

LEAN DIGITAL: FOUR STORIES, REIMAGINED



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ABSTRACT

The impact of digital technology and analytics is revolutionizing and changing competitive dynamics across industries—from financial services to manufacturing. However, a significant gap exists between leaders and other companies. Many large and established enterprises with entrenched organizational silos and operations that are saddled with pre-existing technology are struggling to leverage digital solutions to deliver game-changing results. For such companies a more actionable approach to digital transformation is required. Lean Digital is one such approach—harnessing digital technology and analytics through a business-domain lens, it uses Lean and human-centered design-thinking principles to derive solutions that are practical and effective to implement.

TODAY'S CHALLENGE IN HARNESSING DIGITAL TECHNOLOGY AND ANALYTICS

Digital technologies and analytics are changing everything, creating heightened executive expectations. Advances are altering how individuals and organizations interact, and opening up radically new possibilities for value delivery. Exploitation of hyper-scalable technologies that enable both exponential growth and a reset to conventional cost-quality-speed trade offs are disrupting and redefining entire industries. The API¹ economy allows companies to quickly offer new services by expanding and integrating the capabilities of existing applications, while phasing out ineffective ones, and eliminating costly rip-and-replace cycles. Chart 1 shows some key indicators pointing at a very dramatic, yet varied picture.

Material impact witnessed and expected

3X-10X fintech disruptors' better cost structure than incumbents. E.g. overall mortgage costs can be cut **70%**

\$208 million per year expected from "radically better use of technology" on average across industries²

67% of S&P 500 will churn within 10 years in this environment³

45% of activities can be automated today⁴

64% of companies⁵ have "high" or "very high" emphasis on digital technology and analytics

Digital's impact is very unevenly distributed. The data shows that the gap between leaders and the average organization is significant, and calls for a better approach that enables more enterprises to embrace digital transformation successfully.

Only **33%** of significant IT projects **fully successful**.
20% for large projects⁶

53% cost, 72% duration overruns in ERP deployment⁸

Despite Agile coding, operating model **change** is **long**, rigid

Enterprise tech adoption takes **4 years longer** than analysts predict⁹

Only **35%** of operational executives see strong benefits from digital implemented so far⁷

Chart 2

The root of these challenges is not necessarily technical in nature. Organizational and strategy hurdles are the key to unlocking the potential to capitalize on opportunities. Many companies are lacking the ability to deploy enough of the right talent to overcome them. This ultimately results in the ineffective and inefficient engagement of end customers.

52% state **legacy** systems are one of the biggest hurdles; **change management** is close second¹⁰

Only **20% align well** the interventions with business objectives, resulting in scope and prioritization mistakes¹⁰

4 out of 5 don't re-architect processes **end-to-end** from front to middle and back office

Chart 3

What can be done, knowing that the amount of available resources is finite, and the complexity of most large enterprises has grown since the last comparable technology inflections, i.e. the inception of internet and the ubiquitous adoption of ERP?

¹ Application Programming Interface

² Genpact/LinkedIn research 2014; 900 operations executives North America and Europe

³ Innosight/Foster/S&P

⁴ McKinsey Quarterly, "Four fundamentals of workplace automation" November 2015

⁵ Survey in collaboration with sharedserviceslink - 100 executives responsible for business operations. 71% of companies participating have annual revenues of over \$1 billion

⁶ <https://www.bcgperspectives.com/content/articles/technology-business-transformation-technology-organization-largescale-it-projects> June 2015

⁷ Survey in collaboration with sharedserviceslink - 100 executives responsible for business operations. 71% of companies participating have annual revenues of over \$1 billion

