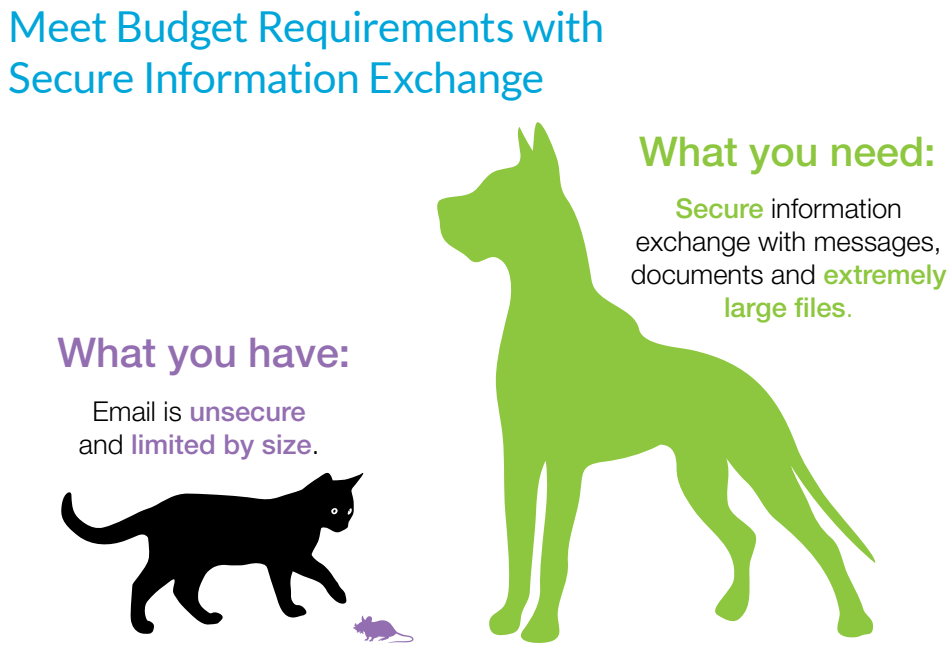


FIGURE 7.9: Secure Information Exchange

Information Exchange empowers FIs across a business network to control how information is delivered across the extended enterprise. Data integrity and security are built in to protect against threats of internal information leaks and cyberattacks. FIs can execute transactions and share information in ways that are fast and secure to drive value and competitive advantage. More and more financial institutions are turning to cloud-based data exchanged solutions, like electronic fax and Managed File Transfer (MFT), as a means to securely and compliantly manage their corporate communications while reducing costs.

B2B Integration

In the digital world, business operations rely on fast, efficient, secure information exchange between employees and partners located around the world. B2B integration falls under the umbrella of Business Network solutions, yet focuses explicitly on managing information transmitted between supply chain trading partners.

B2B integration is a set of technologies that facilitate the real-time, automated transfer of information, money, and goods and services, creating an "information supply chain" for the digital enterprise. It helps a tightly integrated network of employees, counterparties, and partners to exchange communications, products, and commerce in ways that are rapid and accurate, and to make decisions that are timely and intelligent.

EDI and integration services give FIs capacity for reliability and reach beyond traditional Value Added Networks (VANs). These technologies enable transactions while providing end-to-end visibility into operations for real-time decision making and improved orchestration of operations.

The Trading Grid

The Trading Grid is a cloud-based B2B integration platform that enables the electronic exchange of business documents in a secure, fast, and reliable manner. The Trading Grid helps firms with highly complex supply chains outsource their operations by connecting partners that use multiple information exchange protocols in accordance with messaging, compliance, and security standards. Because the Trading Grid is cloud-based, it eliminates the need for traditional hardware and software components and associated licenses, as well as the time required to purchase the technology and configure the infrastructure, providing FIs with an alternative to the time-consuming and expensive process of building an in-house B2B integration platform.

Managed Services

Managed Services is a hosted B2B cloud service that provides the expertise, technical infrastructure, and process support for critical B2B programs that meet current and future business needs. Managed Services facilitate activities like mapping, connectivity, onboarding, testing, monitoring, and end-user support to quickly connect business partners and resource projects on an as-needed basis.

The potential benefits of B2B e-commerce solutions to increase the speed, accuracy, and flexibility of operations and improve supply chain visibility are well known, but many organizations struggle to achieve them. They find it hard to roll solutions out beyond a few key business partner, can't keep pace with changing standards and technologies, and suffer from lack of technical expertise and local support in the various countries in which they trade. Managed Services can provide FIs with enhanced agility, increased speed, reduced risk, and improved Return On Investment (ROI), opening up new, global business opportunities.

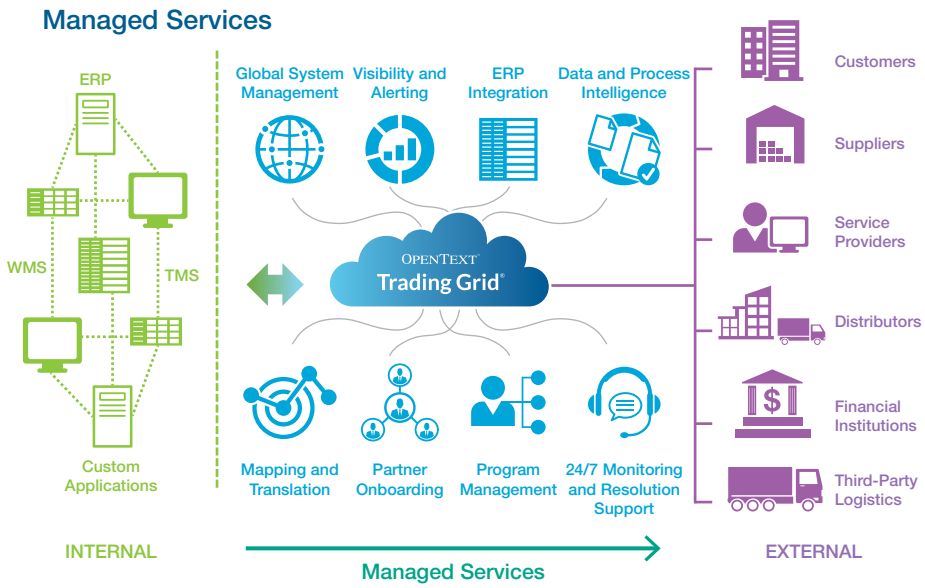


FIGURE 7.10: Managed Services for Outsourced B2B Integration

The following feature demonstrates how international FIs with complex supply chains, like Japan Credit Bureau, are leveraging managed services to strengthen business partnerships and accelerate time-to-service and overseas business development.

Applications for B2B Integration

B2B applications bring together the right combination of services and technology to allow FIs to connect and exchange critical financial data in a secure, reliable, and scalable environment. B2B applications can positively impact a firm's bottom line due to their ability to integrate with existing ERP systems and leverage legacy platforms. In addition, B2B applications can help FIs successfully reallocate resources to increase straight-through processing and visibility of financial transactions.

The following are examples of applications for B2B integration and how they support financial transactions.

Cash Management

Through a Managed Services platform, FIs can manage the connectivity between corporate clients' ERP systems and a bank's cash management applications. Cash management enables straight-through processing of transactions such as payment instructions and account statements using a variety of messaging standards including SWIFT, ISO 20022 XML, SAP IDoc, and EDI. By leveraging a Managed Services approach, FIs can demonstrate measurable improvements in time to onboard new clients and flexibility to support new business.

JCB

"By being able to centralize file exchange with B2B Managed Services, we have improved business partner satisfaction, minimized the burden on our systems infrastructure, and reduced the time required to introduce our services internationally."

SATOSHI HIJIKATA, INTERNATIONAL SYSTEMS DEVELOPMENT DEPT., JCB

FIGURE 7.11: Japan Credit Bureau

Japan Credit Bureau (JCB) is the only international credit card brand that originated in Japan, and is recognized as one of the few brands accepted around the world. An international leader in the credit card industry since 1961, the mission of JCB is to provide their customers with unique value through high-quality payment products, a reliable infrastructure, and world class services. The Company has actively expanded relationships with card-issuing and merchant-acquiring partners to further increase its card member base and the number of merchants who accept JCB cards.

As JCB's partner network expanded globally, increased demands were placed on its connectivity, data exchange, and file transfer solutions. Requirements to support a variety of transmission messaging types, such as EDI, increased along with this expansion. In particular, JCB was looking for ways to onboard and integrate new business partners more quickly and effectively. They wanted to be able to troubleshoot and solve integration issues with their partners as they arose.

JCB turned to B2B Managed Services to simplify the complexity of its international B2B integration requirements. The solution has enabled them to streamline partner onboarding and centralize file exchange with their partners. As a result, JCB has improved business partner satisfaction, minimized the burden on IT infrastructure and staff, and reduced the time it takes to introduce their services internationally. Being able to quickly and effectively connect with new business partners is helping JCB to accelerate more overseas business development.

