The rise of intelligent operations

Technology breakthroughs radically expand business processes’ art of the possible

A collection of insights and perspectives

Operating models are evolving fast. The effect of new thinking in shared services, outsourcing, and process engineering is further amplified by cloud-based and mobile applications, advanced analytics, and collaboration tools.
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The rise of intelligent operations
A collection of insights and perspectives

Foreword

The Great Recession has triggered a momentous change in many organizations’ operating models. Enterprises seek competitiveness in an environment where agility and variable cost are as important as robustness, and where scrutiny from regulators and clients is pervasive—and organizations need all of their operations’ help to compete.

This time is different. Unfortunately, past transformation through, for instance, large-scale Enterprise Resource Planning (ERP) deployments has often delivered much lower-than-expected ROI, and slower realization of expected benefits (five to seven years later, on average). Our experience indicates that a clear root cause of these issues has been the forced-fit of old processes onto new technologies, and vice versa. Many of these mistakes can be avoided today, thanks to better process design and transformation practices, and now-mature and more agile technologies—in short, with better operating models.

As described in our previous reports1, when operating model changes are executed well, the impact on cost and growth can be enormous. Being flexible in terms of cost structures while capturing fast-evolving, granular profit pools is achievable through advanced process operations, and yields better controllability and auditability of how companies run.

A radical shift in the art of the possible: Technology is no longer the limiting factor. Cloud-based and mobile applications, analytics, and collaboration tools now multiply the effect of well-understood levers such as shared services, outsourcing, global delivery, and process reengineering. These technologies matured almost at the same time2 in mid-2013, and their combined momentum is now formidable. Consider the impact on client-facing activities as a sample of what’s possible:

- Banks engage clients at scale through multi-channel models enabled by technology and related-data-driven insight.
- Pharma companies can harness interactions with patients during the initial, critical phases of product launches.
- Industrial manufacturers can optimize the effectiveness of their assets and capture more value from their clients by deploying more cost-effective services, once again based on more insightful data correlated with financial impact.

In general, most large operations supporting front-to-back processes are benefiting from faster ways to automate, derive insight, and act in a way that delights clients while reducing the effort (and cost) of doing so.

Clearly, these great opportunities may be nullified by the same issues that have prevented previous waves of transformation. Technological excesses of the past (such as in many ERP or data-warehouse deployments) have left many feeling jaded. Although the root causes have been identified, few understand the interconnection between IT, analytics, and process operations sufficiently. Some technologies are unproven, and older ones are rigid and expensive to evolve. Some new uses of analytics are unclear, and scaling deep analytics throughout the enterprise is frequently a struggle.

A practical way forward. Our experience of advanced operating models, accumulated over 15 years of work with hundreds of clients, including more than one-fourth of the Global Fortune 500, drives the research described in this book. This experience benefits from thousands of “controlled experiments” conducted at unprecedented scale by orchestrating the operational work of hundreds of thousands of professionals, including more than 60,000 within our own company.

We now know that there are agile and practical ways to evolve. The key is to design, transform, and run the processes that power advanced operating models so that they closely align with measurable business goals, and avoid saddling the company with unnecessary and often unmanageable complexity. This approach:

- Focuses more rigorously on the sources of impact and deliberately disregards any practice that does not yield material outcomes. With our deep craft of operations, we now can pinpoint practices and changes that are likely to work.
- Takes a more objective and holistic look at technology, analytics and organizational practices. It leverages new yet mature “systems of engagement” that complement core business technology and “systems of record”. It treats analytics (data-to-insight-to-action) as a process, and determines how to embed insight at scale into the fabric of other enterprise processes; it does not take the typical approach of viewing analytics as a task and a set of technologies.
- Harnesses process and organizational levers available from established disciplines, such as reengineering, shared services, outsourcing, and global delivery.

We call the resulting advanced operations “intelligent” because they can sense, act, and learn from the outcome of their actions, at scale—thus making the entire enterprise more intelligent.

Every great business relies on great operating models. They can be a cornerstone in every CEO’s portfolio of strategic initiatives.

We sincerely hope you will find the reading useful, and we look forward to engaging with you in making these ideas a reality.

NV “Tiger” Tyagarajan, President and CEO

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1 “Business Process Operations: The Art Of The Possible” and “Genpact impact report 2014”.
2 For reference, among others, see Gartner www.gartner.com/technology/research/hexus-of-forces/.
The role of analytics and technology in the rise of intelligent operations

The impact of technology on business process operations

We are entering a time in which new, yet robust technologies will catalyze the evolution of process operations, and multiply operations’ impact in addressing the numerous challenges that large enterprises face. However, the applicability and impact of these technologies is not uniformly high, according to almost 1,000 business executives surveyed by an independent research firm in a project commissioned by Genpact. Here are the findings.

Data-to-insight-to-action: Taking a business process view for analytics to deliver real business impact

Too many companies struggle in leveraging analytics. That’s because despite the hype, a critical aspect is often neglected; “data-to-insight” and “insight-to-action” are business processes, and to generate material business impact, they require scale, as well as appropriate design, related change management, incentives, and people accountability. Advanced operating models such as shared services and outsourcing, as well as a focused effort to ingrain analytics more deeply into those business process steps, that generate material impact, can help give analytics a necessary “industrial strength”.

Built to adapt: A better business technology approach for volatile times

Instead of succumbing to the traditional IT-first bias, smart CFOs, CPOs, COOs, CMOs, and many CIOs are now judiciously embracing a business-practice bias—enabling a “build to adapt” strategy that is highly valuable in a volatile business climate.

"Robotics" in process operations: Useful rapid automation, no transformation panacea

Rapid automation (RA) is a valuable addition to systems of engagement for process operations and a useful complement to systems of records.

Loyalty 2.0: Industrialized analytics embedded in your processes

New customers of both the B2B and B2C variety are far more influenced by increased choices, technological advances, and exposure to social media. Remaking enterprise processes that are responsible for delighting these new customers (and doing it at the right cost) is an analytic and business transformation challenge. The point of view explores how to “industrialize” and embed analytics into processes to enable intelligent execution at scale in order to create and maintain a loyal customer base.

The changing face of business collaboration

Collaboration remains an often-untapped key to competitive advantage, buried in enterprises’ organizational “backyard.” A Unified Collaboration framework that takes culture and human behavior into account, and drives technology decisions with a clear focus on business outcome, can deliver significant impact.

Almost plug and play: How advanced process operations help M&As

Mergers and acquisitions are commonly used to drive innovation and growth, but their consummation is complex. Their execution benefits from advanced support operations such as shared services, outsourcing, and particularly Global Business Services (GBS), which can facilitate increasingly complicated enterprise restructuring.

A rigorous business case for advanced operating models

Operations leaders often struggle to describe the full strategic value of their operating model transformation to top management. This thorough evaluation helps build more sophisticated business cases that withstand the scrutiny of board and CEO, and enable more informed decisions between strategic alternatives.
The impact of technology on business process operations
Research results across industries and functions

We are entering a time in which new yet robust technologies—such as cloud, analytics, collaboration, mobility—will catalyze the evolution of process operations, and multiply operations’ impact in addressing the numerous challenges that large enterprises face. However, the applicability and impact of these technologies is not uniformly high, according to almost 1,000 business executives surveyed by an independent research firm in a project commissioned by Genpact. The research also shows that many executives associate technology with significant positive monetary impact, and that technology is proportionally more applicable to business functions that address multiple challenges across the enterprise.

About the research
In 2014, Genpact commissioned a research project conducted by an independent research firm. The goal was to assess the potential to address strategic enterprise challenges through advanced operating models across a defined spectrum of industry sectors (banking and financial services, manufacturing, high tech, healthcare, life sciences and consumer goods). The findings presented are based on the response of executives selected, based on their ability to materially influence functional decisions, of which over 150 were from finance, about 130 from marketing, about 120 from procurement, about 140 from risk and over 350 from operations. Respondents were asked if operating model initiatives such as radically improved use of technology can materially impact an enterprise function. We analyzed the data to identify patterns of applicability and financial impact of technology. To do so, we first determined which enterprise challenges were most pressing for the surveyed organizations, by industry and business functions. We then analyzed which enterprise functions helped the most in addressing those challenges. For those functions’ operations, respondents rated the ability of technology to materially impact them. We finally analyzed the estimates respondents made of the financial impact generated by technology in impacting those functions. The results provide an unprecedented view of technology’s ability to impact new operating models and, as a result, help core enterprise functions to address the big challenges their companies face. The ability to compare results across multiple industries and enterprise functions is also new and intriguing.
Research confirms the important role of technology in delivering a powerful impact—but application requires selectivity

Executives in some functions estimated a high impact from radically improved technology—higher than the impact of other levers, such as outsourcing, shared services, and business process reengineering. The estimated impact from improved use of technology—when applicable—for finance and accounting processes was the highest across all functions and significantly higher than other levers.

Looking across some of the industries, executives expected significant impact from operations with radically improved use of technology. Insurance and life sciences R&D executives estimated a significantly higher impact from improved use of technology compared to outsourcing, shared services, and business process reengineering levers, while the impact was comparable for banking (both retail and commercial) and life sciences commercial operations.

Yet many didn’t see technology as a material lever to impact operations. The number who did was significantly lower, in fact, than for the combination of shared services and outsourcing (See Figure 1).