⁸ Panorama, 2014 ERP Report

⁹ Genpact Research Institute analysis of analyst firms data

¹⁰ Survey in collaboration with Harvard Business Review Analytic Services, 2016

Chart 1

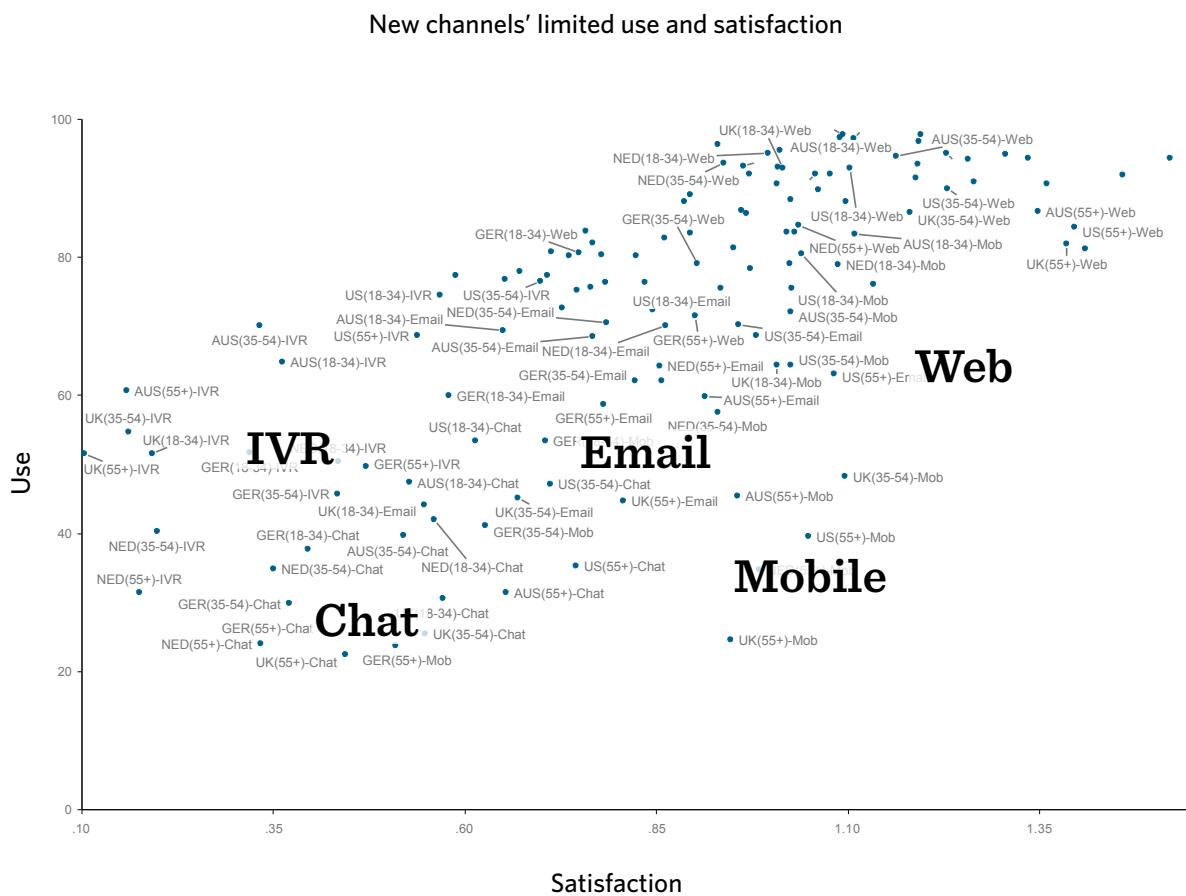
AN ILLUSTRATIVE EXAMPLE: REIMAGINING THE ENGAGEMENT WITH BANKING CLIENTS

This example is intuitively understood and can help illustrate challenges and opportunities across industries and functions.

The impact of digital technology is possibly felt the strongest in financial services, as those firms are in many respects “technology companies that move money”. For long time, banks have attempted to migrate much of the routine customer interaction away from expensive branch

networks and into lower-cost channels, such as web, telephone and IVR (interactive voice recognition), email, chat, etc. Results of recent research¹¹ conducted with 7,100 adults across US, UK, Germany, Netherlands, Sweden and Australia, show that this strategy is still a work in progress, and the majority of end customers aren’t fully delighted with their experience through those alternative channels.

The web, by far the most mature of them, is somewhat of an outlier, but even web interactions are only effective in transactional scenarios, such as reviewing account balances and making payments. The customer experiences with wealth management, or the purchase of a financial instrument such as a loan, are still far from ideal.



Products: Xfer= Money transfer, Check= Checking and savings accounts, Pmt= Payments, WM= Wealth Management, Mort= Mortgage, CR/DB= Credit and debit services

Channels: Tele= Telephone (non-IVR), IVR= Interactive Voice Response, Branch= Physical branch, ATM= Automated Teller Machine, Web= Online banking website, Chat= Online chat service, Mob= Mobile device used, Email= Electronic mail, Post= Physical mail

Regions: AUS= Australia, GER= Germany, NED= Netherlands, UK= United Kingdom, US= United States

¹¹Genpact Research Institute and YouGov, 2016

Figure 1 illustrates the challenge with the customer journey for the purchase of a retail financial product, such as a loan, where a front-office experience that is now digitally sophisticated and enjoyable clashes with the middle and back offices. In the middle-office, decisions about a case are made and risk is managed in a comparatively people-intensive operation using older systems of records. Back offices hold much of the data and perform the accounting

and financial reporting through fragmented operations often reliant on older systems. In other words, the challenge cannot be overcome with digital enablement of only the front-office. A successful and satisfying customer journey can only be realized with a focused end-to-end solution that requires a robust, fluid and seamless orchestration of processes that connect the organization's front office with the middle and back.



Figure 1

Indeed, our research confirms that only one-fifth of companies' middle and back-end processes effectively support the front-end¹². This situation results in not only a frustrating experience for the customer, but also in significant friction within the enterprise. As shown in figure 2, the results can include a range of outcomes including long cycle times, errors, suboptimal expense ratios, compliance issues, and suboptimal Value at risk (VAR).

A better approach to digital starts by organizing transformative interventions through the lens of the customer journey, ensuring that all efforts have a clear line of sight to the respective business impact. The customer journey is better understood, and potential solutions explored, through design thinking practices (a.k.a. human

centered design). These practices put the end client at the center and avoid jumping in too rapidly with premature expert or IT-led conclusions. In fact, what often creates customer delight is not technically complex, expensive, or singularly focused on functional necessities, but instead clearly aligns with people's emotions. Simple tools that create process transparency and allow the customer to feel in control, can go a long way. Mapping a finite number of such customer journeys explicitly, and running fast turn-around experiments, often in lab or "agile development" settings, is key to unlocking insights to fine-tune the solution. Thanks to practices derived from Lean principles, those maps can illuminate the touch points across the enterprise, and cost-effectively guide interventions toward the relevant areas of that experience.