Supply Chain and Trade Finance

Supply Chain and Trade Finance applications allow FIs to gain visibility into the supply chains of their corporate clients. Numerous banks have leveraged the visibility of open account transactions to build new and enhanced open account and financial supply chain products. Time-to-market can be accelerated by leveraging third-party expertise in onboarding of suppliers in emerging markets and mapping of documents such as purchase orders and commercial invoices.

Commercial Cards

Using a secure, hosted platform for message and file exchange that complies with the Payment Card Industry; Data Security Standard (PCI-DSS), Commercial Card applications manage the connectivity and integration with partners, whether they are merchants, issuers, processors, or corporate clients. Third-party Managed Services can be leveraged to support a wide variety of use case scenarios, such as the integration of Level 3 card detail data with corporate accounting applications in the commercial card segment.

Insurance Group Benefits

Insurance Group Benefit applications manage the connectivity with the human resource systems of corporate clients and the processing applications of Third-Party Administrators (TPAs). These applications automate the exchange of employee census, reconciliation, and billing files to support Group Disability, Group Life, Employee Absence Management, and other group benefits products. By leveraging a Managed Services approach, FIs can demonstrate measurable improvements in time to introduce new products and flexibility to bid on new sales opportunities.

Securities

Through Managed Services, FIs can manage the connectivity between brokers and dealers, investment managers, global custodians, and centralized depositories. Securities applications enable straight-through processing of equity, fixed income, mutual fund, foreign exchange, and derivatives trading and enable asset servicing activities, such as corporate actions and account reconciliation. In addition, securities applications ensure FIs comply with ISO 15022, ISO 20022 XML, FIX, and other popular securities standards. Leveraging securities applications helps firms satisfy customer-specific integration needs, reduce time-to-revenue, and enhance international connectivity offerings.

Applications for Financial Services

Financial institutions are facing challenges from increased regulation, ongoing economic uncertainty, lost revenue from low interest rates, risks, constant revenue and profit pressure, changing technology, and new competitors. Customer expectations are changing rapidly as technology enables real-time commerce and financial activity and

regulatory challenges are accelerating globally. The entire financial services industry is under tremendous pressure to meet these challenges while increasing profitability.

To address these challenges, FIs are implementing EIM solutions that contribute to revenue growth, facilitate compliance and security, improve transparency, increase customer satisfaction, and automate processes to grow profitability, as illustrated in the following feature about Hawksford Group.

Applications for financial services are helping leading FIs streamline the following processes.

Client Onboarding

The onboarding process is often a client's first experience with a financial institution. Client onboarding solutions can automate and simplify the onboarding process, while capturing and storing data for future use for upsell and cross-sell opportunities. Removing paper and manual processes prevents delays and frees up internal resources. Automation also ensures that compliance issues are addressed and confirmed. By shortening the client onboarding process, clients are able to start conducting transactions sooner and FIs can accelerate time-to-revenue.

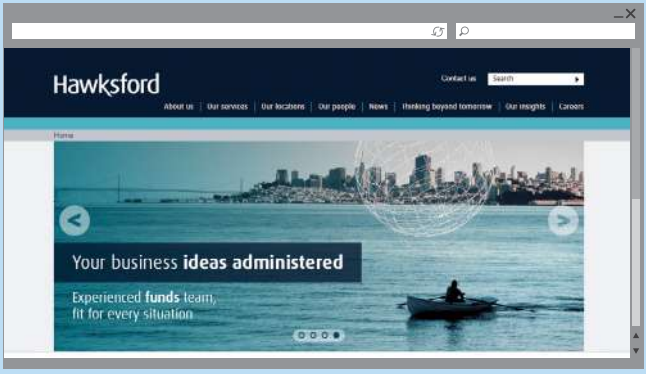
New Client Acquisition and Targeted Marketing

It's no secret that customers prefer and respond well to personalized treatment. A results-based customer communications solution is a critical factor in building effective consumer relationships. Leading FIs are personalizing content to deepen relationships with existing clients and to cross- and upsell more effectively. Using new client acquisition and targeted marketing solutions, FIs can conduct multichannel campaigns driven by marketing without IT involvement to ensure that anything the customer receives—at any given touch point—is relevant and tailored to the customer's current status. Personalized communications help FIs maximize the value of every interaction.

Claims Processing

Claims processing can be a frustrating and arduous experience for customers. The benefits of faster claims processing are many. Clients are happier and more likely to renew. Automation eliminates manual efforts and the handling and storing of claims associated with paper-based processes. Agents can be more productive, allowing fewer people to handle more claims. Processes can be added or deleted to further streamline and simplify tasks and improve both the client and agent experience. Together, these benefits add up to reduced costs and increased productivity for insurers and an improved experience for customers.

Hawksford Group



Process automation has enhanced employee performance. Client billing—which used to take two days—now takes less than two hours, resulting in improved customer service.

FIGURE 7.12: Hawksford Group

Hawksford is an award-winning and international provider of corporate, private client and funds services which consistently delivers impeccable service and is focused on thinking beyond tomorrow. Headquartered in Jersey, Hawksford's clients range from small and large corporates to ultra-high net worth individuals. The business places importance on investment in state-of the-art technology to ensure its processes and systems allow them to offer flexible and consistent client service across international offices. Hawksford has a diverse and international service offering; a broad client base from over 20 countries with a broad spread of revenue across jurisdictions; and a strong year-on year growth story.

Operating in the complex, highly regulated financial services industry, Hawksford generates, receives, and manages a range of content-driven processes. Following the MBO (Management Buyout) of the business in 2008, Hawksford wanted to digitalize these processes to align with their people-focused strategy. Many of the processes were still heavily paper-based. Not only was this inefficient, but it took considerable time to locate documents or they were unnecessarily duplicated. Keeping track of processes was difficult and this impacted customer service standards and Hawksford's ability to comply with regulations.

Today, many processes, such as client billing, are benefiting from digitalization. Process automation has reduced client billing from two days to less than two hours. As Hawksford grows, it is now able to take on more workload without requiring extra staff. They have also eliminated much paper from their processes, saving on physical output and storage. Hawksford is saving 10 minutes on each bill produced. A bill that requires no changes can be sent to a customer in three minutes. An extensive audit trail of changes made to the content gives Hawksford transparency into their processes and helps them meet their compliance needs. Feedback with the staff shows that 82 percent feel that process automation has enhanced their performance, resulting in improved customer service.

Client Management

FIs are looking to optimize the customer experience, improve customer loyalty, and reduce the operational costs of managing customer and adviser interactions. To accomplish this, personnel need the right information at the right time to resolve cases quickly and efficiently. However, many core customer service systems are disconnected and don't deliver a true 360-degree view of a customer. A comprehensive client management application can help firms configure processes to keep pace with market and regulatory changes; improve customer insight with a consolidated history of customer interactions; accelerate decision making by leveraging mobile, social, and adaptive case management technology; and improve visibility with preconfigured, customizable reports.

The following feature illustrates how First United Bank and Trust is using process automation to gain better insight into client process status and performance while improving internal collaboration and customer satisfaction.

New Business and Underwriting

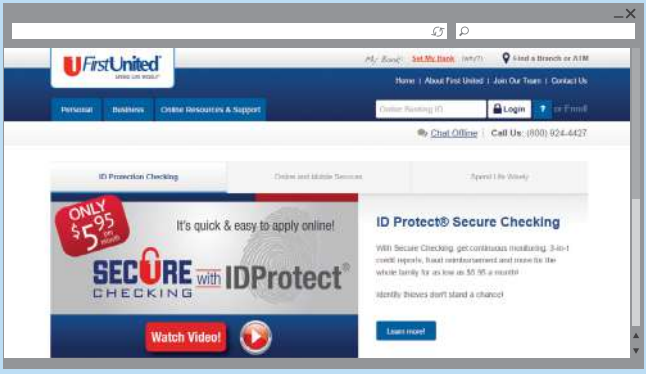
New Business and Underwriting solutions allow insurers to avoid costly rework, and dissatisfied clients and agents, while getting business on the books faster and with less effort. Client contacts and information are managed and tracked in one place to provide agents with a single view of the customer, improving agent productivity and accelerating time-to-value, and can help create new channels for sales, allowing agents to sell more products. New Business and Underwriting solutions enable FIs to drive operational improvements for significant bottom-line impact.

EIM: Bringing It All Together

The core sets of technologies and services described in this chapter form a comprehensive platform for EIM that delivers better business results, improves relationships with customers, and creates an open, compliant IT infrastructure for business success.

In a digital economy, firms must reduce cost, improve efficiencies, and increase their competitiveness by automating information processes. To meet the requirements of a new workforce and digital consumers in a disruptive world, they need to consolidate and upgrade their information management platforms. And they must increase the speed of information delivery through integrated systems, within and beyond the boundaries of the enterprise. EIM helps FIs achieve all of the above, giving them the ability to create a better way to work in the digital world.

First United Bank and Trust



"The Company has automated a number of processes and converted over 2.5 million documents and images into digital format for considerable business improvements, including overall growth and customer satisfaction."