Average $ impact, bar width proportional to percent of respondents stating that the initiative will have a material impact

<table>
<thead>
<tr>
<th>Function</th>
<th>BPO</th>
<th>SSC, BPO, Hybrid</th>
<th>BPR</th>
<th>Technology</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance</td>
<td>$268m</td>
<td>$159m</td>
<td>$103m</td>
<td>$208m</td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>$120m</td>
<td>$99m</td>
<td>$44m</td>
<td>$152m</td>
<td></td>
</tr>
<tr>
<td>Risk</td>
<td>$225m</td>
<td>$187m</td>
<td>$185m</td>
<td>$210m</td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>$168m</td>
<td>$157m</td>
<td>$106m</td>
<td>$130m</td>
<td></td>
</tr>
<tr>
<td>Commercial Banking</td>
<td>$330m</td>
<td>$299m</td>
<td>NA*</td>
<td>$320m</td>
<td></td>
</tr>
<tr>
<td>Retail Banking</td>
<td>$201m</td>
<td>$267m</td>
<td>$156m</td>
<td>$207m</td>
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</tr>
<tr>
<td>Insurance</td>
<td>$210m</td>
<td>$108m</td>
<td>$151m</td>
<td>$210m</td>
<td></td>
</tr>
<tr>
<td>Life Sciences Commercial R&amp;D</td>
<td>$225m</td>
<td>$209m</td>
<td>$165m</td>
<td>$225m</td>
<td></td>
</tr>
<tr>
<td>Life Sciences Commercial Operations</td>
<td>$209m</td>
<td>$165m</td>
<td>$225m</td>
<td>$310m</td>
<td></td>
</tr>
</tbody>
</table>

Annual $ impact is the impact of operating model initiatives in $ per annum including reduction of cost, capital required, improvement of cash and revenue growth

* Some data not reported due to sample size limitations

1 BPO-Business Process Outsourcing, SSC-Shared Services, BPR-Business Process Reengineering, Tech - Radically improved use of technology

Figure 1 - Estimated annual impact (USD million) of three operating model levers and applicability of each (represented by width of column) across functions and industries
Technology’s impact seems more widespread for functions that impact multiple company challenges

Interestingly, when comparing enterprise functions’ overall impact with the percentage of the respondents from those functions who believe that technology can have a significant impact, some patterns emerge [Figure 3].

Notably, more respondents rated technology as a material impact lever for functions that bear on multiple strategic enterprise challenges. Two such groups emerged:

- **Wide function impact, high technology applicability.** Quadrant 9 (top right of the 9-block chart) represents functions for which technology is often seen as a material lever for impact, and those functions are often seen as materially impacting multiple important enterprise challenges. This quadrant includes life sciences’ research/pre-clinical development, business banking origination, payment processing and procurement business intelligence.

- **More limited function impact, low technology applicability.** Quadrant 1 (bottom left of the chart) marks the opposite side of the spectrum. This quadrant only has some commercial banking operations’ functions like auto and equipment finance, retirement services from insurance and life sciences’ compliance function.

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1. Calculated as “impact index” that weighed the impact of each function according to the importance of the business challenges the function addresses.
Wide function impact, low technology applicability.

Quadrant 3 (bottom right of the chart) comprises of functions that impact multiple strategic challenges, but for which comparatively few executives see technology applicability. This quadrant is virtually empty and functions in its vicinity include procurement supplier risk management and sourcing category management or life sciences regulatory affairs. These functions have strong impact on important enterprise challenges but fewer respondents saw technology as having a material impact for them, possibly due to reliance on subject matter experts’ discretionary judgment.

More limited function impact, high technology applicability.

Quadrant 7 (top left of the chart), shows functions where technology’s applicability is substantial, but that either impact fewer enterprise challenges or address only the ones that are considered comparatively less critical in those enterprises. This quadrant is also very sparsely populated and includes healthcare and life sciences operations functions like customer service, business intelligence and multi-channel customer.
Conclusion

Business process operations have entered a new phase of accelerated transformation, thanks to now-mature, powerful technologies. Cloud-based and mobile applications, advanced analytics and powerful collaboration tools multiply the effect of well understood operating model levers such as shared services, outsourcing, global delivery and process reengineering. However, the applicability and impact of these technologies is not uniformly high, according to almost 1,000 business executives polled by an independent research firm in a survey commissioned by Genpact.

The key, in our experience, is to understand which technology interventions—coupled with process engineering and organizational redesign such as shared services and outsourcing often integrated in Global Business Services—are most impactful. Doing so enables large enterprises to focus scarce resources to what’s really materially impacting the most significant business outcomes. It also helps reduce the complexity of projects invariably involving cross-disciplinary teams that often struggle finding common language, ground and “true north”. The ability to identify the levers to pull, however, is not widespread and relies on experience accumulated by designing, transforming and running operations. For many companies the best approach may be to identify partners who possess that ability, in order to avoid expensive and time-consuming experimentation and, ultimately, risking losing momentum and precious time in an unforgiving competitive environment.
Industry leaders increasingly separate from laggards through their ability to generate, embed, and leverage insight into their organization and ecosystem—and this trend is no longer confined to marketing and online retailers. However, despite the significant hype around big data and analytics, a critical aspect is often neglected; “data-to-insight” and “insight-to-action” are business processes, and to generate material business impact, they require scale, as well as appropriate design, related to change management, incentives, and people accountability.

Given its enterprise-wide nature, the data-to-action process is the cornerstone of real enterprise performance management and needs the attention of the C-suite, which must consider “industrialization” through operating models that are not limited to fabulously intelligent people and technology. Up to 30% of the analytical effort relates to heavy-lifting tasks that advanced operating models such as shared services or outsourcing can enable, and many analytics-related activities benefit from centralization and sharing of best practices, critical data, and IT assets. Finally, insight needs to be ingrained deeply into those business process steps that generate material impact on the chosen business outcomes. This paper synthesizes our experience with hundreds of clients in the use of industrialized analytics and the application of end-to-end process transformation practices derived from Lean Six Sigma. It ultimately provides recommendations that reflect the need for agility in volatile times.

1. A new competitive battleground

Increasingly, industries compete on analytics. There is a real advantage that customer, production, or supply insight can provide to enterprises and their ecosystems (suppliers, clients, and other stakeholders). While this fact is obvious to sectors such as financial services, analytics-driven competition also reshapens companies whose product is not information based; data-rich supply chains, digital interfaces with clients, and machine-to-machine data transmission make companies dealing with physical goods increasingly able to leverage large and meaningful volumes of data. A recent study by McKinsey and MIT\(^1\) in the consumer-product space (where demand and supply applications of analytics are particularly obvious) shows

\(^1\) Massachusetts Institute of Technology
that companies that inject big data and analytics into their operations outperform their peers by 5% in productivity and 6% in profitability.\(^2\)

There is a strong belief among business leaders that big data and advanced analytics will be the next frontier for innovation, productivity, and competitive advantage. Trillions of dollars are at stake.\(^3\) Analytics makes business processes smart and their absence often dangerously dumb. For many industries and functions, these capabilities mean the difference between success and survival or failure—from mortgage origination to credit card and healthcare fraud, from industrial machinery service optimization to (across industries) financial planning and analysis and customer interaction. Having too many of the wrong clients, not paying the right attention to the right ones, or not properly handling production or supply chain processes and stakeholders are traditional challenges. What is new is the speed of reaction enabled by data, insight, and technology, as well as the volatility and speed of change of marketplaces that displace those unable to make and act on the right decisions granularly, in a timely manner, and at scale.

2. Why it is hard to harness data for real business impact

However, many enterprises are still too slow in adopting advanced analytics. Years of relying on intuition and experience mean that only 4% of enterprises rely on data for decision making, according to one study.\(^4\) In our own experience with hundreds of large organizations, many, perhaps most companies, struggle to scale the analytics effort beyond pockets. From inquiry-to-cash to sales incentives disbursement, source-to-pay, hire-to-retire, financial analysis, industrial assets maintenance and optimization, we constantly witness the struggle of major players to find the right analytical resources and implement the right analytical technology to power those data-intensive processes. We also observe that only about one out of every five companies is very satisfied with the business outcomes from their existing analytics programs.

Two broad sets of challenges exist:

- **People challenges:** A now-famous McKinsey study\(^5\) highlighted that in the United States alone, there will be a gap of hundreds of thousands of data scientists every year. While Google and investment banking can perhaps pay and attract the best, many other companies and industries are not as fortunate. This is only a part of the problem; multiple-function teams (think teams of the chief financial officer (CFO), chief procurement officer (CPO), and supply chain and banking operations staff) lack the ability to use analytics in their increasingly data-driven jobs. Especially CFO teams often sit between some data sources and interested business line executives, but are unable to process the data at the right speed or granularity to become more relevant to the business or, even worse, they might become a bottleneck in that flow of information. Accountability is often not clear, or breaks up across the process end-to-end.

- **Technology challenges:** The huge interest in big data prompted a rush to technology. However, as it happens in many technology inflections (from enterprise resource planning (ERP) and (BI/DW)\(^6\) to the Internet), some of these investments have not lived up to their promise. For instance, Apache Hadoop, an open-source software project, is no panacea for big data. Technology is a must but is fast moving and often complex. For instance, real-time architectures are swinging into prominence for some use cases with organizations seeking (and sometimes struggling with) streaming, event processing, and in-memory data technologies to provide real-time analytics and run predictive models.\(^7\)

Data velocity, quantity, and complexity are typical of unstructured data, and the quest for predictive analysis have added dimensions to the problem. In this case, the numbers are indeed mind-boggling, but while these areas make the news, even structured data and descriptive analytics—the lifeblood of today’s enterprises—still have a long way to go. Comparatively mundane challenges such as master data are still not fully solved in many companies. Handling data remains challenging, despite billions of past technology investments in BI and DW.