Example: Retail financial product operations—disjointed, costly and risky

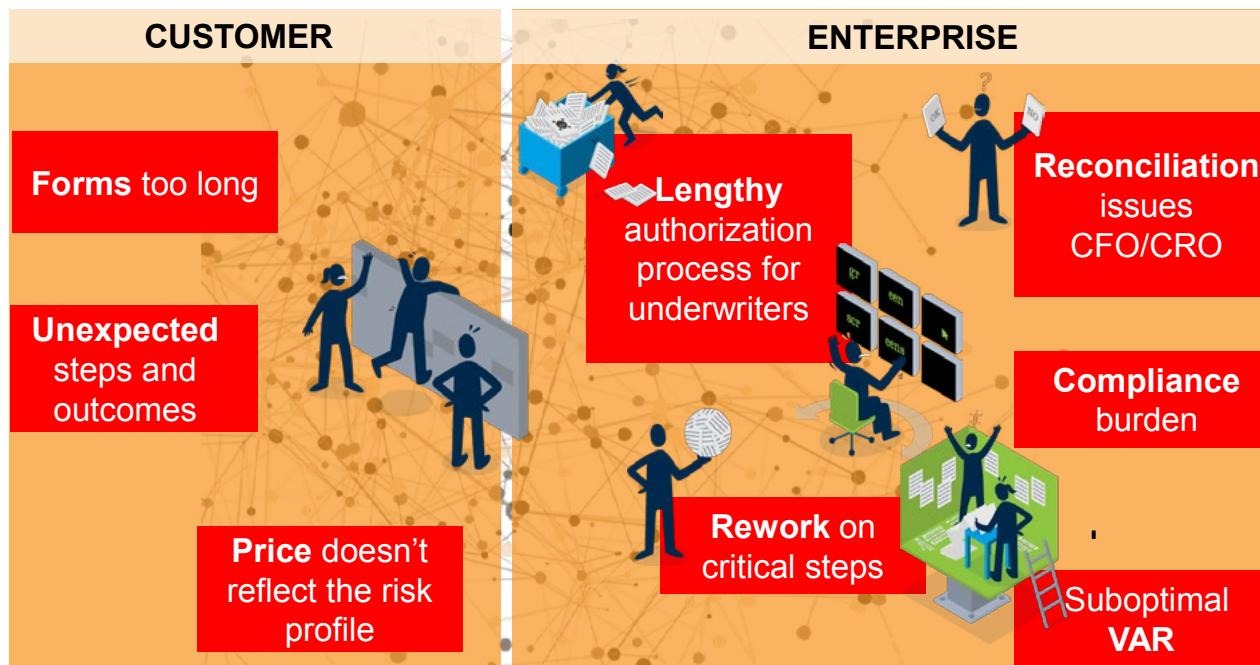


Figure 2

¹² Harvard Business Review Analytic Services, 2016

Steered by that “true north”, processes can be streamlined before being digitized, and augmented, not just automated. In some cases, people and not machines are the most effective way to deliver services. For instance, customer chats can leverage a combination of human customer reps and artificially intelligent virtual assistants who support them. Machines don’t respond to the customer in an unsupervised manner but can make the rep more efficient by quickly finding alternative solutions to a problem—such as the identification of the right “know your customer” forms. In this model, data is accessed and transformed to insight, and then embedded into a decision-making process entailing both machines and people, at scale. This enables the fast processing of clients in scenarios or segments that are statistically “safe” and hence don’t require additional checks and oversight.

With every transaction, digitally enabled operations can record how and what was transacted, as well as assess

the results that were obtained—from a cost, risk (e.g. actual default rates on loans), and revenue standpoint. This corpus of data is particularly powerful in large companies, which by definition run thousands of natural experiments every day because of the expanse and heterogeneity of their products and clients. By identifying patterns, ultimately, through machine learning, and harnessing the respective insight, financial services firms can continuously improve the way their operations predict what will happen (e.g. a default), sense what the client will do (e.g. seek to renegotiate), and act effectively (e.g. access the collateral asset, or change the terms of the loan). Importantly, this will happen at scale, and consistently across thousands of touch points.

This operating model transformation doesn’t only depend on digital technology, but it also requires analytics, Lean principles, and human-centered, design-thinking practices.

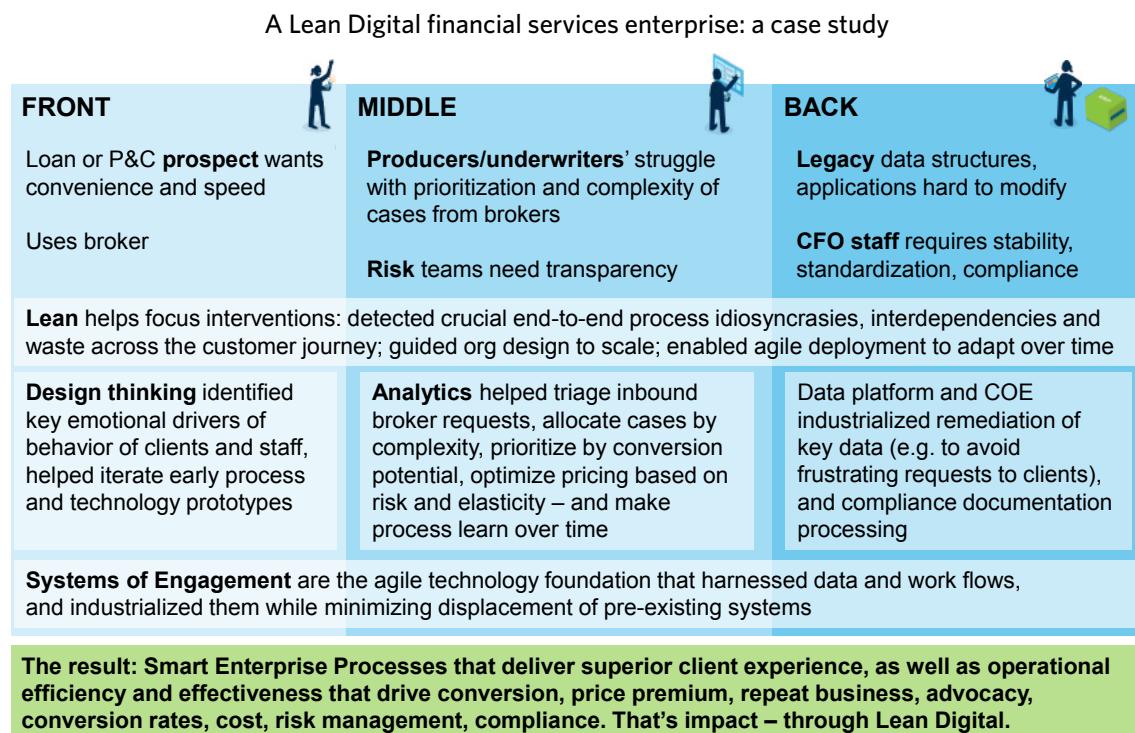


Figure 3

DIGITAL SOLUTION PORTFOLIO IN ACTION

Delving into the tools and practices used, a sophisticated yet clear picture emerges that demystifies much of the current jargon. Consider the following use of these digital technology solutions, further illustrated in figure 4:

1. **Robotic process automation** (RPA) can industrialize the input of data from customer relationship management (CRM) systems, even when obsolete or when integration through structured interfaces (API) is complex. RPA can also extract data from documents stored in older or disparate formats, such as those from transactions related to different financial products, or those inherited through acquisitions of third-party books of business.
2. **Data science and data governance** create an additional level of data enhancement, but they do so in a business-driven, focused way to avoid wasting effort on things that are comparatively less material. While this sounds obvious and intuitive, the actual "doing of data" across IT, analytics and business silos often creates information asymmetries that result in effort duplication or simply in resources wasted on low-impact work.
3. **Dynamic workflows** that utilize cloud-based technology and sophisticated algorithms to dynamically decide the sequenced assignment of

processes (e.g. which banker should process a client case) are a significant improvement compared to simple rule-based workflows typical of older systems of records (e.g. banking core systems and ERPs). They can also trigger automated actions for machines to execute (e.g. automated issuance of a notification for the end client).