BRYAN WANDEL, DIRECTOR OF IT, FIRST UNITED BANK AND TRUST

FIGURE 7.13: First United Bank and Trust

First United Bank and Trust is one of the largest privately held community banking organizations in the southwest United States, with assets of more than $3 billion and 650 employees serving approximately 75,000 customers in 41 banking centers and mortgage offices in 30 communities across Texas and Oklahoma.

First United acquired several banks over a six-year period. While this represented tremendous growth for the Company, it also presented enormous challenges. As well as consolidating systems, First United inherited the paper-based and error-prone processes that supported current business operations. These processes, such as new account processing and loan approvals, were impacting the bank's ability to deliver the high-quality customer service it is known for. Manual processes also made it difficult to unify business operations while meeting strict government regulations and compliance guidelines. First United realized that it needed a case management and BPM platform to improve end-to-end processes and manage growth.

Since implementing the BPM solution, First United has automated and streamlined a number of processes and converted over 2.5 million documents and images into digital format. Electronic forms for new account opening are now entered directly into a consolidated database, so customers can conduct transactions immediately—a big improvement from the 24 hours or more that this previously took. Relating independent documents across the enterprise allows employees to collaborate and provides visibility into each case, so staff can resolve problems as they arise. In addition, the solution provides full analytics capabilities and executive dashboards, giving management instant process analysis of even the most complex business scenarios. The BPM solution has helped First United achieve its goals of going paperless, unifying processes across the organization and improving visibility to deliver better customer service, all on a dynamic platform that scales to support future changes in market conditions and government regulations.

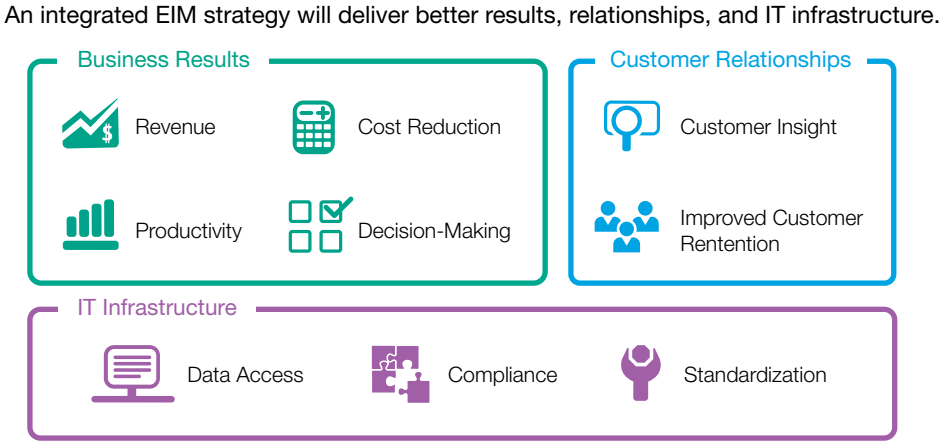


FIGURE 7.14: The Business Value of EIM

The priorities for change are clear: to effectively manage unstructured information and business processes; to automate B2B transactions that power business networks; to ensure security and privacy through information governance, compliance, and risk management; and to make access to information available from any application or device—on-premises or in the Cloud. The most successful FIs are already embracing disruption and digitalizing their operations for sustainable competitive advantage.

The time for change is now. As they start on a multi-year journey toward digital transformation, businesses are looking to IT for leadership. To help articulate vision and execute on a plan for digital re-invention, strategic leaders will need to work together to implement change across the enterprise. The next chapter explores change management strategies to help executives transform their FI into a digital enterprise to lead and succeed in the digital world.

CHAPTER 8

STRATEGIES FOR CHANGE MANAGEMENT

CHAPTER 8

Strategies for Change Management

"The biggest barrier to innovation in digital engagement is not technology but culture and lack of imagination."[1]

In the digital world, Financial Institutions (FIs) that fail to evolve will become irrelevant and potentially obsolete. As outlined in this book, success requires a radical overhaul of enterprise strategies, processes, products, services, and relationships. To empower FIs, the C-suite will need to break out of operations mode to better align themselves with the business, embrace future trends in technology, and identify new value streams. Visionary leaders will apply the technologies described throughout this book to re-engineer and digitalize old business models.

To stay competitive, the enterprise must reinvent itself in a business landscape that is disrupted by technology. To maximize transformation, firms will need to create an environment in which innovation thrives. As customer requirements change, new technologies will emerge and continuous innovation will be critical for survival. To attract and retain customers, business and technology leaders should be ready to take risks, follow digital strategies with effective leadership, and define new models of engagement. And they must be ready for a substantial shift in culture built on openness, innovation, and trust. Business problems will need to be examined and new processes created to solve them fearlessly and with imagination.

As innovators continue to disrupt the financial industry, FIs will restructure IT to accommodate the fast pace of change. This transformation will require a pervasive shift throughout the enterprise to digitalized tools, processes, and information to create customer value and competitive advantage. Managing and harnessing information is essential to driving an agenda for innovation and growth.

EIM is a fundamental enabler of digital transformation based on an integrated infrastructure that delivers secure information and services. An effective EIM strategy is guided by processes, principles, standards, and effective transformational leadership.

[1] Malcolm Turnbull, *"Australian Minister Calls for Innovation in Digital Media,"* FutureGov Summit Australia, December 2013.

Transformational Leadership

To achieve digital advantage, business leaders will be called upon to motivate their companies around a strong, unifying vision articulated through an achievable and well-governed digital strategy. Typically, executives build their visions based on operational effectiveness (inside-out) or superior customer experiences and sales (outside-in). Centralization and digitalization are integral to both approaches.[2]

A business case should link your business challenges to a strategic driver or business goal. Most organizations have existing performance goals and objectives. These may be defined as Management by Objective (MBO) or as a Balanced Scorecard. Defining goals presents an opportunity to identify the processes that will directly influence objectives and demonstrate how improving the processes can improve overall business success. The ability to align process improvements directly to corporate objectives provides a clear and effective framework for illustrating business value and gaining executive sponsorship.

CREATING A BUSINESS CASE

Transformational business leaders need to establish a business case for digital transformation. What will the pay-back period be for the project? Most projects do not move forward without a scrutinized business case. A business case should be based on existing processes, industry best-practices, and the positive impact an EIM solution can have on performance.

The operations of any business could not be achieved without strong leadership based on a coherent strategy. A strategy accounts for cultural shift and technology infrastructure challenges while supporting engagement across departments, partners, suppliers, and customers. A transformational leader has to overcome outmoded structures and old management styles to empower Millennials to self direct, make decisions, experiment, generate ideas, and take risks.

In order to build a digital business strategy, executives need to shift their focus away from cost efficiencies and tactical operations to providing value for the company through innovation, developing new products and services, and overall business growth.

[2] *"The Digital Advantage: How digital leaders outperform their peers in every industry,"* Capgemini Consulting and the MIT Center for Digital Business, 2012.

Enabling the Digital World: The Way Forward

The enterprise infrastructure of the future will be holistic and expansive to include an extended business network and digital value chains. The IT ecosystem will be consolidated and processes improved to support superior customer experiences and employee productivity. Under a strategic leader, IT will optimize access to technology across devices, applications, and systems. Creative leadership and strategy will be the focus. As part of a digital strategy, FIs will use technology to:

- Meet the challenges of digital disruption
- Align business with technology
- Implement systems of engagement
- Develop agile processes
- Empower executives, users, customers, partners, and suppliers
- Build capacity
- Focus on information as an asset

Meet the Challenges of Digital Disruption

Current IT spend is shifting. Although global investment has been conservative (at 4.1 percent in 2014[3]), leading organizations place a greater importance on digital technologies like cloud computing, mobile, data analytics, and enterprise social networks. While certain technologies are seen as critical to business operations, a majority of organizations have identified e-commerce and data analytics (54 percent and 53 percent, respectively) as critical to their business in the coming years, especially with regards to increasing efficiency, improving customer experience, and attracting and retaining top talent.[4]

The same report finds that 70 percent of companies surveyed plan to use disruptive technologies like smart machines and automation to drive process efficiencies, while 45 percent will use them to find new revenue by expanding sales, opening new sales channels, or creating new products and services.[5]

In the digital world, digital technologies will force organizations to explore new ways to engage with customers, create new products and services, and accelerate time-to-market. This moves beyond merely digitalizing processes and, in many cases, will require radical shifts in core competencies, especially in IT. Strategic leaders will need

[3] Marc Ferranti, *"IDC cuts IT spending forecast on mobile slump, emerging market uncertainty,"* PCWorld, May 16, 2014, *http://www.pcworld.com/article/2156520/idc-cuts-it-spending-forecast-on-mobile-slump-emerging-market-uncertainty.html* (accessed August 2014).

[4] Murray, Sarah, *"CEO Briefing 2014 - The Global Agenda: Competing in a Digital World,"* Accenture, 2014.