However, this perspective misses a major point. The challenge is not just about a few data scientists and the right big data IT tools. Our experience and analysis show that the problem is an eminently organizational one; the process of analytics (the arc of data-to-insight) is not robust enough, and insufficient “science” is applied to embedding analytics-driven insight into the actual business process (insight-to-action) to generate a material impact.

3. Design data-to-insight-to-action: A business process view

3 a). Understanding end-to-end business processes to ingrain analytics

The analytics challenge is both insight generation (the data-to-insight process) and embedment (insight-to-action) of that insight so that it can be used at scale.

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\(^1\) www.mckinsey.com/insights/consumer_and_retail/applying_advanced-analytics_in_consumer_companies
\(^2\) Big data: The next frontier for innovation. McKinsey Research Institute, May 2012
\(^3\) Big data: The next frontier for innovation, McKinsey Research Institute, May 2012
\(^4\) www.ibm.com/systems/hu/resources/the_real_world_use_of_big_data.pdf
At the risk of trivializing, the issue is that having great insight on PowerPoint or even on a streaming data visualization tool might help isolated consultants or strategists, but it doesn’t per se help the operations of large and global organizations. Interestingly, this data-to-insight-to-action framework (in short, data-to-action) applies to simpler, discrete, and descriptive analytics, as well as to big data and Internet of Things enabled by machine-to-machine data transmission—as described in Table 1, which borrows the classification of analytics "ages" from Harvard’s Tom Davenport8.

### Table 1. Analytics eras and related characteristics

<table>
<thead>
<tr>
<th>Analytics “era”</th>
<th>Example</th>
<th>Type of data</th>
<th>Type of analysis</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 Client profitability Demand forecasts</td>
<td>Discrete, structured, slow</td>
<td>Descriptive, diagnostic—statistical</td>
<td>BI, online analytical processing (OLAP), DW</td>
<td></td>
</tr>
<tr>
<td>2.0 Client behavior analysis and intelligent pricing</td>
<td>Big data: Structured and unstructured, high velocity, high complexity, and volume</td>
<td>Predictive, prognostic—advanced data science</td>
<td>Above + Hadoop®, etc.</td>
<td></td>
</tr>
<tr>
<td>3.0 Machine-to-machine system optimization</td>
<td>Ubiquitous sources of big data: anything with IP address is a source, and sensors add volume and variety</td>
<td>Prescriptive, embedded/ invisible—heavy use of machine learning</td>
<td>Above + columnar databases (DBs), graph DBs, etc.</td>
<td></td>
</tr>
</tbody>
</table>

A useful analogy can be derived by observing a recent disruption in the automobile industry. There are obvious differences between cars (even the best ones) built 20 years ago and those built today. While they use very similar mechanical parts, today’s cars handle driving completely differently, because they sense and react to conditions in a granular, timely, cost-effective, and scalable way. Today, the most innovative aspect of car engineering is not the design of the mechanical parts. It is the technology engineering that embeds the insight from relentless analytical work, embedding millions of tests into the programmed reaction of key mechanical components—shock absorbers, gas throttle, steering wheel, brakes, and even tire pressure and overhead augmented-reality displays. Statistical simulations drive our cars, literally, making them “intelligent.” Soon, cars will be able to drive themselves. Moreover, interestingly, even the difference between older and newer cars is particularly striking on “difficult,” unpredictable, winding roads—where agility is necessary. It is not just a technology success, but an analytics breakthrough that has been embedded—industrialized—to perfection.

The same thinking can and should be applied to business processes, where insight deserves being embedded at scale. To understand why analytics is often a challenge and to begin structuring a solution, let’s explore the data-to-insight and insight-to-action arc. Three clusters of analytical processes exist in these business processes.

### (i) Provide visibility

The first group of processes “provides management visibility” (Figure 1). This has traditionally been the first space where descriptive analytics has supported executives. Here, executives and their teams use specific technologies to obtain visibility about what happened (and sometimes what might happen) and syndicate the learning with relevant colleagues to gather collective intelligence. This is where reports are produced, distributed, and discussed—and the respective BI tools are leveraged⁹, and this is where multiple additional data sources (such as unstructured data from social media or “liquid data”¹⁰ or supply chain information) augment the internal ones.

In one case, an oil and gas major needed to perform a large-scale lithology¹¹ analysis to optimize its exploration operations. Millions of dollars were at stake, not just because of the costly operations, but because of the value of speed, as every single day of productive oil wells was worth significant amounts of revenue. The existing visual core analysis was tedious, time consuming and reactive, while real-time lithology prediction was needed. At the same time, sensor-fitted drills generated copious amounts of granular geophysical data (10GB daily log data per wellbore), resulting in the need to process 4TB daily of sensor data per well. The solution was to use a globally located team, preparing the data and employing fuzzy logic to capture the geologist’s expert knowledge and convert it into an automated intelligent reasoning system, which would act on the big data source. Scalability and low storage cost of the Hadoop®-based solution made the solution cost effective. The result was 90% prediction accuracy when the method was combined with visual core analysis, hence harnessing the intelligence of both humans and algorithms. Optimal, real-time drilling decisions were enabled by instant lithology predictions.

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⁸ Tom Davenport, Big Data at Work, 2013
⁹ For further reference on BI for business processes, see http://www.genpact.com/home/about-us/smart-enterprise-processes
¹⁰ www.mckinsey.com/insights/business_technology/open_dataUnlocking_innovation_and_performance_with_liquid_information
¹¹ “A description of its physical characteristics visible at outcrop, in hand or core samples or with low magnification microscopy, such as color, texture, grain size, or composition” http://en.wikipedia.org/wiki/Lithology
Other examples are provided in Text Box 1.

- CFOs and sales leaders measure the variance of sales incentives metrics through financial planning and analysis (FP&A) groups and sales operations staff to ascertain their effectiveness.
- CFOs and sales and marketing leaders monitor the profitability of clients by segment.
- Chief operating officers (CDOs) monitor and predict their portfolios’ overall risk profiles, be they industrial assets aftermarket services (through failure rates and cost of repair within contract terms), or commercial loans repayment and residual asset values, and retail mortgages repayment delinquencies.
- Machine data, such as on industrial or healthcare equipment, is collected, automatically categorized, and compared to similar data sets, its exceptions classified and preliminarily interpreted by people (for instance, in remote operations centers).
- CPOs monitor the percentage of expenses under management and compliance with contracts, or in more advanced situations (such as Wal-Mart’s supplier scorecards), the sustainability of the supplier base.
- Supply chain leaders can detect the early signals of supply chain risk by monitoring delays, spikes in costs, and social media.
- Supply and operation planning (S&OP) gathers demand and supply chain data to ensure that forecasts can be met at the SKU level.
- Product management leaders can learn about customer usage and preferences from the technical feedback received from the multi-channel client contact centers.

**Text Box 1: Provide visibility segment—actual examples**

These are activities most intuitively associated with analytics. However, while they are a very important part of it, they constitute only a partial component. Clearly, some of the most common analytical challenges in this process originate elsewhere. Incomplete or erroneous master data impairs profitability analysis; manual reports inhibit real- or near-time insight and limit granularity; or the partial data sources—for example, the lack of demand-based forecast and the reliance on historical trend analysis that becomes necessary when the sales channels (or the demand signals from the web)—are insufficiently mined.

**(ii) Manage effectiveness**

The second group of processes uses insight for informing the specific, granular actions that affect company effectiveness (Figure 2).

- Definition of policies on sales incentives or pricing changes for specific customer segments.
- Credit or risk scoring and related validation of risk modeling, for retail or commercial loans and insurance or healthcare policies, driving rejections or pricing.
- Multi-channel client engagement business logic defines the “next best action” (or next best question) based on customer behavior or drives the maximum wait time, quality of agent, and type of process (expedited vs. thorough) by client profile—for instance, based on risk thresholds in the case of mortgage origination authorization—or dictate anti-money laundering (AML) or know-your-customer (KYC) processes on a case-by-case basis, or in collections processes, informs the delinquency tolerance for specific clients based on their profitability and risk.
- Policies prompting reduction of purchases from suppliers whose sustainability ratings are suboptimal.
- Improvement of consumer promotion trial rates through optimized targeting enabled by neural networks and use of machine learning.
- Creation of a “patient frailty” index to identify patients with the highest probability of hospitalization or emergency treatment, by using claims data.
- Identification of online buyers whose transactions should not be trusted by using data across different sources—from demographics to shopping behavior and social media preferences.

In one example, a credit card issuer saw a disproportionate amount of suspicious spending by its customers. It deployed a data enhancement program that matched structured transaction data with the unstructured ones derived from telephonic conversations and utilized a matching algorithm to determine integrity. The resulting expert system materially curbed the number of suspicious cases.