4. **Machine learning** is one of the most exciting digital solution areas. It uses complex analytics to detect patterns and predict events with increasing accuracy. As an example, in the origination of a loan for the acquisition of a productive company asset, machine learning can power a sophisticated and scalable risk assessment – through financial spreading. This encompasses the compilation of information from disparate structured and unstructured data sources, and the creation of reports such as prospective P&L statements and balance sheets. Machine learning can similarly help with detecting default patterns in specific client segments more dynamically than analysts can do with conventional tools (often Excel worksheets).
5. **Natural language processing (NLP) and natural language generation (NLG)** utilizes today's computing power and analytics to extract meaning from documents containing unstructured text written by people (e.g. an email query) and produce narrative (e.g. response to a complaint) that is virtually indistinguishable from what a human could write.

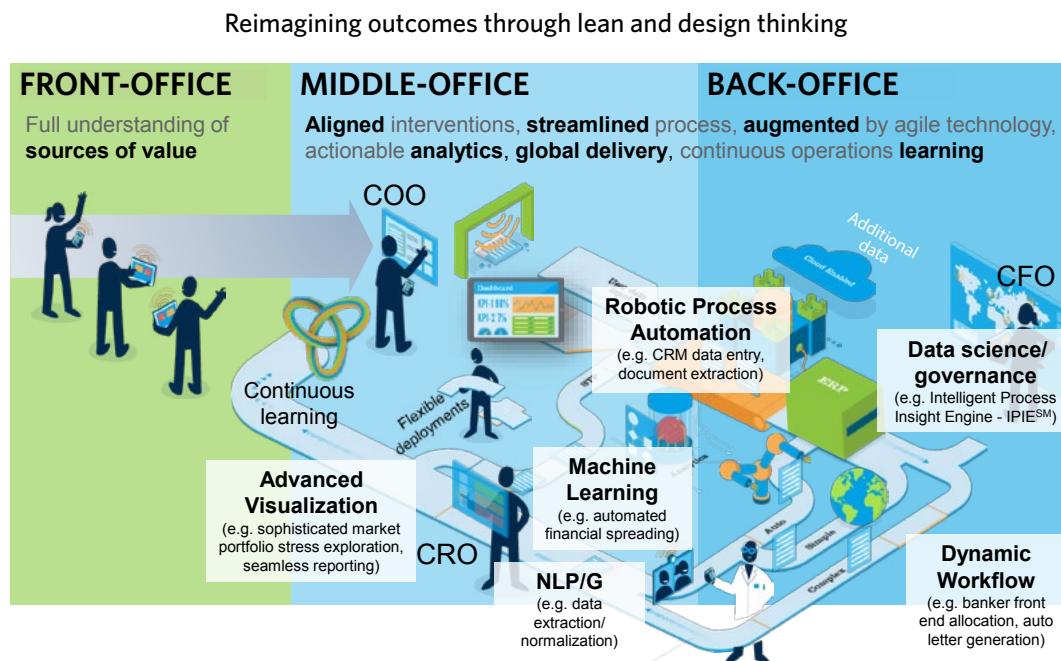


Figure 4

The unstructured nature of this content based on grammar and semantics is not fit for conventional technologies. The ability to extract and normalize this information to dynamically create text that can be shared at scale, opens the door to many significant enhancements for critical business processes—from quick interactions with clients and internal stakeholders, to the creation of financial reporting for use with external organizations.

6. **Advanced visualization** enables the reporting and exploration of complex, multi-dimensional data sets for use by analysts and executives, where machine learning is not able or allowed to “finish the job”. For example, it can help the risk department with stress analysis of certain parts of the credit portfolio, and enable reorientation of investment guidelines to optimize the VAR metric.

All these digital solutions enable the crucial documentation of how and why certain decisions were made, as well as the comparison of decisions and actions to business outcomes. The continuous learning and insights produced by operations leveraging these technologies is significantly different in both scale and speed compared to what is achievable in most operations today—those reliant on rigid systems of records, poorly documented standard operating procedures, and people whose high-end skills are difficult to find.

In the short term, changes to decision making at all operational levels, from business-line leaders to front-line employees, can be cascaded in a timely and effective manner, turning the insight derived from the data into scalable action. In the longer term, these insights can inform broader strategy at executive and even board levels, with a degree of accuracy and timeliness previously unattainable.

TACKLING LEGACY OPERATIONS

Unlocking innovative and disruptive opportunities requires embracing digital technologies and analytics, but that is not enough. The ability to understand, evolve and complement pre-existing systems of records at every step of the business process is also crucial. Compared to even a decade ago, today's average large enterprise is replete with legacy ERP and other core business process technology systems. With some rare exceptions, often in front-end web interfaces, or CRM, there is very limited green field left for digital solutions. The option to rip and replace existing systems is rarely fully viable. Older systems and related processes may not be fully amortized. IT may not have the capacity to support a wholesale change. Older systems may be the host of key master data, or compliance-relevant control points may be interspersed within these systems such that any substantive change may generate significant enterprise risk. Additionally, “shadow IT” prompted by the

Systems of Engagement™ leverages existing technology investments to catalyze new value