[5] Ibid.

to position their IT, support, and marketing organizations in relation to emerging digital technologies.

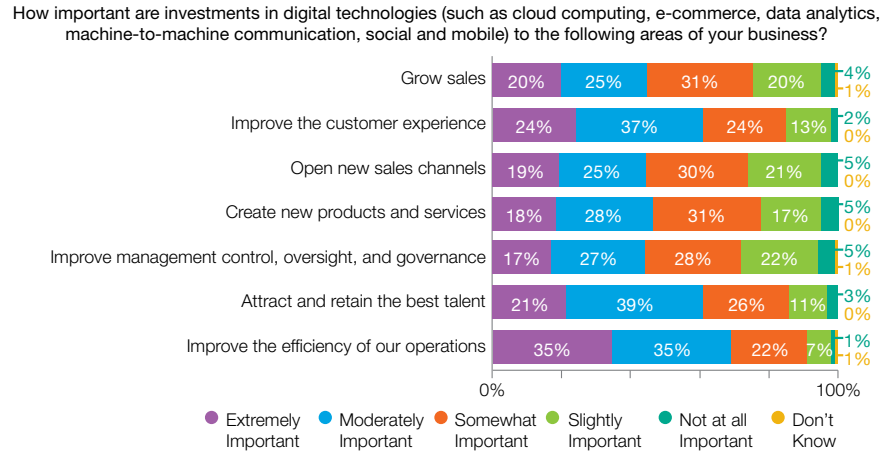


FIGURE 8.1: Importance of Investment in Digital Technologies[6]

Front-line and back-office employees will need to be empowered with the technologies that digital consumers are using to make their jobs easier and more efficient. This will entail monitoring advances in emerging technologies, along with the information they produce in order to operationalize the technology. As mobile, smart devices, and analytics become ubiquitous, processes will have to evolve to support them. Technology will continue to force FIs to adopt new business models quickly and partner or outsource for capabilities such as non-core business processes or system development and maintenance. Digital leaders will be required to research and build partnerships with startups, technology vendors, developers, and whole ecosystems. Visionaries are already looking beyond the firewall to crowdsource financial services solutions in hackathons or innovation labs. In an intensely competitive landscape, the speed of business will call for faster times to innovate—and this will all be driven by technology.

As disruptive technologies become part of the IT infrastructure, firms will grapple with information security as a growing challenge. Other challenges for integrating disruptive technologies into the enterprise architecture include the education, training, and skills needed to run these technologies. In a recent study, 42 percent of executives identified change management and 35 percent cited skills shortages as the biggest barriers to implementing digital technologies.[7] Overall, investments in digital technology are becoming a priority in many organizations with a recognized impact on enabling opportunity and innovation.

[6] Murray, Sarah, *"CEO Briefing 2014 - The Global Agenda: Competing in a Digital World,"* Accenture, 2014.

[7] Ibid.

Align Business with Technology

The relationship between business and IT will undergo radical changes in the digital world. As business applications are outsourced to the Cloud and easier to manage, IT skills will become decentralized and incorporated into departments. This will fundamentally change the relationship between the business and IT groups. Digital technologies will drive these changes and the digitalization of information-centric processes across the enterprise. Line-of-business (LOB) leaders will become empowered to manage their own solutions. FIs will facilitate these changes by implementing strategies for digital process transformation.

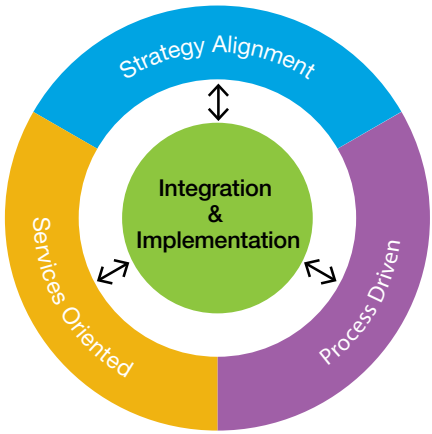


FIGURE 8.2: Aligning Across Functional Boundaries

To transform the financial enterprise into a digital enterprise, IT leaders will need to broaden their role beyond the IT function to strategically align with other business executives. Expanding their role will require making changes to leadership skills, the IT organization, enterprise technologies and architecture, and IT skills and talent. Success will be based on effective collaboration with business units and executives to deliver on corporate goals. Only when the front end is connected to the back end—across people, processes, and information—will firms be able to map out the customer journey and effectively develop and market new products and services.

Implement Systems of Engagement

Over the last 30 years, FIs have been focused on automating processes and transactions in systems of record with Enterprise Resource Planning (ERP) systems. For the next 30 years, their attention will shift to automating processes and transactions for unstructured information in systems of engagement with EIM. As FIs move from governing systems of record to enabling new systems of engagement, leaders will articulate a digital strategy that balances innovation and growth with security and risk.

Enterprises are already evolving from systems of record to systems of engagement. Systems of record are the ERP systems that run an organization's business (financials, human resources, etc.). As records, data has to be accurate, accessible, and integrated. Systems of engagement are systems that engage employees and include social networks, collaborative technologies, and learning systems. Systems of engagement are digital and interactive and support the digital enterprise in the digital world. For richer and deeper engagement with customers, employees will need to be given access to the same self-service tools and targeted information that consumers use to collaborate and communicate. Social networks, mobile devices, analytics, and portals will help to deepen engagement across channels, provide richer insights about customers, and simplify collaboration.

Collaborative EIM technologies facilitate the free flow of ideas and the exchange of knowledge. To truly transform, FIs will have to create networked environments based on new engagement models to empower all stakeholders across the financial supply chain. If employees are engaged, motivated, and unified under a consistent vision, they are less resistant to change. New engagement models often lead to a richer exchange of ideas and opportunities. In the digital world, cross-functional collaboration will be critical. Effective collaboration helps to eliminate information and process silos. Business units are more inclined to engage with IT to adopt new technologies and advance transformation. Externally, relationships are complex and difficult to manage, yet digital engagement models offer a way to apply resources to projects that are beyond an organization's firewall, network, and scope. This dynamic requires a substantial change in culture and governance.

Facilitate Agile Process Development

In the digital world, IT will have to adapt to business models with new processes that support dynamic, mobile, and real-time customer transactions. This will fundamentally change business processes, which will have to move beyond departmental silos to support customer-centric processes. New, information-based business models that align with online and mobile channels will improve productivity and efficiency and reduce the costs associated with face-to-face engagement. Agile process development and dynamic processes like case management will enable the digital enterprise to be more nimble and focused. Processes will move beyond packaged applications to EIM and Business Process Management (BPM) tools that are cross-functional, dynamic, easy to change, and repeatable.

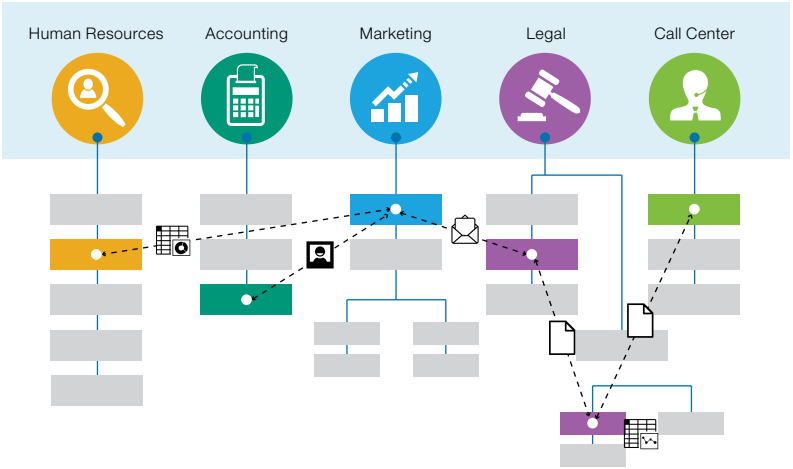


FIGURE 8.3: End-to-End Process Agility

RECOMMENDATION

When building a business case for process automation, it's critical to align the process improvements to business drivers and goals. Think beyond this single project and look at the big picture to ensure that your project is included in larger strategic projects in your business—often with pre-assigned budget and resources to help kick-start your project. Consider the complete buyer-journey, the entire customer lifecycle and how it fits into your customer experience strategy. Choose a business process platform that can be extended beyond its immediate use as you consider the long-term, ongoing business benefits.