In another instance, a power generation machinery major experienced gas turbine failures that led to high repair costs and lost revenues for its clients and for the manufacturer itself when the machine’s contract was sold on an uptime basis. Significant challenges existed with regard to predicting failure from the performance and maintenance data of the equipment; inferences from the unstructured data of field repair history were highly manual and time consuming; outage forecasting based on the repair history and performance parameters was virtually nonexistent. The solution encompassed four areas: knowledge extraction from service emails, building and curating a lexicon-of-parts taxonomy, identification of the root cause for failure and its solution, and generation of a “most likely” alert based on past failure information of the turbine parts. The results generated up to 10% reduction in predictive maintenance costs, accurate prediction of failure events, and superior delivery efficiency of field engineers through proactive monitoring.

Other examples are provided in Text Box 2.
Often the insight created by this group of processes is cascaded through memos, or at best, new standard operating procedures. In other cases, this output becomes the foundation of changes in the action options given to agents or sales people. Given the importance of using the right metrics, at the right level of granularity, in shaping the behavior of large and complex organizations, it is clear that this area is incredibly important, but in our experience, it is not sufficiently optimized by cross-functional experts who are able to understand the implications on people reactions or technology complexity, for instance. The results can be problematic, for instance, “metric fatigue” for field agents, or complex, unwieldy, and costly customization of technology tools to guide the procedures of staff downstream, or the lack of master data enabling the results tracking so that a proper feedback loop is established, and the performance of the new settings is tested.

(iii) Execute actions

The third group is where the actions are executed (Figure 3). This is where typically, technology projects focus most of their attention and often start with an objective of efficiency. Many examples are provided in Text Box 3 below.

Text Box 3: Execute actions segment—actual examples

However, according to one study, only 46% of the companies are effective at using the data they have. This is a major issue, as this part of the process is where the proverbial “rubber meets the road, * and thousands of front lines (be they consisting of people working with clients or suppliers or on production processes, or web or other technology-based client interfaces) perform their tasks based on the new rules. In analytics 3.0, this set of processes can include the so-called prescriptive analytics, which granularly and timely (often in real time) guide people’s and machines’ actions in detail. The ability to embed insight and related, modified business logic into BRE, DMS and systems of engagement—and make their rules pervasive—is critical for business processes to perform intelligently at scale.

Unsurprisingly, there is a great push towards the infusion of data analytics into the day-to-day operational processes. Gartner predicts that analytics will reach 50% of potential users by 2014. By 2020, that figure is expected to reach 75%.

(iv) Repeat and loop

The end-to-end process view across data-to-insight and insight-to-action can help design effective analytics solutions and enable targeted change management to embed them into business processes (Figure 4). Effectively instrumentizing the process, measuring and keeping people accountable for actions are three crucial factors that an end-to-end view can facilitate. In many respects, this is the real power of Enterprise Performance Management (EPM). This aspect is even more indispensable as analytics becomes the real-time foundation of business offerings, which is the predicament of analytics 3.0.

For instance, manufacturers’ aftermarket services benefit from an end-to-end view of data across finance and field operations (stock inventory, machine-to-machine reading of asset performance, and respective financial implications, as well as contract coverage); in order to do so, they foster the optimization of business processes related to maintenance (e.g., off-wing time for aircraft engines), for instance, by defining the right master data, identifying the right structured and unstructured data sources, as well as designing optimal field...
engineer or workshop procedures. Industry leaders such as General Electric (GE) are moving decisively to capture the opportunity and even crystallize the fastest data-to-action loops in industrial "software."

In reality, the end-to-end process view is still relatively rarely used as a lens to understand interdependencies and drive activities toward the "true north"— business impact—in turn generating at least two major sets of negative consequences:

- **Local optimization trumps whole-chain optimization:** The central analytics team might design the data-to-insight process to optimize its own functioning, without fully apprehending how different business lines and functions (e.g., finance, procurement, operations, and supply chain) use that information. As a result, there may be a mismatch of timeliness (how quickly), timing (when), granularity (how deep), precision, and cost of the insight across the various stakeholders of the chain. The consequence is a loss of effectiveness of the end-to-end process.

- **Data sources suffer:** For structured data, the most common issue involves master data issues that happen as the data travels through the data-to-action cycle. As for unstructured data, it is important for actors across the chain to collaborate in determining which data can and should be sourced and what limitations could exist, thereby overcoming information asymmetry. Data source constraints clearly damage the ability to generate deep, granular, and timely insight.

The end-to-end model is applicable in all analytics "ages," but as described in Table 2, its speed (the speed of the "loops") increases significantly, and the profile of the resources involved may differ, as organizations move toward analytics 3.0.

Our analysis shows that "data-to-action" is not just about finding enough data scientists and accessing the most advanced technology. Data-to-insight and insight-to-action are large, complex decision-making processes that feed into action processes. Their optimization begins by asking the right questions, not to one person but to an organization (which often requires collaboration between teams), investigating the answers, then embedding the policies derived from those answers into a business process, and running the resulting, more intelligent process at scale.

**Table 2. Application of data-to-action framework across analytics "ages"**

<table>
<thead>
<tr>
<th>Analytics &quot;era&quot;</th>
<th>Provide visibility</th>
<th>Manage effectiveness</th>
<th>Execute actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>• Statisticians, business analysts, and management involved. Significant involvement of ETL, MDM, and BI/DW analyst support</td>
<td>• Business analysts and management, some IT advisory, and other support, e.g., MDM</td>
<td>• Business owners, some IT, some business analysts, some ETL/BI/DW/MDM involvement</td>
</tr>
<tr>
<td></td>
<td>• Punctuated activity</td>
<td></td>
<td>• Infrequent changes, semi-automated processes</td>
</tr>
<tr>
<td>2.0</td>
<td>• As above + data scientists</td>
<td></td>
<td>• More IT involved</td>
</tr>
<tr>
<td></td>
<td>• Semi-continuous activity</td>
<td></td>
<td>• Simpler activities changed in real time (e.g., client offers), others in batches</td>
</tr>
<tr>
<td>3.0</td>
<td>• As above + extensive use of machine learning, more technologist-oriented staff, remote operations center (ROC)-type monitoring</td>
<td>• Continuous activity</td>
<td>• Resources savvy in both technology and analytics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• System is &quot;self-directed,&quot; real or near-real time</td>
</tr>
</tbody>
</table>

**3 b). Organizational design: The operations of industrialized data-to-action**

Data-to-insight and insight-to-action must be designed jointly if insight is to be effectively used. In other words, business process, technology, and analytics should be developed and executed in lockstep, as described in Figure 5.
Step #1: Dissect your data-to-insight process and visualize its tasks and required resources.

Some steps of the data-to-insight process can be delivered through very scalable and cost-effective operating models. This can obviously remove a number of obstacles to the generation of insight that is granular and timely enough to make a difference. Just as before the industrial revolution, when the process of production was performed end-to-end by scarce, often very talented but completely non-scalable artisans and sometimes by real artists, there is an opportunity to deconstruct, decouple, and optimize this business process. Our analysis shows that a significant part (close to 30%) of the analytics work lends itself to being decoupled and its "heavy lifting" provided by globally located shared services.

Moreover, while the traditional approach to information problems has for some time been one of "cementing a solution" into an IT deployment, in these times of volatility, organizations increasingly need fast ROI and flexible solutions that can be evolved to accommodate the possible (and likely) changes to their business models.

In our experience, there are four pillars to a scalable, agile, cost-effective solution, which we call "industrialized analytics":

- **Data**: Data assets across the organization are understood, and there is a plan to integrate data across functional silos; integrity of information across the organization is maintained, such that there is a "single truth."

- **Technology**: Relevant technologies are leveraged consistently across the organization—technologies related to (1) data and infrastructure, (2) BI and reporting, (3) advanced analytics, (4) visualization, etc.

- **Governance**: This involves standardization of processes and cross-leverage. The ongoing program for insights includes prioritization of areas to build predictive analytics, review of the impact delivered, and a test-and-learn environment for continuous improvement.

- **People**: Analytical talent is respected and leveraged across functions; a central pool of experts enables cross-learning.

Achieving maturity across these pillars is an organizational journey, often requiring a different operating model for a number of functions, not just the central analytics group where it exists.

Three steps enable progress toward the maturation of these pillars. First, dissect your data-to-insight-to-action process and visualize its "assembly line"; second, set up an analytics center of excellence (COE); third, ensure stakeholders are aligned around an agile, fast-ROI strategy. Let us delve into each of them.

In our experience, enterprise impact cannot be achieved just through technology or a precious few, quantitatively minded people with off-the-scale IQs. "Competing on analytics"\(^\text{17}\) is about creating a scalable (we call it "industrialized") foundation for data-to-action processes. It means decoupling parts and delivering them from where the right resources exist, as well as leveraging decades-long experiences of running operating centers, shared services, and outsourcing units.

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\(^{17}\) Thomas Davenport and Jeanne Harris, Competing on analytics—the new science of winning 2013
More specifically, the work that can be industrialized can fall under any of the four areas described in Figure 7.

**Five types of resources** can be decoupled, as follows:

- **Data management**: This resource refers to the capabilities in the development, execution, and supervision of plans, policies, programs, and practices that control, protect, deliver, and enhance the value of data and information assets. These are IT-related skills and can typically be performed at scale from anywhere, provided that the appropriate technology and security policies are in place. However, a business process orientation is required for some members of the team. This is especially true in structured data that requires strong master data management, such as client and vendor master data used, for instance, in client discount, vendor sourcing negotiations, and ultimately, profitability management. The reason is that master data issues are very often business process issues (the inability of people at various touch points to classify information) and not just technical ones.