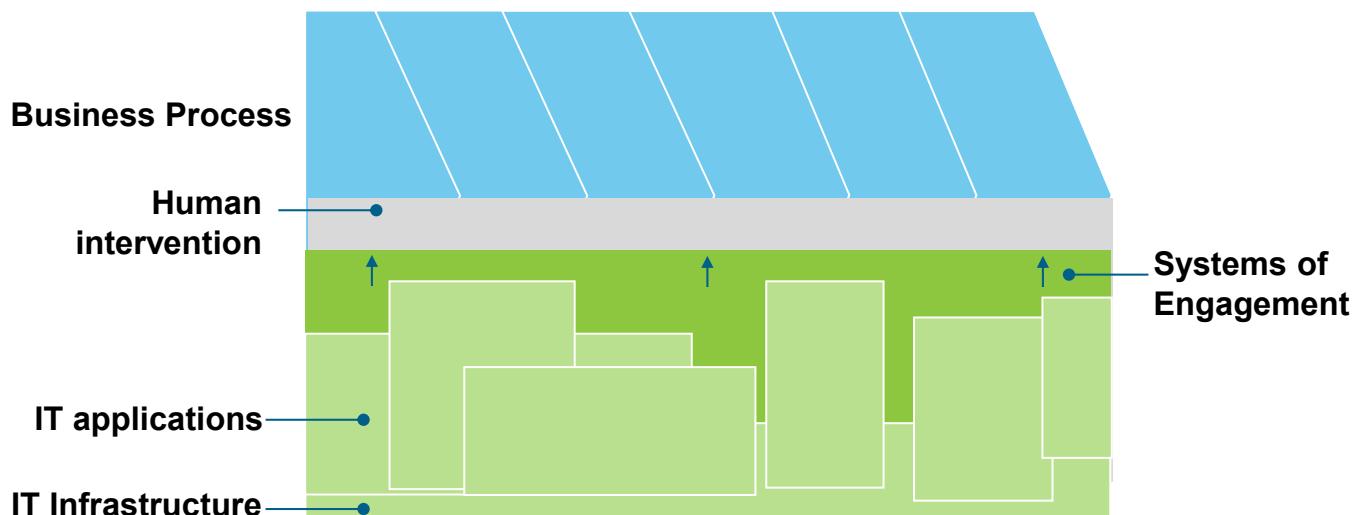


Figure 5

deployment of digital technologies in individual business units without the direct purview of IT has the potential to create significant risks minimizing effectiveness, efficiency and threatening security levels.

As a result, digital interventions increasingly leverage a specific class of software solutions called Systems of Engagement (SoE, see figure 5). SoEs are thin, nimble solutions that are comparatively easier to deploy than legacy technologies, and that integrate either through APIs or even at a user interface level through RPA. The focus of SoE is on maximizing the impact of people who manage those processes, sometimes by automating steps, sometimes by enhancing their ability to execute (i.e. prioritizing activities). SoE often reimagines process

steps instead of just automating them. For example, a reimagined process might eliminate credit extension steps if the respective machine learning analytics identify that the delinquency risk is limited.

When deploying these types of systems, technologists must look beyond traditional technology deployment capability with a focus on understanding the data and key integration points of the pre-existing systems of record environment. Additionally, success will only be realized by enlisting respective subject matter experts to work cohesively across functional silos.

The impact, illustratively shown in figure 6, can be truly transformative across a number of dimensions, from efficiency to effectiveness.

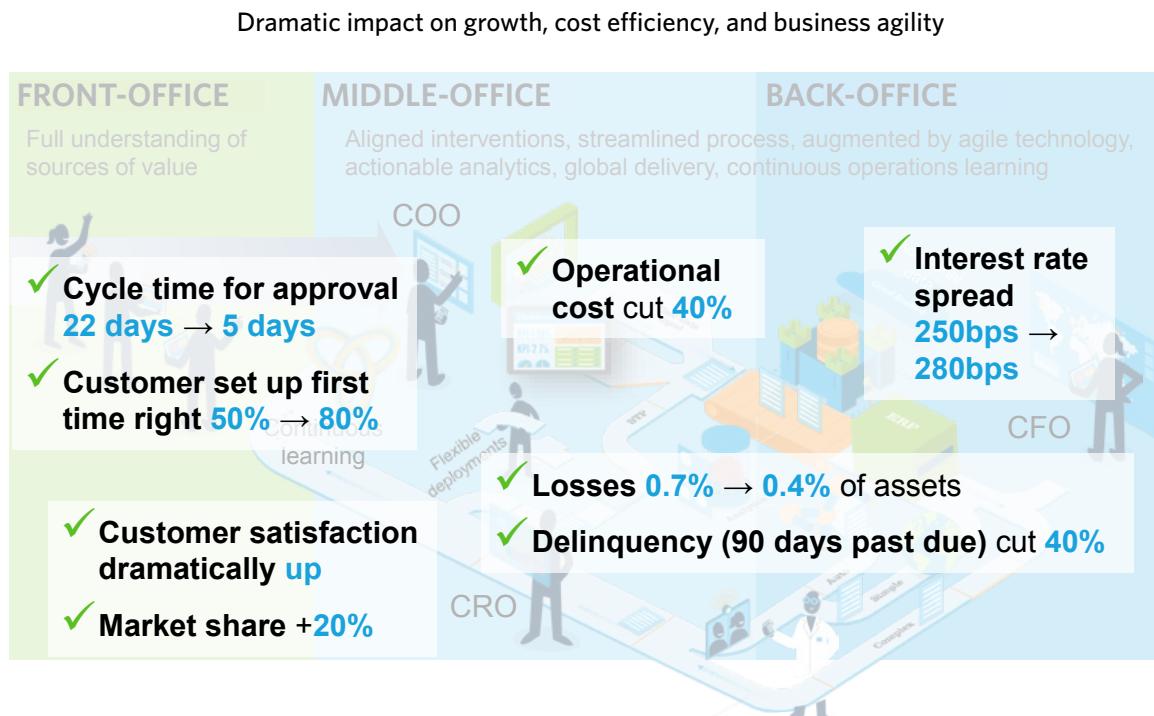


Figure 6

FINANCE AND ACCOUNTING EXAMPLE: THE ORDER TO CASH CYCLE

In many Finance and Accounting (F&A) processes, the order to cash cycle is a particularly good example to demonstrate what has been discussed. Order to cash has important ramifications into the supply chain and sales. In times of slow growth, and once most of the low-hanging fruit has been plucked in refining front-end customer interactions, securing further competitive differentiation is only realized through tighter handling of supply chain and order management processes. In the absence of deliberate

interventions, the situation, summarized in figure 7, reflect results similar to what was illustrated in the example in the previous section.

In times of slow growth, and once most of the low-hanging fruit has been plucked in refining front-end customer interactions, securing further competitive differentiation is only realized through tighter handling of supply chain and order management processes

Example: order to cash operations—disjointed, costly and risky



Figure 7

Similarly, the impact of many digital solution levers and significant nuances to those solutions was also illustrated in Figure 4.

RPA can perform customer master data setup, including those acquired through mergers and acquisitions, at unprecedented scale, speed and accuracy without mandating changes to any existing CRM systems. RPA extracts data from documents that are stored in older or disparate formats. Dynamic workflows use sophisticated algorithms to decide workflow sequencing assignment, such as which agent should handle specific exceptions or disputes. Machine learning helps dynamically align credit limits and collection strategies to each customer's risk profile and assists order management analysts by eliminating manual activities and data lookups. NLP helps parse contracts and unstructured external data to inform the dynamic credit engine. NLG helps automate and expedite the responses to disputes. Advanced visualization then enables a global view of the order to

cash cycle enabling better decisions on demand planning, promotions, fulfilment and collections.