For example, if implementing a client onboarding or case management solution, you will want to identify improvements in the process that will:

- Accelerate order-to-cash flow by winning new clients, faster
- Increase revenue by cross selling more, faster
- Reduce operational costs by automating manual processes
- Decrease loss by reducing new client abandonment
- Reduce churn by improving client satisfaction and loyalty
- Increase productivity by freeing up staff and management time
- Reduce risk by more easily demonstrating compliance
- Improve quality control by standardizing on the global best practices

Transformed processes build upon systems of record and integrate with customer-focused technologies using Smart Process Applications (SPAs) and Dynamic Case Management (DCM). Effective technology leaders can add strategic value by driving the development of next-generation processes. EIM can be used to rapidly create new processes that support customer service—within hours—without requiring IT support or software development skills. By combining well-structured modules with pre-built components, an application-factory approach allows an LOB manager to build new processes easily. Alternately, an existing process can be used as a template and modified to suit business needs across customer service. This means that employees can be creative in anticipating service requirements and designing ways to address them. An on-demand environment is supported by a flexible EIM infrastructure, new technologies, and the ability to re-engineer evolving customer processes and services.

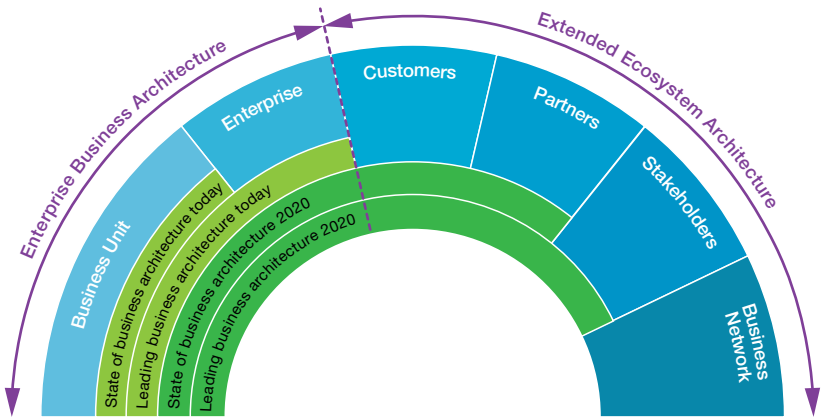


FIGURE 8.4: The Extended Enterprise

Many traditional FIs have core processing systems that were implemented pre-Internet and before mobile devices became ubiquitous. In the digital world, FIs will be transformed through the consolidation of technology onto platforms that allow for rapid application development of next-generation products, replacing development that moves at the speed of "zero-fault" tolerance. Continuous iteration, rapid feature enhancement, and short-term solutions will be developed as cheap, fast, and scalable pilots, replacing longer deployment cycles and the IT backlog that hinders the ability to capitalize on new opportunities.

In the following feature, Sympany has created a digital mailroom, replacing manual processes with automated ones to save money and deliver superior customer service.

Sympany

"Thanks to the solution, the processing time for services has been halved. This has enabled us to achieve a significant increase in customer satisfaction."

CHRISTIAN SCHUCH, LEITER IN-/OUTPUT MANAGEMENT AT SYMPANY

FIGURE 8.5: Sympany

Sympany has been providing health and accident insurance for individuals and companies, as well as property and liability insurance for over 100 years. Headquartered in Basel, Switzerland, the Company's 470 employees serve 224,000 private clients and 9,300 corporate clients. In 2014, Sympany generated over CHF 23.6 million ($25.2 million U.S.) in net profit.

Sympany grew out of ÖKK Basel and the acquisition of other health insurance companies and, as a result, inherited a number of applications. At one point, more than 130 business applications were being used, and many of the acquired companies continued to use their respective mail processing systems. This made handling the three to four million documents the Central Mailroom (CM) sorts each year very time consuming and inefficient. Sympany needed a single platform solution for mail processing to simplify and accelerate the sorting process and bring together information across the company to improve the quality of data.

Implementing an advanced document capture and character recognition solution has allowed Sympany to introduce a digital mailroom. Using Optical Character Recognition (OCR), the system automatically classifies documents and extracts data to populate preset data fields. The system can distinguish between more than 100 document classes—such as forms, reports, doctor's bills, laboratory bills, and informal letters from customers—which has improved data quality. A centralized platform makes it easy for Sympany to access information across the company, so it can plan better in advance, identify bottlenecks before they arise, and optimize processes. In addition, costs have been vastly reduced—up to five mail processing systems that required ongoing maintenance were replaced by a single platform. Accelerated sorting processes have decreased the amount of time required to settle claims by 50 percent, resulting in a dramatic increase in customer satisfaction. A digital solution has replaced manual processes to streamline processing, improve data quality, save money, and ultimately provide superior customer service.

Empower the Digital Enterprise

In the digital world, spending on cloud software, platform, and infrastructure services will grow from approximately $28 billion today to $258 billion in 2020—reaching 45 percent of total IT services spend.[8] As infrastructure moves to public or private clouds, the demand for IT to implement and maintain systems will be reduced. Software-as-a-Service (SaaS) will become the norm and IT will increasingly be seen as a "broker" of technologies, providing consulting services to employees and customers who are driving technology decisions. As services move to the Cloud, FIs will have more time and resources to focus on digitalization and empowering end users through self-service applications and Bring-Your-Own Device (BYOD) policies.

Agile and process-driven teams will replace the current structure of IT, no longer confined to organization around siloed technologies like servers, storage networks, desktops, and departmental systems. To add value to the enterprise, IT will have to remove the shackles of legacy systems and their associated operating costs and inflexibilities and open up to the possibilities of co-creating solutions.

The trend toward the consumerization of IT will continue as individual users and consumers drive product and service design. The digital enterprise will focus on developing mission-critical apps and making these available from an architecture that allows for the development of mobile apps and distribution in a private cloud. In essence, every firm that maintains a firewall and a proprietary repository of content could create a private cloud apps environment. EIM makes this infrastructure possible by providing a set of integrated tools for managing process and information applications, while guaranteeing security and privacy.

Tech-savvy employees and customers will become self-sufficient. IT departments will struggle to control the corporate use of consumer-oriented technologies, but resisting this trend will impede digital transformation. In fact, many workers today use consumer technology to address business requirements and often have better technology at home than they do in the office. IT will be required to match or exceed experience with consumer technologies like social networking and mobile apps. Digital leaders will embrace the social revolution to move at the "speed of the customer".

Consumer-oriented technologies are far easier to access, use, and manage than many enterprise systems—giving employees the confidence they need to use mobile apps, social networks, and cloud computing to do their jobs. Employees are already circumventing IT to work more efficiently. In the digital enterprise, everyone will be an IT expert to some degree as technology becomes core to the business. Flexible IT portfolios will support the business using enterprise apps, BPM solutions, DCM, SPAs, social media, collaboration, and mobile apps.

[8] Jean-Pierre Garbani, "*Prepare For 2020: Transform Your IT Infrastructure And Operations Practice*," Forrester Research, October 24, 2013.

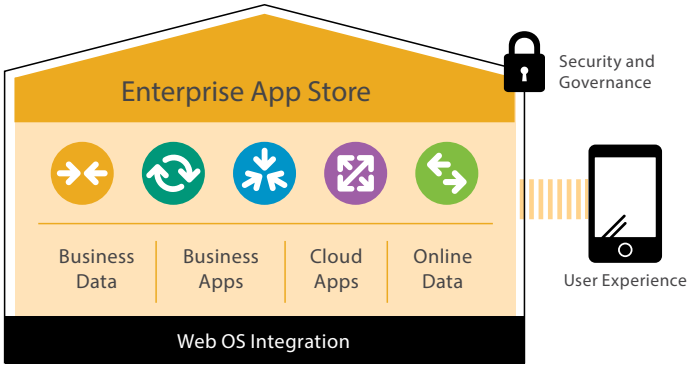


FIGURE 8.6: App Store Infrastructure

The IT department will be required to optimize workforce experience through anytime, anyplace access to tools and information. They will need to accommodate demographics and a changing workforce with technologies that support the way they work. A good portion of the workforce will be remote: a recent survey of business leaders found that 34 percent said more than half their company's full-time workforce would be working remotely by 2020. A full 25 percent cited that three-quarters of their workforce would not work in a traditional office by 2020.[9] To meet the needs of a remote workforce, FIs will need to mobilize access to information and processes to accommodate these users.

In the digital world, the IT landscape will become more multidimensional and complex—based on new business models, shifting corporate strategies, industry transformation, organizational changes, skill shortages, a multi-generational workforce, and digital disruption. To generate value for the business, FIs will have to determine if current IT activities and projects contribute to the digital strategy and corporate objectives for growth. To master an infrastructure in flux, business leaders will have to examine current processes, explore new business and engagement models, and embrace digital disruption—while maximizing security and minimizing risk. It's a tall order, but with a sound EIM infrastructure in place, firms are well equipped to digitally transform the enterprise. In the following feature, insurance company Metrópolis Seguros demonstrates its commitment to a transformational, innovative approach, as reflected in its product range and business activities.

Build Capacity

To successfully transform, FIs will have to coordinate their initiatives and assign the right resources. Visionary firms will attract and build capacity by bringing together people with highly specific skill sets to collaborate on projects. More effective human capital management will be required, specifically by offering ways for employees to develop the skills required by future business models. This will also improve overall performance.

[9] Laura Vanderkam, *"Will Half of People Be Working Remotely by 2020?"* Fast Company, August 14, 2014.