- **Developers/statisticians/analysts**: This resource type involves creating a workbench of highly skilled professionals who are competent in various statistical and analytical techniques, data types, and treatment of data. Structuring teams with the right combination of industries, process specialists, and analytical experts is crucial. Parts of these talent pools can be sourced globally, as long as the COEs or shared services (including outsourced partners) utilize specialized human resource management practices, as well as collaboration tools.

- **Solution architects**: They comprise a small pool of specialized people who can design new solutions and are able to respond to changing needs of the organization by optimizing existing technology investments and introducing new, cost-effective, and scalable solutions. Depending on the solution needed, there might be a stronger need for business context or functional analytics expertise. Typically, the latter is easier to find in global work markets, while the former should be the focus of the “business client” organization.

- **Specialized services**: (predictive/optimization/unstructured/big data). Developing capabilities in advanced analytics to fully realize the true potential of analytics-led decision making is often where the most acute talent scarcity exists. The solution can often be similar to the above-mentioned ones, as long as exploratory and small-scale work is tackled carefully, and only for scalable tasks that do not require intimate business knowledge and continuous, synchronous co-work. Interestingly, we find that even exploratory and “skunk work” activities lend themselves to being partially industrialized by decoupling steps appropriately.

- **Advisory**: This is where organizations strategically envisage industrialization of analytics and articulate the roadmap in terms of processes, technology, and building a culture of analytics while staying in touch with current organizational realities, as well as the latest trends in data, technology, and analytics. These are consultative skills that can help “sell” work internally and require once more a blend of industry and business intimacy with the understanding of the “art of the possible” in global analytics delivery operations. We find that the best advisory work is supported by specific frameworks, such as our Smart Enterprise Processes (SEPSM)\(^\text{18}\), which enable more targeted interventions by focusing on the desired business outcome (for example, enabling the CFO to harness more timely financial data reporting, as depicted in the example in Figure 8) and reverse-engineer the process end-to-end in order to achieve that result. In doing so, analytics advisory uncovers the most important people, technology, process design, and policy opportunities.

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<table>
<thead>
<tr>
<th>Content &amp; data management</th>
<th>Data transformation</th>
<th>BI, analysis &amp; reporting</th>
<th>Technology &amp; automation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data loading/Cleansing/Integration; Syndicated, POS, W*M, Club</td>
<td>Dictionary creation &amp; maintenance</td>
<td>Report &amp; dashboard Design &amp; development</td>
<td>Dashboard &amp; UI development</td>
</tr>
<tr>
<td>Master data management</td>
<td>Content research - internet, outbound, calling, catalogues, packaging, media</td>
<td>Trends analysis &amp; scorecards</td>
<td>Analytic application development</td>
</tr>
<tr>
<td>Data investigation</td>
<td>Attribute coding &amp; item categorization</td>
<td>Standard periodic report delivery</td>
<td>Six Sigma-based automation</td>
</tr>
<tr>
<td>Workflow management &amp; process QC</td>
<td>Product &amp; customer hierarchy management</td>
<td>Ad hoc queries &amp; reports for marketing, finance, client servicing and sales support</td>
<td>Process improvement tools</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Custom design &amp; development</td>
</tr>
</tbody>
</table>

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Step #2: Choose the right operating model for a shared analytics organization.

As Thomas Davenport, one of the most prominent analytics experts, observes,19 “There is reason to believe that the availability of big data […] will benefit those organizations that centralize their capabilities to capture and analyze the data. We already see this with small data analytics; many organizations have begun to build centrally coordinated analytics strategies and groups. If big data resides in silos and pockets across organizations, it will be very difficult to pull it together to understand and act on business opportunities.” (See Figure 9).

These organizational structures are by now well understood. For at least two decades, shared services, operating centers, and more recently, Global Business Services (GBS)20 have enabled organizations to use scale and specialized skills to solve for the cost to serve, scalability, and access to talent.

Whereas in the past, much interaction used to happen through workflows, emails, and phones, a whole new era of collaboration tools21 enables people to work together on more unstructured business problems, irrespective of location (Figures 10 and 11). This clearly opens an opportunity for parsing components of the insight-to-action chain, and utilizing the COE’s pooled, specialized, scalable, and cost-effective resources to solve various problems that routinely “cripple” analytical impact. The COEs can provide experience in specific disciplines, such as utilizing specialized tools, breaking organizational silos, and providing more cost-effective resources. They can also help scale up or down the analytical efforts faster.

19 Thomas Davenport, Big Data at work, 2013
21 http://www.genpact.com/home/smart-technology/unified-collaboration
Decoupling the shared organizations from the rest of the enterprise needs to be done carefully because of the risk of severing the ties with the business. Thankfully, there is by now a good deal of experience from both other business processes and analytics themselves. Our own experience separating from GE in 2006 and creating a global delivery backbone has become a widely discussed management case study.

Taking deliberately the two steps described above provides the opportunity to create scalable, back-office, data-to-insight organizations, able to muscle up cost-effectively a variety of functional analytics, such as in the industrial manufacturing example in Figure 11. However, when this organization is staffed with business process experts who understand the insight-to-action part of the process, it can also serve as a global process owner (GPO) for analytically enabled processes. The GPO model has become prevalent in GBS environments, serving functions such as finance or human resources or even IT, but it is still less commonly adopted in analytics. However, the success of GPOs in optimizing end-to-end processes, irrespective of their hierarchical ownership, is a clear example for a more industrialized analytics adoption.
Step #3: Ensure all stakeholders are aligned around an agile, fast-ROI strategy.

Analytics investments are heavily scrutinized by the chief information officer (CIO), CFO, and functional or business leaders. Making the respective business cases is often a difficult exercise. Typically, these are not “cost-reduction” efforts, and the resulting impact depends heavily on the adoption and longevity of solutions. Both are tentative estimates at best. Especially in these volatile times where demand, supply, and technology change fast and upend business models, and in turn, operating models, enterprises must thoroughly evaluate more agile deployment options. Industrialized analytics does not need to be a three-year-long exercise with substantial technological risk. In fact, it should be made as nimble as possible.

A sobering example comes from remembering the billions of dollars spent on data warehouses in the last ten years, on the premise that they would enable a strong analytical workbench for the future—only to discover that new data characteristics (complexity, velocity, volume) and fragmentation do not lend themselves to being adapted to those older structures, and new technologies may leapfrog old ones, making them an obsolete legacy.

Agile design and deployment of globally located, well-orchestrated organizational structures enabled by nimble technology is often a more strategically sound choice—providing the option to evolve further, but also enabling short-term learning and avoidance of an excessive fixed cost. Parts of that portfolio can later be fully consolidated with lengthier IT approaches, but only when those areas clearly benefit from such heavy investment and do not run the risk of “cementing solutions in the wrong place,” hence restraining future adaptability.

Conclusion

Insights have material impact only when industrialized and effectively embedded into business processes. Data-driven insight is fast becoming a significant factor in the success or underperformance of companies. Many firms struggle with harnessing analytics practices to drive material business impact—and contrary to common wisdom, not just because data scientists are hard to find or because technology is a “moving target.” It is because enterprises are not used to thinking of the analytical impact at scale in terms of (1) the data-to-insight process and (2) the insight-to-action process.

This paper has articulated that the impact of these two processes can be materially enhanced by analyzing them end-to-end as a first step to a robust, scalable, and flexible solution.

The second step is the formation of an organizational strategy that uses advanced operating models such as COEs and their respective targeted technologies—not just analytical but also collaboration tools—to power up those processes.

The business environment has never been as difficult as today; volatility and uncertainty are widespread, while the stock market’s hunger relentlessly asks for performance acceleration. We have used the analogy of old cars compared to digitally enabled new models that use data to make the vehicle more intelligent—agile, safer, and less expensive. We have noted that the difference is even more strongly felt on difficult roads. While there might never have been an easy, straight, and flat road in business, today the path is mountainous and full of hairpin bends. Better get ready for it by industrializing our analytical insight and making our business processes intelligent.
Instead of succumbing to the traditional IT-first bias, smart CFOs, CPOs, COOs, CMOs, and, indeed, many CIOs are now judiciously embracing a business-practice bias. By doing so, they enable a “build to adapt” strategy that is highly valuable in a volatile business climate.

For decades, business process challenges of many types have systematically fallen onto the shoulders of CIOs who oversee the creation of solutions to simplify processes, automate workflows, and enable operational or strategic breakthroughs. The Enterprise Resource Planning (ERP) market momentum has been partly responsible for, and partly a beneficiary of, this tendency. Hasso Plattner and the other visionary co-founders of SAP sought to create a unified and streamlined IT environment where business processes and data could operate seamlessly to industrialize countless business-critical functions. That vision was validated by the market, which catapulted SAP into a multibillion dollar global business—made the ERP market a huge one. But did that vision and promise ever translate into a meaningful and measurable ROI? Years later, the answer is still unclear.