Figure 8, while populated with illustrative numbers, captures the range of positive outcomes that can be unlocked by an appropriate approach to end-to-end transformation of the order to cash process.

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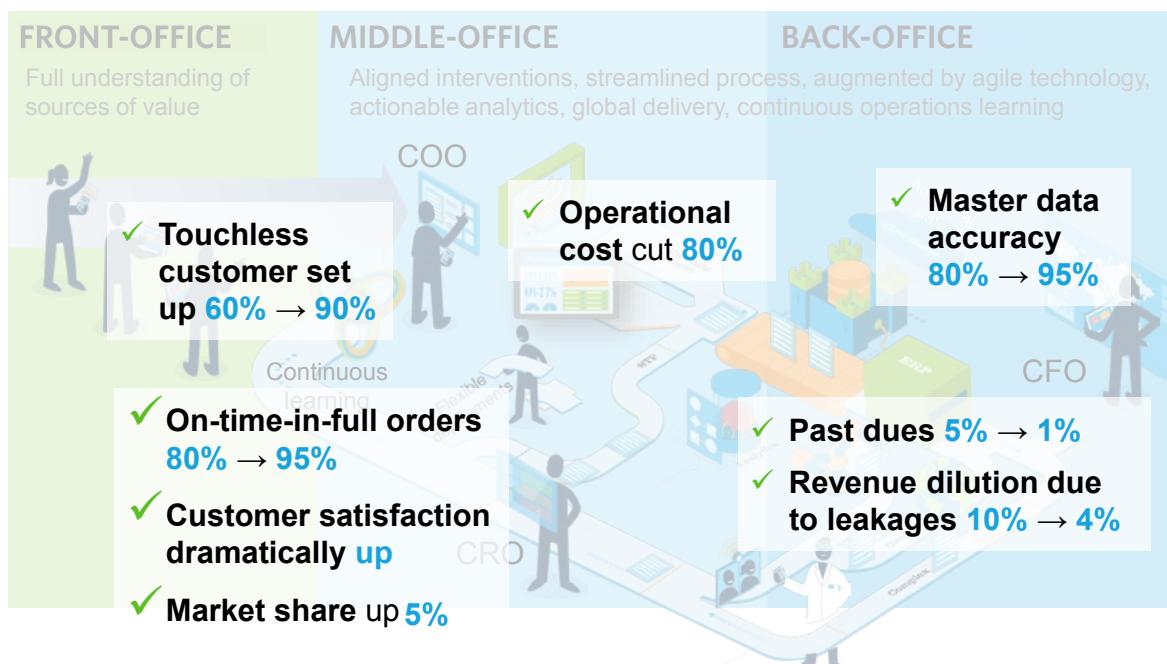


Figure 8

LIFE SCIENCES EXAMPLE: PHARMACOVIGILANCE AND ADVERSE EVENT MONITORING

Effective detection and reporting of adverse events (AE) is critical to avoid breaching pharmaceutical industry regulations. The reality is that the pharmaceutical industry reporting of drug side effects is far from

optimal. According to some estimates, up to 90% of side effects from drugs are not reported. New methods of patient engagement contribute to ever-growing volumes of unstructured data containing insights rarely analyzed completely for AE. Reliance on humans to capture, triage and report AE leads to delays in reporting, inadequate capture of reportable events, and even failure to report as required by law. The process is time and effort intensive, and exposes companies to material risks.

Example: Pharmacovigilance adverse event reporting—intensive, costly and distracting compliance burden