Metrópolis Seguros

"We eliminated complexity, provided an efficient service to our users and customers, and reduced maintenance and development costs by over 50 percent."

FERNANDO RAMÍREZ, HEAD OF STRATEGY, METRÓPOLIS SEGUROS

FIGURE 8.7: Metrópolis Seguros

Metrópolis Seguros is a Spanish-owned insurance and reinsurance company that has been operating for over 70 years in the national insurance market. With over 100 employees, 11 branches, two sales offices, and 14 branch offices, it is one of the most reliable companies in the Spanish insurance market. Its innovative philosophy can be seen in both its product range and business activities, which include a dedication to digital innovation in its services-based architecture.

In the 1990s, in accordance with the regulations and to deliver exceptional customer service, Metrópolis developed a process management system called PRIMAS. Metrópolis was challenged by the dramatic growth in volume of paper-based information it was required to manage. To comply with regulations and governance policies, Metrópolis needed to manage sensitive customer information in a flexible, compliant, and efficient way, while accurately linking the information with the corresponding files, policies, and processes managed on PRIMAS. The Company needed a content management solution to help optimize processes and provide an interface that linked processes and content.

By integrating its existing process management system with a new content management solution, Metrópolis now has a flexible system in which a claim can be created or found—along with all relevant, linked documentation. Employees can now easily search for and retrieve all documents related to a client or case, dramatically reducing client response time. Adoption of the solution was effortless, given its native integration with existing systems like PRIMAS. As a result, Metrópolis was able to roll out the first version of the new, fully integrated application after only two months. The solution's versatility and flexibility allows Metrópolis to manage its clients' documentation and work internally with project documentation and emails. The Company was able to replace its obsolete file access system, eliminating a continuity risk, and resulting in a 50 percent reduction in system maintenance costs. Based on the success of this project, Metrópolis has decided to expand the solution to include the integration of all business processes by the end of 2015.

Another way to improve capacity is to aggressively recruit and attract those with the requisite skill sets. This is achieved through creating and maintaining a culture that both attracts and retains talent while supporting underlying values for multiculturalism, corporate responsibility, and career development. In the digital world there will be an increasing demand for the skills needed to accurately analyze and extract insights from customer big data. As a result, entire departments could be designated to manage customer insights, requiring headcount and budget for customer data analysts. Firms will have to determine where their skills gaps lie, and either hire to fill these gaps or train and certify current staff to expand capabilities.

Building up communities of practice, promoting collaboration using corporate social networks, and allowing employees to bring their own devices into work and work remotely are ways of creating a workplace that is attractive to an evolving workforce. Investment in digital education programs for executives helps to promote digital as core to overall growth and success—and aids in the trickledown effect in communicating the digital strategy as an enterprise-wide directive. New team goals, performance plans, and incentives will have to be defined. The adoption of digital technologies will aid in building capacity. The 2020 workforce must be empowered to harness the potential of digital technologies and apply these to transform the business.

Focus on Information as an Asset

Future enterprise infrastructures will have to expand to support and incorporate the entire business network. Information and process integration will increase the speed of business. New processes will be deployed on-premises, in the Cloud, and to support mobile apps. FIs will have to expand their function beyond the firewall to deliver value and business growth. Enterprise architecture will have to extend to incorporate new business models based on the needs of employees, customers, and partners and counterparties.

An enterprise architecture provides a framework for organizational change and includes plans for transitioning to future business models. Before resources are committed to implementing change, an enterprise architecture identifies capability and risk, outlining the ways in which data and information can be integrated with services effectively. Data integration—a critical enabling capability for transformation—must be reliable, secure, and accessible. Data integration connects operations and analytics to unify the enterprise. Enterprise architecture helps to ensure the interoperability of systems and the sharing of information resources across agencies. As an integrated suite of targeted functions, EIM supports digitalization, data integration, customer experience management, secure information exchange, and records and information management.

EIM combines systems of engagement with systems of record. Managing these systems of record will remain a critical function of the digital enterprise. The high-tech industry has spent considerable time and effort developing the solutions needed to support transaction-oriented processes that produce structured information. Part of a progressive IT strategy will focus on consolidating these fundamental technologies. EIM delivers the backbone required to streamline information-centric processes and securely support fully integrated customer experiences across many channels.

EIM helps to minimize and control risk. It enables FIs to manage disruptions caused by a mobile workforce, unstructured data, cloud computing, social media, and the proliferation of devices. EIM systems can deliver benefits such as better data access and analysis, consolidation and standardization, security and risk management, cost-effectiveness, and better alignment of IT activities with business objectives. But EIM does more than this—it provides a secure context in which innovation can happen.

EIM: Strategic Information Management

In a digital economy, FIs will be responsible for empowering users with information that is usable. For this to happen, organizations need to be able to access, manage, and protect their information—and make it actionable for a wide range of stakeholders.

RECOMMENDATION

When implementing a transformational strategy, a good first step is to take inventory of current enterprise information assets. This includes the following:

- Fragmentation - How many disconnected sources, flows, and archives do you have?
- Velocity - Which information processes do you need to accelerate?
- Variety - What kind of information, media, documents, and discussions are you most concerned with?
- Volume - How much information are you talking about?
- Security - What kind of information security risks are most threatening to your organization?
- Governance - How are you ensuring that your digital efforts are coordinated, efficient, and moving in the right direction?
- Compliance - Which legal or regulatory requirements and risks exist in your company and your industry?

Efforts need to be prioritized and targeted—and linked to an articulated business case. Prioritization should align with the executive team's top business objectives, whether they are productivity, cost reduction, revenue growth, innovation, competitiveness, or governance. The objective that benefits most significantly from improved information management should be identified. These business needs are the pilot projects for effective digital transformation.

As EIM projects or initiatives are successful, they can be expanded to encompass more users, technologies, and processes. The recommended approach is to start small but base your efforts on an encompassing, enterprise vision of transformation. What follows is a collection of 15 best practices to support this approach.

Fifteen Best Practices for Digital Transformation

Digital transformation is an ongoing process. Transformational leaders must be flexible and organizations agile enough to accept this truism. Beyond structural adjustments, a change of attitude is already underway. Many organizations are adopting entrepreneurial, innovative approaches to communicating and collaborating to digitalize operations.

To build a foundation for transformational change, FIs must establish a proven methodology and tested methods. Here are 15 best practices for the effective execution of a best-in-class methodology for digital transformation.

1. **Identify opportunities for transformation.** Focus on core needs that you are providing and define how they can be transformed. Assess your current legacy systems and investments in information and process management/automation solutions.
2. **Define an appropriate strategy based on goals and objectives.** Clearly articulate your vision and strategy to ensure that your firm is committed to and aligned behind a common set of objectives. To truly transform, firms need to know what goals drive their organization. This means taking a stakeholder view early on to identify what's important company-wide. To know if you're on the right track, consider the following:
    - **Organizational mission.** What's the organization's long-term vision? What does it hope to achieve?
    - **Objectives and goals.** As with the mission, objectives also flow from the top of the organization down to the department level, and can take the form of financial goals (e.g., profits) or departmental goals (e.g., to achieve a certain level of the market share). Objectives also help to shape the lower-level metrics and Key Performance Indicators (KPIs) that will become part of their measurable strategy.

- **Current activities.** Current activities and programs should be reviewed in order to make decisions on how these activities will be measured.

3. **Evaluate your business case.** Determine costs. Outline benefits and risks to the business. Engage early in discussions on governance, security, risk, and liability. Consider current information-based processes and procedures. Measures should be chosen based on the processes already in place. Eventually it will become evident as to which top-level, operational, or strategic goals these measurement areas impact. Prioritize initiatives and assign KPIs that can be measured.
4. **Have a strong champion and dedicated team.** During the initial stages of an implementation, most organizations have a champion included in the planning process, as well as the one or two individuals who act as the system's administrators. The champion provides knowledge of the organization's strategy management history and specifies the overall goals and vision of the transformation program moving forward. The system administrators typically take on the remaining responsibilities: coordinating various meetings with the departments, building the actual database into the system, and organizing training. This central team is in charge of managing all business processes that support the program as a whole.
5. **Recognize that transformation is not solely a technological issue.** Culture and organizational challenges will also need to be addressed.
6. **Start small, but plan for a journey.** A long-term transformational journey will be based on or impacted by financial markets, strategies and business objectives, capabilities, and budget.
7. **Pilot and assess your progress.** Many organizations want to hit the ground running, taking on as much as they can at once in the hope that it will get them to the finish line faster. Trying to measure everything at the same time is often a setup for failure. For a successful implementation, plan for a realistic pilot—something manageable that will allow you to make sure everything is being done correctly from the start. By choosing a specific starting point—a function, department, or unit within a department—you will be better equipped to fine-tune your progress and well positioned for success.
8. **Demonstrate incremental progress.** This consists of both strategic value-driver measures (that are often delivered monthly, daily, or weekly) and leading indicators (usually found at the departmental or divisional level). After mapping out what's already being measured, to create an overall structure of metrics, consider what's been overlooked in the past to see if anything else can help to accomplish defined goals. Those goals can be made up of multiple measures and KPIs, and it's important to understand the activities that directly contribute to each, in order to discover, analyze, and improve—closing the loop on transformational success.