A famously controversial study from Panorama1 showed that more than half of all ERP implementations eventually exceed their budgets and schedules. In addition, more than 40% of organizations implementing ERP fail to achieve half or more of the expected benefits and suffer significant operational disruptions after implementation. Few impartial observers question the premise that ERP—properly implemented—can deliver transformative value to the enterprise. However, it’s equally true that few industry participants take the claims of ERP vendors at face value—or at least they question if their own organizations would be able to unleash such power. The painful disconnect between business users and IT experts often meant that either technology had to be customized (at considerable cost) to fit obsolete processes or revolutionary process change was forced on business users to comply with the limitations and constraints of software that didn’t truly reflect their businesses.

Further complicating the situation is an emerging IT reality: data and processes no longer reside just in ERP systems. Despite the various efforts and visions of the enterprise software pioneers to unify all software and databases, no one application platform or database owns everything. Even when ERP initiatives gave way to large-scale data warehousing, the variability of process flows and data formats kept overpowering the massive IT investments being made. That huge volume of

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unstructured data-and the emergence of SaaS architectures with their structured interfaces and application programming interfaces (API)-signaled a sea change that has forever transformed enterprise software. And, of course, IT decisions are increasingly being driven by business-not technical-considerations. The result can be a nightmare for the CIO (and COO and CFO, too). But it needn't be that way.

Without question, very few corporate decision makers have any further tolerance for decade-long payback periods on their technology investments and deployments. Business volatilities (and even technology change) can make it foolhardy to lock in business processes and models that may need a complete and disruptive transformation in just six months. Instead, companies need agile process transformation that can support businesses for just months or even weeks (especially with respect to decision-support analytics). The speed of business has simply outstripped the monolithic, multi-year model.

That agility can be achieved through the right combination of technology, analytics, and process redesign that emphasizes the new requirements: speed and flexibility. For example, business intelligence is properly viewed as a business problem first. From this perspective, key business outcomes (e.g., cross-selling or more timely management accounting) alone should drive technology decisions and process-reengineering efforts. If a CFO needs to analyze profitability by client to make the appropriate discounting decisions, the solution needn’t lie in a radical IT project to create a better customer relationship management (CRM) system or related data warehouses. Instead, the solution might simply be a low-investment intervention aimed at ensuring that the master data for the right data sets is maintained by a shared service organization and that a specific process is designed and implemented to produce the required reports and analyses (which can be industrialized). The beauty of this approach is that it is, in many cases, more agile. It typically has a much lower investment threshold, and it doesn’t lock the organization into rigid, difficult-to-change processes.

Today’s technology ecosystem is too often characterized by misaligned incentives and capabilities across the business-technology ecosystem—gradually assembled over decades in comparatively stable business environments. There are small-scope cloud-based, lightweight alternatives—a first sign that the tide is changing from the IT side. Another sign is that many CIOs are increasingly responsible for business operations and running back- and middle-office shared services and Global Business Services (GBS)—a trend heralded by Procter & Gamble a decade back and visible across industries today. Ultimately, achieving strategic adaptation of business-process operations requires a business-process-driven approach that treats IT as an enabler of a more holistic delivery model. Strategy, budgets, and organizational incentives and skills will need to change. The outcomes will make the transition more than worth the effort in most organizations.
Rapid automation (RA), also known as “robotics” and autonomics, is not a new technical development but has accelerated significantly since 2013. Better technology tools and operations clarity have enabled the automation of material parts of the repetitive work currently performed in shared service-type operations. However, there are limitations to robots’ usability and impact, namely, the type of transactions robots can perform and their limited value beyond efficiency in specific parts of the process. Despite that, the emergence of RA represents a valuable addition to Systems of Engagements (SOE) for process operations and a useful complement to today’s systems of records. This paper describes the sphere of intervention for RA and recommends a more effective way to plan for its use.

**What is RA?**

Rapid automation (RA) technology, aka "robotics" and "autonomics," mimics people interactions with user interfaces of ERPs, Microsoft Office documents, databases, etc. Technically speaking, RA interacts with different software systems at the GUI (graphical user interface) or presentation layer, the same level as a “human” user of the system. RA is a non-intrusive application with no need for integration with other systems and delivers productivity by replacing human effort. The time and cost involved in typical integration efforts between different software (the most common being workflow/ERP integration) are notorious pain points for operations and IT executives, and RA is a useful additional tool for those issues. Thus, RA is a non-intrusive application with no need for integration with other systems and delivers productivity by replacing human effort. It is a useful complement to the more traditional "system of records" technologies, primarily ERP.

Technically, most RA products are based on the well-understood Microsoft.net framework, with pre-built functions that make the development work fast-paced and relatively error-free. This also helps in making fast-paced revisions to existing code and reduces the effort required to extensively train developers on this technology.

**RA’s sweet spot**

To understand the ideal playground for RA, we have analyzed various processes across "horizontal" (e.g., Finance and Accounting) and industry "vertical" (operations in banking, insurance, etc.) functions. The technology can be applied across many processes and functions, it is scalable, and if the processing conditions are right, it can replace labor. Following are the best use cases for RA.

- **Dual data entry scenarios**: Data manually entered in one system need not be reentered manually in any other system. RA replaces such dual human effort since invoices are indexed in the workflow and then manually reentered in ERP.
• **Straight-through processing**: Inputs arriving from various systems such as web pages for customer orders, workflow for invoices, emails, or Excel files must be entered into ERP. However, if the input is clean and the rules are well laid out, that data entry can be done through RA.

• **Virtual "integration" between different systems**: Standalone, legacy, ERP, or workflow systems often don’t “talk” to each other, and integrating them would cost millions of dollars and precious IT time. RA can provide lightweight integration connecting disparate systems at the user interface level as companies move to one global ERP backbone and retire legacy systems.

• **Responding to data extraction and reporting requests**: When data and report requests come from multiple process owners, vendors, and even end customers, employees log into a system to extract the data, format it, and send an email to the requestor. Since these requests are typically rule-based work, RA lends itself very well to such tasks.

• **Rule-based decision-making**: RA can execute decision-based tasks provided the rules driving those decisions are well laid out. For instance, on an invoice coming from a utility vendor, RA can change payment terms to “immediate” from whatever is on the invoice. If an order is above $50k, RA would send it to a manager/approver for review, or if the price variance is less than 5%, or below a defined threshold, then RA would post the invoice. These are all rule-based scenarios that robotic software can execute.

### The potential impact of RA

Processes that have one or more of these characteristics can potentially see a productivity lift of anywhere between 10% and 50% or more if the conditions are particularly suitable. Broadly speaking, observations from our implementations thus far show the following are the areas in which robots score better than employees:

- **Accuracy**: Employees often make basic data entry errors such as typing in DD/MM/YY instead of MM/DD/YY. Software doesn’t make such errors unless the underlying code is written incorrectly or the data is inconsistent. “Armies” of associates checking and correcting the work of other staff before a transaction is posted are not uncommon. RA eliminates the need for rework and releases productive capacity for meaningful work.

- **24x7, uninterrupted labor**: No shrinkage due to breaks, vacations, meetings, or employee attrition. RA can work around the clock as long as work and target systems are available.

### Areas where robots score better than employees are accuracy, 24x7, uninterrupted labor, flexibility, and compliance.

- **Flexibility**: Processes often face volume spikes on defined (or sudden) days, weeks, months, and quarters during a year. Staffing tends to be sized to accommodate peak loads, with cost often to be paid for year-round. RA is modular and uses a lightweight deployment model, which makes it easy to replicate and ramp up or down to the number of “robots” to meet the vagaries of demand, while maintaining optimal employee staffing.

- **Compliance**: Experienced associates tend to skip steps in the standard operating procedure (SOP) due to their experience, which can lead to errors. RA is programmed to always follow the SOP, and since there is as yet no self-learning mechanism, RA will keep on following it. This is an advantage especially in sensitive processes with regulatory oversight such as healthcare claims adjudication. In addition, the separate log-in IDs and passwords in RA mean transactions are segregated, enabling precise accountability between people and software. RA also generates extensive audit trails at the “keystroke” level, which provides an extra level of assurance during testing and production.

### The limits of RA

These advantages are fueling the “robotics” hype. What is the ultimate impact for all labor—be it business process optimization (BPO), shared services, or Global Business Services (GBS)—in the business process operations world? To understand the economic “end game,” we must analyze the significant limitations that apply.
Non-digital input type: RA products can’t read or extract data from scanned images without using OCR to extract the data. For many processes, the predominant input type is a scanned image, and consequently, an RA implementation would incur extra cost and implementation time to include OCR. In some cases, the business case falls through because of this aspect. However, once the threshold of the early adoption curve is passed, and the default operating mode for a process changes to RA, we can theoretically expect a push for converting input types from digital images, such as a system-generated, structured .pdf, which can be easily read by robots. Again, the economic viability of these modifications depends on the cost of the respective IT implementation.

Diverse input formats: Process operations often see multiple formats from different vendors for invoices or even paper claims in health insurance. RA can be trained to read specific formats. Beyond a certain point, using multiple robots to read multiple formats becomes economically unviable to deploy and maintain. Unless RA providers inject their products with artificial intelligence, deploying robots to read different formats will always be a challenge. Attempting to influence vendors to submit inputs in a standard format would be difficult and time-consuming to implement. The organization might find it more appropriate to spend that effort nudging AP vendors toward electronic invoicing, which would eliminate human and robotic intervention.

Reading unstructured attachments and emails: Many interactions between process owners and associates happen via email, where instructions to process a certain exception are given. A free-flowing email is an unstructured data type and can’t be read by RA. Similarly, data arriving as an unstructured attachment, such as mortgage documents or supporting documents for healthcare claims, needs human intervention.