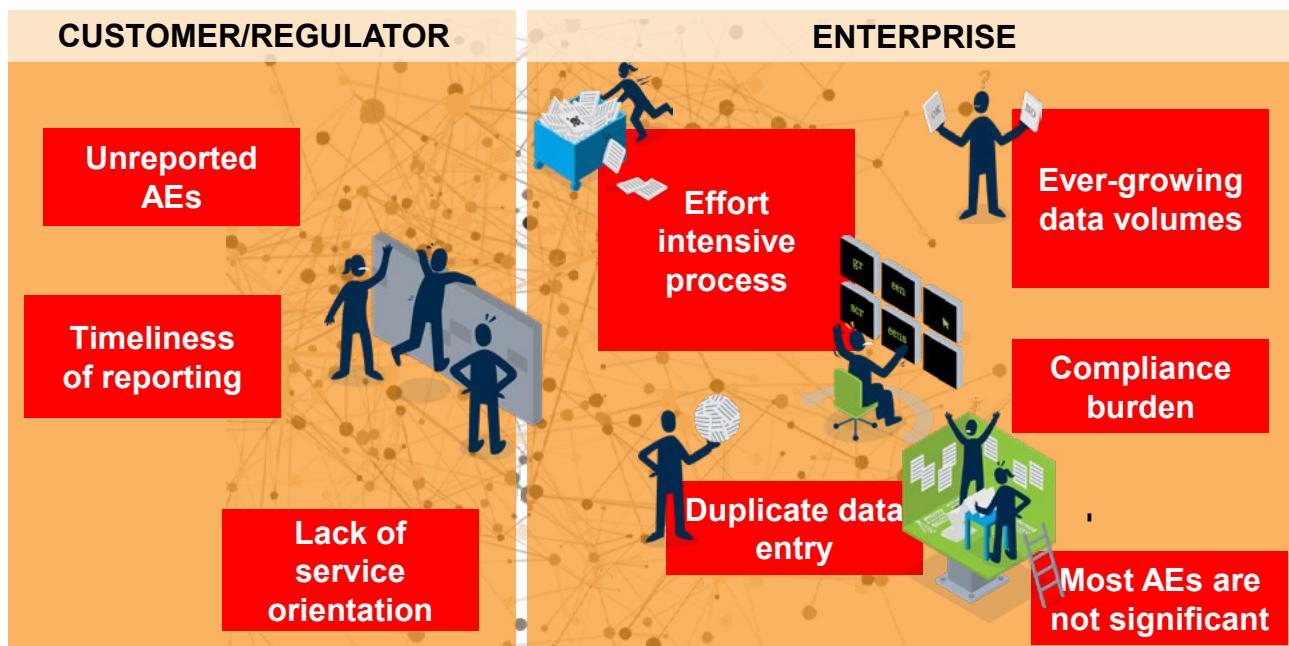


Figure 9

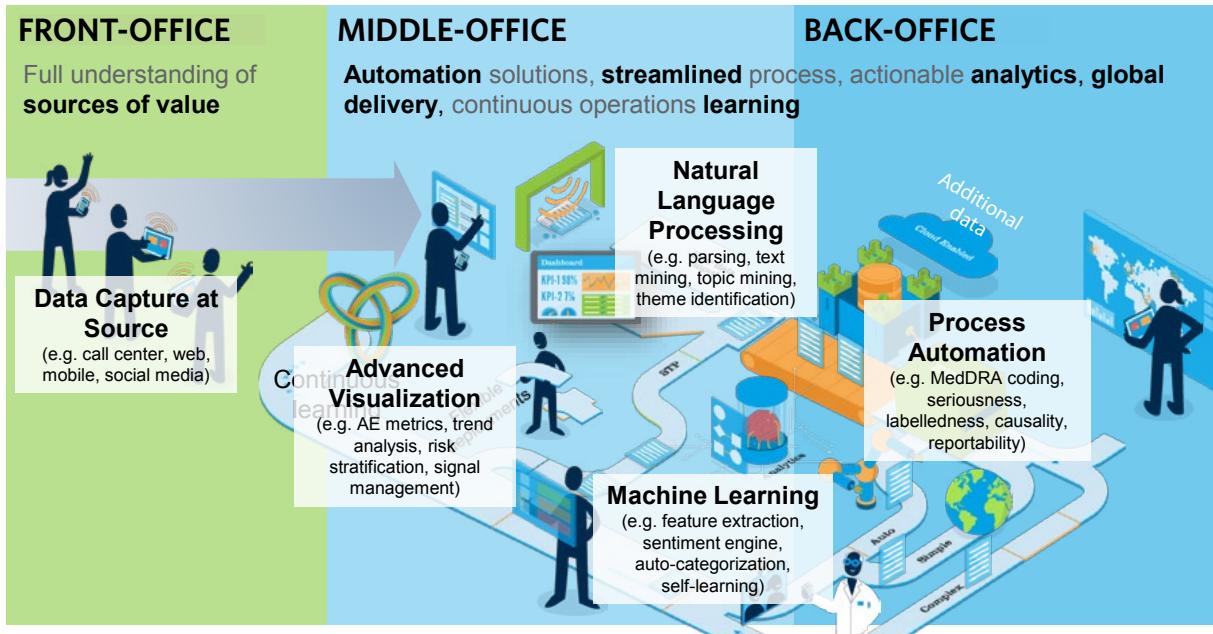


Figure 10

NLP can help parse data from many sources such as social media, branded properties, mobile apps, AE call center records and CRM records. It then organizes the data around relevant themes to identify important events. Automated rule-based workflows categorize themes by parameters, such as causality or seriousness, determine report-ability, and assign any exceptions to an analyst. Machine learning helps improve the coverage of

automated categorization over time minimizing the need for human intervention. Finally, advanced visualization helps experts monitor AE trends, detect signals for proactive interventions and risk management.

The benefit of such operations goes beyond compliance and cost, by providing a robust data-driven foundation for new therapies, better patient engagement, and higher product revenue.

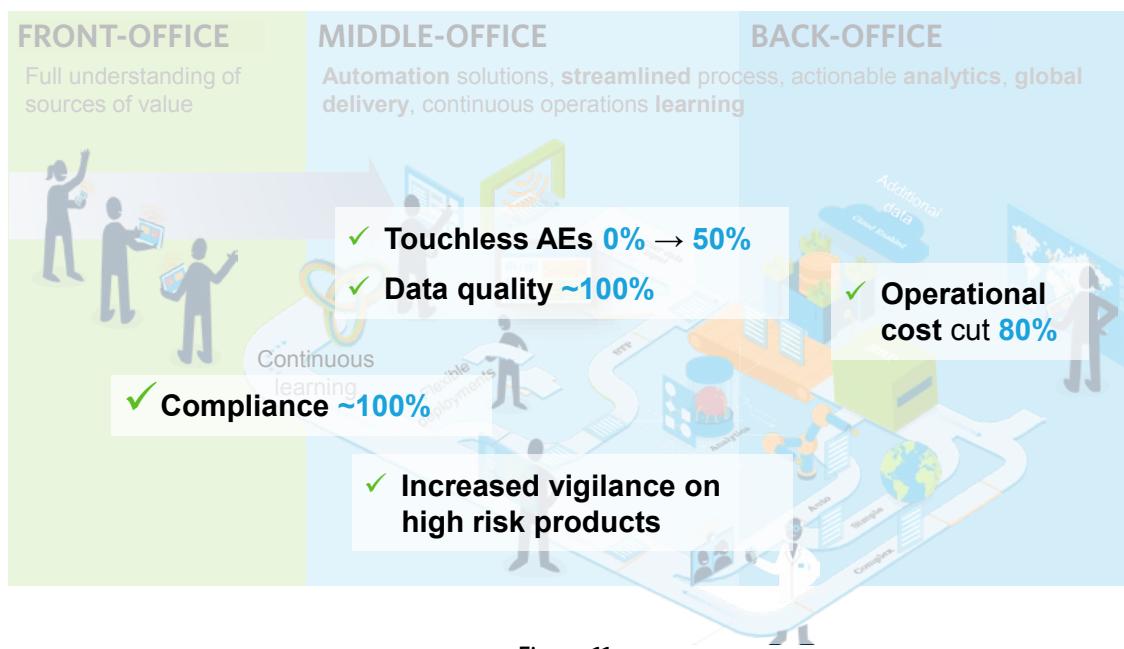


Figure 11

INDUSTRIAL MANUFACTURING EXAMPLE: INDUSTRIAL INTERNET OF THINGS

The Industrial Internet of Things (IIoT) leverages the interconnectivity of machines and systems with sensors, data, and analytics to enhance visibility and insights into the performance of equipment and assets. IIoT has the potential to drive significant industrial process improvements; enhance quality, productivity, and overall operational efficiency; as well as increase growth and profitability in manufacturing and other sectors. Yet this transformation is slowed by similar challenges to the ones discussed previously. Digital technologies allow for the storage and processing of vast amounts of structured and unstructured data, but the resulting overload of data in large legacy environments with operational silos makes it hard to generate actionable insights.