9. **Identify and communicate links between scorecards and dashboards to streamline reporting and analysis.** Identifying and then communicating linkages helps everyone understand how their contribution impacts their peers and the organization as a whole. For example, review details regarding where resources (e.g., department funds) will be directed, but also have immediate access to details regarding the results of those activities and how they impact higher-level goals and objectives. In a real-world context, before spending begins on individual programs, your firm might need to establish a general plan of action that summarizes linkages in terms of what they want to do and what the expected outcomes are.
10. **Determine current state of skill competence, and if necessary, establish new competencies.** Ensure that your department or project team has the right skills and competencies to contribute to transformation. You may need to update your current training programs to support a rapidly evolving workplace. A comprehensive approach using communities, the intranet, toolkits, and certification can be effective. You might choose to outsource non-core services to onshore or offshore services providers, or to vendors in the Cloud. When skills gaps are apparent, consider partnering with startups or even developers in your ecosystem.
11. **Collaborate and talk to users.** Where do current processes fall short? What works and what does not? As the initiative progresses and your organization begins to understand overarching needs and where information is coming from, it's important that the team talk to the end users who will be on the front lines of business improvement efforts. Engage with internal customers to understand their needs and issues for insight into how you can support them to deliver on your strategy.
12. **Create a digital sandbox or testing ground.** This will foster the iterative approach that supports continuous innovation and experimentation across digital channels.
13. **Adopt an entrepreneurial attitude and think like a disruptor.** Transform legacy technologies into strengths or remove them altogether. Be willing to disrupt your business and adapt to a changing environment.
14. **Operationalize and measure your success.** Create opportunities to refine.
15. **Create a culture of digital innovation and transformation.** This starts with the end user. A key component to making this effort seamless is having the ability to communicate the context around the project in the form of action plans, related decisions, and related knowledge. The right technology will provide users with these capabilities, but will also shorten the timelines associated with traditional troubleshooting. As well, it empowers users to make informed decisions with confidence because everything needed is at their immediate disposal. Set up digital

units or centers of excellence so that best practices (for process automation, for example) can be shared, tested, and refined.

The Digital Call to Action

"With the right [digital] strategy, banks in developed markets stand to double their annual revenue growth rates (i.e., from 4 percent to 8-plus percent) and lower their costs to serve by more than 20 percent."[10]

In the current global financial services landscape, FIs that adopt new digital business models will be well positioned for success in the digital world. In fact, they will help to define the vision of next generation financial services. Given the transformational benefits of deploying a comprehensive EIM solution, future business leaders will make information management a top priority. As champions of a digital agenda, they will demonstrate how technology can facilitate change and investments in EIM technology, systems, and processes will transform the industry.

The journey to digital transformation requires a radical overhaul of culture, organizational structures, technology, and operating models. Since this is the new way forward, visionary leaders will need to figure out how to get there. EIM provides a strategic blueprint for transformational success. All of the digital innovators featured in this book tell the story of successful digital transformation. This vision of transformation is being defined today and improved upon for future generations. Structures and processes are evolving, and journeys down the path to making the vision a reality will be many and variant. The good news is—as we have illustrated throughout this book—the technology is available, and many enterprises have already taken their first steps toward implementing a digital strategy with EIM at its foundation.

PSCU has established a Center of Excellence and is recalibrating its culture around digital innovation, as outlined in the following interview that describes their agile approach to rolling out process automation and digital solutions.

[10] *"Banking 2016: Accelerated Growth and Optimizing Costs in Distribution and Marketing,"* Accenture, 2012.

PSCU

PSCU is one of the largest Credit Union Service Organizations (CUSO) in the U.S., providing traditional and online financial services to nearly 800 credit unions and their customers. Their e-commerce solutions also include electronic home and mobile banking. They provide credit, debit, ATM, and prepaid card services to more than 14 million cardholders and bill payment solutions to over one million online subscribers. All PSCU services are backed by 24/7/365 support delivered through four regional Total Member Care contact centers.

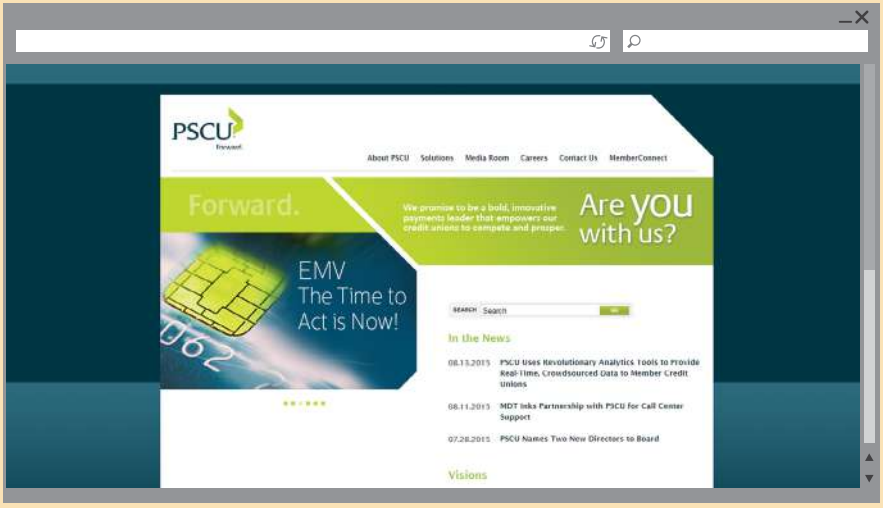


FIGURE 8.8: PSCU

What follows is an excerpt from an interview between Dan Rosen, Senior Vice President, Center of Process Excellence at PSCU and Tom Jenkins, Executive Chairman of OpenText.

TOM JENKINS: Let's begin by discussing what PSCU does, because it's somewhat unique. It's my understanding that you are a third-party provider of the services offered by the credit union. Is that correct?

DAN ROSEN: *Yes, when you see a Credit Union (CU) store front, we are the ones behind-the-scenes actually delivering their financial services. And we do that for around 800 CUs across the country. PSCU is actually a co-operative owned and directed by our CU members. Many of our members are small and independent, so together we have the scale required to deliver leading services.*

And how does the Center of Process Excellence play into that? Tell me about your team and what they do.

Our team consists of process improvement and Business Process Management (BPM) technology expertise and we are tasked with ensuring the back-office operates in optimal ways and enables our CU members to deliver excellent services to their customers. As you know, our CU members operate in a highly competitive industry. We support them by rolling out new and updated solutions, delivering efficient and compliant back-end processes, and providing them with consistent, superior service.

So, you're essentially running the back office of a bank. Unlike a bank, however, which can enforce absolute uniformity in how the customer is engaged, your front end is much more complex.

Exactly. Our front end consists of hundreds of individual organizations, with each engaging customers and delivering our services in a slightly different way. So customization is an important aspect of what we do. A mobile banking app, for example, would support PSCU technology yet be customized for the CU's needs. So our operations are more complicated than a bank, in that sense.

How does your architecture support that level of customization? You would need an approach that separates the front-end interface from your back-end architecture.

Absolutely. You can't cheat on that. They need to be separate. You also need tools that enable customers to do some of the front-end customization themselves. Almost every application we develop, for example, has an administrative tool the CU can use to customize—add their own logo, modify their branding elements, etc. Most of the larger CUs are very successful at using these tools. But, depending on the extent of the customization required and the abilities of the CU staff, we may be required to provide additional professional services.

So PSCU sources new capabilities based on your scale, bundles them, and rolls them out to CUs with the necessary customization and support.

Yes, we typically bundle pre-packed solutions together, such as mobile solutions or online web solutions. These are rolled out through our customer service portal. One of our largest bundles this year involved Apple Pay. Apple ranks the banks they release to, and because we brought 400 CUs to the table for Apple Pay, we were included in early phases of the rollout.

I'm sure contactless pay capabilities like Apple Pay are having a big impact on your operations. Give me a sense for how your industry has changed over the last 10 years.

It's been a drastic change. Historically, CUs in the U.S. operated about three to five years behind large banking institutions, like Wells Fargo and Bank of America. Over the last three years, however, there's been a lot of CU consolidation and we've seen this gap closing. We've seen larger CUs buying up smaller CUs to increase their portfolio and asset size. And as they've grown, their expectations have changed. Where in the past CUs wouldn't really think about mobile apps, today they want the latest capabilities, and they are pushing hard to roll them out faster than ever.

We talked earlier about architecture, and I'm wondering how you deliver your services in the Cloud. Where are you on that journey? What's your point of view because I realize you have important requirements for cybersecurity? I expect you would leverage a multi-tenant structure using hybrid model.