Complex exception handling and research: In some processes, straight-through processing happens without human touch, and only exceptions require human processing. The effort typically entails researching why the straight-through processing didn’t happen, obtaining additional approvals, and then posting the transaction manually. These actions require human understanding and become too complicated and expensive to be codified for RA.

SOP issues: RA is programmed based on the available SOPs for a process. The effectiveness of RA diminishes in processes that undergo frequent changes or for which the SOPs aren’t granular or comprehensive enough to cover many scenarios. In these cases, these would end up processing the simple parts of the transaction and flagging all others as exceptions requiring human intervention. In the case of frequent changes, this effort would require additional investment to change the coding, conduct testing, and redeploy the robot in the production environment. It could also lead to processing errors.

Other issues: Multiple scenarios exist where employees are required:
- To read handwriting or verify signatures
- A fraudster could mimic an invoice structure on plain paper and have it processed automatically. Employees would assess the authenticity of the document from its letterhead

The right approach to RA

This analysis has described the value and limitation of this fast-emerging, useful business process technology. There is no doubt that improved technologies will emerge over time and redefine the “art of the possible” in industrializing process operations through RA.

The RA landscape itself is rapidly evolving, and the ability to test usability across multiple types of processes is an advantage, since RA allows users to understand the real value and complexity. As the leading business service provider, Genpact has a long and broad experience with multiple clients across different process types. The main insight drawn from this vast experience is that RA risks increasing automation of badly designed processes.
A better automation strategy uses a combination of:

- Optimal process design “kits,” to define the future state process
- Lean value-stream maps to identify and eliminate wasteful spend on non-value-added steps in the process
- RA to provide the multiplier effect of process automation. Although this approach may take slightly longer to execute compared to quick-fix automation, it provides more sustainable benefits for client organizations.

This has been authored by Sanjay Srivastava, Senior Vice President, Enterprise Technology Solutions, and Saurav Dey, Vice President Quality at Genpact.

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It is no longer a given that a high initial customer satisfaction rate for a product or service will naturally translate into a loyal customer base. New customers of both the B2B and B2C variety are far more influenced by increased choices, technological advances, and exposure to social media.

At the same time, the channels used to get and keep this new breed of customer often rely on (silod) brick-and-mortar operations and processes. Remaking enterprise processes that are responsible for delighting customers (and doing it at the right cost) is an analytic and business transformation challenge. The following explores how to “industrialize” and embed analytics into processes to enable intelligent execution at scale.

We live in a world where vast social and e-commerce networks are interwoven globally in ways that are gradually rendering the networks indistinguishable from each other. Buyers are in control as never before. That has made renewing the focus on customer retention and loyalty a top priority regardless of what you are selling. Meeting that priority calls for new business processes, employee practices, and innovation. The need of the hour:

In this complex environment, one must ask, "How do enterprises increase their 'intelligence,' adapt to the new rules of customer loyalty, and drive sustainable growth?"

In this complex environment, one must ask, “How do enterprises increase their ‘intelligence,’ adapt to the new rules of customer loyalty, and drive sustainable growth?”

The answer lies in capturing insights from multiple listening posts across touch points and customer relationship life-cycle stages. Through a more comprehensive understanding of buyer opinions and intent, enterprises can use predictive analytics to transform business processes and influence customer behavior.

The growing need for more CEM and less CRM

In recent years, companies have invested a lot of money in
Customer Relationship Management (CRM). CRM has empowered the business leader with the muscle of repeatable customer-interaction behaviors while enabling the collection of data... some type of data, that is.

Managing customer experience in silos means individual departments worry about their metrics or their processes; the departments do not necessarily look at the overarching goal that connects everything under one frame of reference, the customer’s. Examining only past transactional data, for instance, yields information on what’s already occurred. Weight must also be given to how up-to-the-moment purchasing preferences evolve based on something customers see and “like” on Facebook or covet enough to “pin” a photo of it to their Pinterest board. In these conditions, the next step is to harness the power of Customer Experience Management (CEM). CEM results in overall customer satisfaction, which, in turn, secures a measure of customer loyalty that would otherwise remain fleeting. It involves the following:

- Understanding the experience from customers’ perspective
- Delivering the experience to their expectations, closing the gap between desired and actual experience
- Integrating customer centricity into an organization’s DNA—through repeatable processes that hit the determinants of “delight”

CEM is not limited to managing end-customer experiences. Rather, it extends to managing and improving the experience of all stakeholders, including influencers, employees, and channel partners. Managing customer experience is not an exercise to be performed by a single team or specific departments. It is about changing how companies do business, how they view their customer, and how flexible they are regarding changing customer needs.

CEM helps companies look at customer survey data in conjunction with their behavioral data, and thus gives a holistic picture of the customer: Past, current, and probable. It takes a company to the next level of customer centricity by providing access to customer opinion and decision-making processes. Since business leaders are already heavily invested in CRM and still situated on the front end of its ROI curve, many are understandably skeptical of further investments in CEM. Sometimes even when companies are aware of the importance of CEM they may not know how to manage it. They may collect data but struggle to tie it together into a comprehensive customer view. They may analyze the data but fail to circulate findings to the appropriate people. Some struggle to assign accountability for process improvements. CRM tells you only what the customer does, not what he or she is thinking.

Introducing a holistic CEM framework

We have found that converting raw data into actionable intelligence that can holistically heighten customer satisfaction and loyalty means expanding and sharpening your enterprise’s listening capability in three areas:

- Traditional research: Feedback is sought in the form of structured ‘Loyalty Surveys’ that study customer perception, attitude, opinion, need, and desire
- New media research: Steadily monitoring *unsolicited* feedback on websites, forums, blogs, and other social media
- Enterprise data: Identify and understand key drivers of behavior by studying traits and tendencies during transactional engagements at contact centers and the like

Stage 1: Designing - Experience mapping

Once customer information is gathered from traditional, new media, and enterprise data sources, one can begin to develop a framework for mapping customers’ experiences, measuring their loyalty, and assessing the impact that their opinions can have in relation to how the enterprise responds to those opinions. (Figure 1)
Customer experience must be measured at specific “touchpoints” throughout his or her journey. This means anywhere he or she comes in contact with the business in any form, be it product, service, customer representative, or word of mouth. A touchpoint can be divided into three main zones: Pre-purchase, purchase, and post-purchase. Pre-purchase points build customer perception and expectation, which are then evaluated during the purchase stage. Post-purchase points are equally important as they provide the “last impressions” of the product, service, brand, and company that will complete the loop in the Customer Experience Cycle.

There are many ways to chronicle customer experience. Among them are process mapping, customer activity cycles, activity mapping, service blueprint, and touch point analysis. The best results are obtained through a combination of methods. This process helps landscape the entire cycle, from information gathering to purchase decision to actual purchase and post-purchase use to after-sales support. (Figure 2)

![Figure 2: Decoding the customer experience: Walking in the customer’s shoes](image)

This broader landscaping effort involves interviews with all stakeholders in the organization at multiple levels. The stakeholders are spread across functions such as operations, sales and marketing, customer service, design and engineering, and after-sales support. Combining the top management view with frontline operational experience at such initial stages of the CEM program design ensures that the output from the program is operational and is well aligned to the overarching strategic goal. This allows organizations to achieve an “inside-out” view.

**Stage 2: Execution - Loyalty mapping**

Where Stage 1 is about solution design, Stage 2 is about execution. This is the stage when empirical research is conducted and hypotheses formulated and tested. This is also the stage when the methodology for evaluating the CEM program itself is designed and executed.

**Design:** Based on the input from Stage 1, a study is designed that combines traditional and social media research for a comprehensive customer view. (Figure 3) This design ensures that customer segments across the experience life-cycle stages are covered based on their touchpoint use. Social media themes provide additional inputs for designing the questionnaire. At this stage, one must identify and finalize the key sources of social media conversations.

![Figure 3: Loyalty mapping stage](image)

**Data collection:** Data for traditional research can be collected online, on the telephone, face-to-face (F2F), or through a mixed-mode approach depending on the target audience profile. Multiple surveys should be conducted with in-house-data collection centers in multiple geographies and by partnering with third-party agencies for specific regions or target audience profiles. A preliminary analysis of the data and key themes is conducted.

**Data analysis:** Customer loyalty metrics and their drivers are analyzed to identify the critical drivers. Data collected from traditional research and social media are analyzed independent of each other and in conjunction, for a holistic view.

**360-degree view of customer loyalty**

Combining structured feedback from primary research with unsolicited feedback from social media gives a comprehensive view of customer loyalty. Primary research and social media research complement each other and work very well in tandem while closing the inherent gaps in individual methods.

**Unsolicited customer chatter:** Since this is not structured, it can help identify new themes and new drivers more easily than traditional research. The data are current and free of bias. Additionally, the cost of collecting these data is relatively low, and this type of data can be collected much more frequently than traditional research. Social media data are helpful in providing greater granularity to the individual drivers and issues. This in turn helps drive more action-oriented insights.
**Traditional research:** The benefits of structured research for checking the customer pulse have been many and undisputed over time. In spite of obvious criticism such as high costs and intense design effort, traditional research helps generate robust insights that can aid business decisions and prioritize actions.