The reimagination of industrial businesses must focus on the “plumbing” that combines usable, relevant data and

takes it through analytical engines to generate insights. Then, the loop must be closed through operational and engineering processes—at scale. Seamlessly integrating and analyzing industrial asset performance and health data, with business systems using advanced industrial internet platforms like GE Predix, enables robust data management and governance across the life cycle of the data ensuring its real-time and accurate view. Advanced predictive analytics models anticipate asset failure and optimal maintenance schedules and costs, while helping trigger an automated machine response, an alert to an operator, or an indent for spare parts. Advanced visualization then provides relevant information to stakeholders across engineering, aftermarket services, sales or finance, and allows scenario and simulation-based decision making. The ability to leverage component micro services securely, such as in the digitally assisted optimization of the dispatch of field engineers for the assets from multiple OEMs, provides operational agility that is impossible in conventional environments.

Example: Industrial Internet of Things—lack of end-to-end solution, not IT, leads to suboptimal results



Figure 12

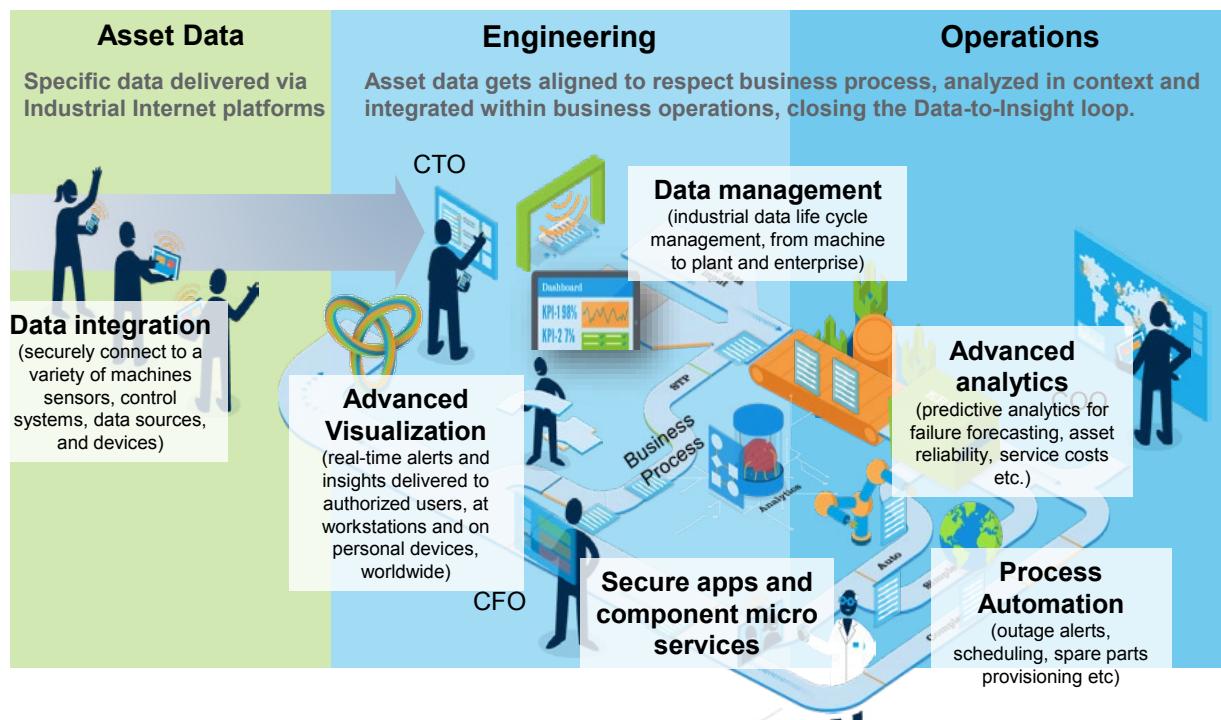


Figure 13

Such cross-functional digital enablement through the holistic use of IT, analytics, process redesign and advanced organizational structures can provide significant competitive advantage and business agility.

Our recent research¹³ shows that more advanced users of IIoT technology and related analytics anticipate an average annual positive impact of \$526 million

through their use of digital technologies, \$530 million with IIoT-specific process redesign, and \$446 million through advanced organizational models that leverage the IIoT. Those that are less advanced expect to achieve a dramatically lower business impact from IIoT. These outcomes stem from a variety of benefits, such as asset uptime, better data reliability, increased revenue, and obviously operational cost reductions.

¹³ Internet of Things critical to industrial firms' success, yet many still unclear on execution strategy, says Genpact Research Institute



CONCLUSION: THE NEED FOR A BETTER APPROACH TO DIGITAL

There is a great opportunity to generate business impact with digital by connecting the dots across the enterprise, between the front-end and the middle and back office processes, rather than by focusing on the front-end alone. A Lean Digital approach goes beyond traditional IT

implementation methods that often leave both business and CIO organizations dissatisfied. Lean DigitalSM harnesses digital technology and analytics through a business-domain lens, and uses Lean and human-centered design-thinking principles to identify solutions that are practical and effective to implement.

The result can be an intelligent operating model, where business processes are able to predict and sense the environment, act appropriately at scale, and continuously learn from the impact of their actions.

LEAN DIGITALSM

UNIQUE APPROACH THAT DELIVERS DIGITAL'S FULL POTENTIAL



PROCESS-CENTRIC DIGITAL TECHNOLOGIES, AND ANALYTICS



DESIGN THINKING METHODS FOCUSED ON THE END CUSTOMER



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Genpact (NYSE: G) stands for “**generating business impact.**” We are a global leader in digitally-powered business process management and services. Our **Lean DigitalSM** approach and patented Smart Enterprise ProcessesSM framework reimagine our clients’ operating models end-to-end, including the middle and back offices – to deliver growth, efficiency, and business agility. First as a part of GE and later as an independent company, we have been passionately serving strategic client relationships including approximately one-fifth of the Fortune Global 500, and have grown to over 70,000 people. The resulting domain expertise and experience running complex operations are unique and help us drive choices across technology, analytics, and organizational design.

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