It's very tricky. We have evaluated our processes and data to make this determination. Initially, we thought it was black and white, all or nothing. But that's not really the right approach.

Today we have some on-premises server solutions—regulatory solutions, in particular—and we have cloud-based others that involve document archives, or repositories. The benefits of the Cloud are huge, but we need to balance that with the overarching need to secure sensitive data. That's where the intelligent BPM platform helps us because we can point the web service layer to the back-end cloud or on-premises server, and it won't impact the end user. It's very flexible. And the experience is seamless to the end-user.

With mobile solutions now playing an integral role in your operations, what have you found are the biggest challenges?

Mobile introduces significant security challenges, and this is a big concern for us. We don't want to follow in the footsteps of banks that have had millions of customer accounts compromised. So we're being very diligent to comply with the PCI DSS (Payment Card Industry Data Security Standard) for all applications.

So you provide member CUs not just with technologies that are compliant, but also with best practices on how to meet regulatory requirements? Is that correct?

Great question. We have a risk management department within PSCU that stays up-to-date with ever-changing laws and regulations, interprets how they impact the CUs, and helps us navigate areas of legal compliance and IT infrastructure compliance. So yes, we provide CUs with technologies for compliance as well as guidance on how to mitigate and protect themselves.

In what way do you depend on automation to help with compliance? Clearly, automation would make the process repeatable and ensure certain actions are taken consistently.

Yes, this is definitely true. Around four or five years ago we purchased a BPM solution and named our implementation TIMS, which stands for Total Inquiry Management System because it automates the process for CUs to make inquiries with PSCU. It provides workflow automation and escalation, is completely scalable and, to our original point, the workflow automation ensures our interactions are compliant.

As processes are digitalized there are a host of benefits. Efficiencies, cost savings, better customer services levels. Tell us about the biggest impact areas for you.

Prior to TIMS, our process for handling service requests was manual and paper-intensive. CU inquiries were routed on paper and were hard to track, and obtaining status reports was impossible. This lack of visibility negatively impacted our overall service delivery. By bringing in the BPM platform and automating our workflow, every request is now accessible electronically and we can respond efficiently. The platform also provides advanced reporting and analytics for business insight. Our customers and our employees are very happy with the new levels of service we can deliver. Over and above increased customer satisfaction, we have doubled our service request volume with no additional headcount and saved over $300, 000 through process efficiencies and increased workload capacity.

Your results are excellent. How was your overall deployment experience?

We have learned a lot through trial and error. Initially, we deployed the system with brute force, without understanding stakeholder requirements or the change management aspect required. We are a 30-year-old company, and staff was comfortable with our manual processes. Cultural resistance was an area we needed to address. At the 12-month mark, the project was transferred from IT to the process-side where I became involved. We decided to re-deploy and started with a lot of focus groups, a lot of Voice of the Customer (VoC) roadshows. We heard what the customers were looking

for, and we heard what internal resources were looking for. This was critical to our success. At around the three-year mark, we surveyed customers who hated the system initially and about 75 percent said that it actually improved their experience with PSCU.

Is it fair to say then, the lesson for people thinking of Business Process Management is not to treat it as a technology or a product, but as the scaffolding for a project?

Absolutely. My advice to anyone deploying BPM is to address four key areas: technology, process, people, and standards and governance. People have the tendency to "shortcut" deployment efforts to technology and process. But if you're not addressing people, governance and standards, it's going to fail.

Now let's talk about that. After you deploy a process, things change. We get regulatory oversight changes. We get changes in behavior patterns. Mobile, for example, changes the way people use products and services. There is also a constant flow of regulation which means processes need to be tweaked. How do you re-shape your processes and then roll them out?

We've adopted an agile process for BPM. The platform is flexible and easy to change. So we are constantly tweaking processes and every week we release updates. So, to your point, with this ongoing, iterative deployment approach, we can pre-emptively meet regulatory compliance requirements.

I think that's clever, using a continuous stream of small changes. I expect that helps with change management as well. Does it?

Absolutely. Frequent, small changes are much easier for users to digest. And our agile approach also lets us test changes with a small group of users before rolling them out to a larger group. Most of the variations and issues surface from this small deployment. So my advice to others is to start small. Pick the biggest pain point to the customer, pick the processes that will have the greatest impact on it, roll out the fix to a small group, iterate, and then build on your success with a bigger deployment. A BPM platform supports this type of agile process creation and management.

Thank you Dan, for this insightful conversation.

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Mark J. Barrenechea

Mark J. Barrenechea joined OpenText™ (NASDAQ: OTEX, TSX: OTC) as President and Chief Executive Officer (CEO) in January 2012. He currently serves as CEO and Chief Technology Officer (CTO) and is a member of the board. Under Mr. Barrenechea's direction, the company has grown both organically and through strategic acquisitions into a $1.9B company. Through its commitment to innovation and customer-centricity, OpenText has successfully realigned its products to transform itself into a leader in the Enterprise Information Management (EIM) market.

Before joining OpenText, Mr. Barrenechea was President and CEO of Silicon Graphics International Corporation (SGI), where he also served as a member of the board. During his time at SGI, he led the company's strategy and execution. Prior to SGI, Mr. Barrenechea served as Executive Vice President and CTO for CA, Inc. (CA), (formerly Computer Associates International, Inc.) and as a member of the executive management team. Mr. Barrenechea was also Senior Vice President of Applications Development at Oracle Corporation, responsible for managing a multi-thousand member global team. He has also held a number of other positions, including Vice President of Development at Scopus, a software applications company, and Vice President of Development at Tesseract, where he was responsible for reshaping the company's line of human capital management software. He holds a Bachelor of Science degree in Computer Science from Saint Michael's College. Mr. Barrenechea currently serves as a member of the Board and Audit Committee of Dick's Sporting Goods.

Mr. Barrenechea has authored several books about the evolution of the enterprise software industry, including *ON DIGITAL*, *Digital: Disrupt or Die*, *e-Government or Out of Government*, and *Enterprise Information Management: The Next Generation of Enterprise Software.*

Tom Jenkins

P. Thomas (Tom) Jenkins is Chairman of OpenText (NASDAQ: OTEX, TSX: OTC) and has served as a member of its board since 1994. Mr. Jenkins also served as President and Chief Executive Officer of OpenText from 1994 to 2005, and as Executive Chairman and Chief Strategy Officer from 2005 to 2013. Prior to that, he served in several managerial and technical capacities at various technology companies.

Mr. Jenkins has been active for more than 30 years in innovation and economic development in both the private and public sectors in Canada. He is also a member of the Board of Thomson Reuters Inc. and of TransAlta Corporation. He is an Executive Fellow at the School of Public Policy at the University of Calgary, a Director of the C.D. Howe Institute, an appointed member of the National Research Council of Canada, and Director of the Canadian Council of Chief Executives. Prior to his work in the private sector, Mr. Jenkins served as a commissioned officer in the Canadian Forces Reserve and currently serves as Honorary Colonel of the Royal Highland Fusiliers of Canada (RHFC), a reserve infantry regiment in the Waterloo Region. Mr. Jenkins is a member of the board of the Canadian Forces Staff College Trust in Toronto.

Mr. Jenkins holds an M.B.A. from the Schulich School of Business at York University, an M.A.Sc. in Electrical Engineering from the University of Toronto, and a B.Eng. & Mgt. in Engineering Physics and Commerce from McMaster University. Mr. Jenkins also received an Honorary Doctorate of Laws (LLD) from the University of Waterloo and an honorary Doctorate of Philosophy (PhD) in Military Science from the Canadian Forces College (Royal Military College). Mr. Jenkins was appointed an Officer of the Order of Canada (OC) in 2011 for his contributions to education and innovation in Canada, the Canadian Forces Decoration (CD) in 2013, and the Queen's Diamond Jubilee Medal (QDJM).

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Discover digital transformation to compete in the digital world.

Digital disruption is toppling market leaders and restructuring industries faster than ever before. Over the next five years, executives expect digital disruption to displace four out of ten incumbents—or 40 percent of established market leaders. This is a profound forecast, and it applies to all industries, including financial services.

Financial technology or "Fintech" startups are using algorithm-based innovation to help people save money, balance their budgets, plan financially for the future, invest wisely, and process payments digitally, in real time. In the process, they're reshaping the entire industry.

How can the incumbents keep pace? Whether you're a pure-play startup or an established financial brand, the only way to survive disruption will be to digitally transform your business processes and information, operate at the speed of digital, and deliver products and services using digital channels.

In short, your organization will need to disrupt or die.

Information lies at the core of digital transformation. In a digital world, information is the new currency, playing a fundamental role in empowering Financial Institutions through innovation, growth, and opportunity. True digital leaders will differentiate their products and services based on a strategy that maximizes the potential of information. Enterprise Information Management (EIM) empowers your organization to make this journey. This book has been written to guide you through each phase of transformation, providing you with effective ways to accelerate your business in the digital world.

> "Over the next five years, digital disruption will displace 40 percent of established market leaders. Will you be one?"

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