In addition to combining social media and traditional research, a complete view of customer loyalty includes listening to other stakeholders. These stakeholders include not just employees and suppliers but also listening to potential customers who did not convert and competitors’ customers. Then a standard system for listening to customer complaints and offering timely responses must be designed.

**Stage 3: Impact assessment**

Senior leadership is always looking at the financial impact loyalty has on the business. This stage is thus about combining customer survey data with transactional data to look at "what customers feel" and "what customers do" as a result.

This analysis incorporates merging data from multiple sources, which is sometimes the biggest challenge in this stage. Linkage analysis is a two-step process in which Step 1 is about creating a data set for further analysis through merging disparate data sets. Step 2 is about analyzing that data set to identify patterns and trends and build predictive models. This analysis supports customer loyalty efforts and CEM investments in the organization. The numbers help get senior leadership buy-in and predict future investments.
Industrialized analytics can enable a holistic customer view and embed that insight into loyalty-driving processes.

Identifying and delivering an overall superior experience to customers is an all-encompassing goal. However, with the demand to create a single view of the customer increasing, there is now a better way to measure, assess, and execute best practices for retaining customers and driving business growth. Pursuing these goals requires a more robust—and more readily scalable—approach to analytics and related data collection. We live in a wired world where the relationship between customer and enterprise is more immediate, fluid, and delicate than it has ever been.
Collaboration remains an often-untapped key to competitive advantage, buried in enterprises’ organizational “backyard”. A Unified Collaboration framework that takes culture and human behavior into account, and drives technology decisions with a clear focus on business outcome, can deliver significant impact.

The days of collaborating with colleagues in the conference room, over the cubicle wall, or through long email streams are not gone, but these traditional models of collaboration can’t solve today’s complex business challenges. Many companies are discovering the untapped benefits of harnessing collective intelligence. By adding collaboration tools that neatly overlay existing technology stacks, these businesses are boosting productivity, speeding process cycles, and vastly increasing the organizations’ ability to respond to customer and market demands quickly and effectively.

### 1. A new approach to the modern workforce

Job requirements today often result in a mismatch between the demand and supply of specific skills. Scarce young analytical talent and retiring industrial engineers are two faces of the same coin. As the workforce evolves and automation or cost makes some skills obsolete, businesses may need to staff their operations from various global locations in order to obtain critically needed skills and talent. Human Resources (HR) executives believe that in the future there will be more part-time, temporary, semi-retired, work-from-home, and offshore resources.

To support this reality, businesses must facilitate an “extended enterprise” in which critical collaborative interactions happen effectively not only between individual employees and internal teams but also with partners, outside agencies, customers, and prospects who may be located anywhere. Cross-border and team collaboration requires rethinking of core business processes in order to effectively manage and leverage a more diverse and distributed workforce. Tools and operations structures that support cross-border and team collaboration are now crucial.

### 2. Complement—don’t replace existing technologies

Organizations seeking an easy method for moving to next-generation collaboration tools need a “system of engagement,” a layer that enables a more productive and seamless work environment. Effective collaboration tools complement the underlying technologies already in place within the enterprise for managing security and data: firewalls, virtual private networks (VPNs), enterprise resource planning (ERP), single sign-on (SSO), Microsoft Exchange, etc. Collaborative tools provide unified access to existing data and expand the organization’s ability to share knowledge without compromising security or forcing a complete overhaul of existing systems.
Most organizations tend to look at the value of collaboration in terms of the transactional benefits derived from a simple application of technology—for instance, replacing an in-person meeting with a video chat. However, much greater value comes from understanding the nature of human interactions. Powerful tools such as social network analytics can discern “hidden signals”: the traces that people leave through online actions such as deciding when to connect, how, and with whom. This reveals insights into the functionality of groups in large organizations and how groups can be made more effective through collaboration. This knowledge, in turn, helps the enterprise refine the tools and gain the greatest value.

3. Collaboration drives business impact: Case studies

A combination of effective change management and well-chosen collaborative platforms drives immediate tangible benefits. By carefully managing employee expectations and encouraging the use of collaborative tools such as real-time document and screen sharing, chat, video conferencing, and collaborative forums, the enterprise can clearly chart a path toward significant benefits derived from closer teamwork and faster resolution of issues.

The following examples demonstrate how a unified collaboration framework can create significant business impact for large global enterprises.
### Case studies summary

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<tr>
<th>Company</th>
<th>Challenge</th>
<th>Solution</th>
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<tr>
<td>Large information services organization</td>
<td>Divestiture of a significant part of the company resulted in significant challenges to the new business strategy of outsourcing areas of the Finance function</td>
<td>Genpact’s OneFloor collaboration solution created stronger relationships between teams and a seamless customer experience across country boundaries</td>
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<tr>
<td>Global diversified technology and industrial leader</td>
<td>Two teams, one external (partner) and one internal, were responsible for designing and developing training programs and materials. Email and phone communication alone failed to integrate the two parties and stymied creativity</td>
<td>Glue, Genpact’s &quot;asynchronous&quot; social collaboration portal, provided a common environment for more interaction that allowed the two teams to work as effectively as in a face-to-face environment, saving time and costs</td>
</tr>
<tr>
<td>Global provider of business and technology services</td>
<td>A central team of solution architects involved in large and complex business-to-business solution design needed to ensure innovation and knowledge-sharing among a team of practitioners that provided cross-industry, cross-business process and cross-geography support</td>
<td>Glue, Genpact’s social collaboration solution, provided a collaboration platform that produced faster responses to client inquiries and immediate access to a far wider range of expertise and improved productivity through reusable, easily accessible materials</td>
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<tr>
<td>Global provider of business and technology services</td>
<td>Cross-company teams are often challenged when internal skills and expertise fall short of specific business requirements</td>
<td>Genpact’s SolutionXchange, a specialized community where external subject matter and domain experts address unique business problems, helped solve 60% of more than 400 posted challenges during the past year and decreased problem resolution time for clients by 80%</td>
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<tr>
<td>Global provider of business and technology services</td>
<td>A global team responsible for assisting clients in globalizing business operations needed to collaborate effectively on local and regional issues, yet provide high-quality, consistent change management and execution for clients across the globe</td>
<td>TransForum, a social environment based on Genpact’s Glue, an &quot;asynchronous&quot; collaboration platform, enabled highly mobile and dispersed team members to share knowledge and collaborate on related execution issues. Genpact created a more collaborative culture that cut RFP response times by 20% and increased Voice of the Customer metrics by 10%</td>
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<tr>
<td>Fast-growing company with global footprint</td>
<td>The enterprise struggled with distance and over-reliance on travel to stay close to markets. Deployment of a real-time collaboration solution was challenged by a highly secure environment, adoption issues, and architectural complexity</td>
<td>OneFloor, a real-time collaboration solution, and SolutionXchange, an external community of experts, together created a strong virtual network for the product innovation and other teams. Innovative technical solutions resolved network complexities, while insights from Lean Six Sigma projects and social network analytics identified key &quot;nodes&quot; of influencers who could help drive adoption</td>
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<tr>
<td>Company</td>
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<td>Leading pharma company</td>
<td>The company was dissatisfied with slow responses to inquiries made to their globally distributed external shared services team but struggled to identify the root cause</td>
<td>Genpact’s Zero Surprise Operational Monitoring solution used big data and social network analytics to evaluate the health of the relationships between globally distributed teams. Scorecards identified designated points of contacts, pinpointed issues, and provided recommendations for improvement</td>
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<tr>
<td>Global provider of business and technology services</td>
<td>An internal group responsible for developing products for service offerings, creating business and industry thought leadership, and identifying approaches for improving internal operations needed a method for harvesting the collective intelligence of the extended team</td>
<td>The group used Genpact’s Unified Collaboration solution, with a primary focus on Glue, a portal for asynchronous social collaboration, to facilitate contests among employees for the best solutions and most valuable new ideas, and used metrics to identify the strongest and most consistent experts</td>
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<tr>
<td>Global provider of business and technology services</td>
<td>A small team of five solution architects distributed across the US each support at least three to five global sales opportunities at any time. Business development team members thought the solution architects needed to be on-site to develop &quot;win&quot; strategies, but competing priorities and logistics challenged the team to effectively support sales teams globally</td>
<td>OneFloor, a real-time collaboration solution, and Glue, Genpact’s portal for asynchronous social collaboration, were used to help the team work remotely to create &quot;win&quot; strategies and work out solution details with global sales teams. Global business development teams have access to marketing insights and other materials that help the teams improve productivity and shorten the sales proposal cycle</td>
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4. Enterprises should not overlook this untapped competitive advantage

The collective intelligence and talent of a diverse, globally distributed workforce must be leveraged to fuel agility and innovation as well as increase efficiency. Organizations must also become more effective in collaborating with their partners across enterprise boundaries. However, too many enterprises lament poor results that mainly stem from limited adoption. The key to more effective collaboration lies in understanding the most powerful use cases, choosing and configuring specific—not generic—collaboration solutions, and focusing on adoption through data-driven and people-centered programs.
## Case study 1: Large information services organization

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<th><strong>Solution and impact</strong></th>
<th><strong>Summary of benefits</strong></th>
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| The information services organization had undergone a recent divestiture in which a significant part of the company was spun off. Even after the split, this company remained a large, more than US$4.5 billion entity. The significant structural change caused a great deal of volatility, resulting in organizational and staffing changes, skill gaps, hostile attitudes, and a culture of skepticism. The new business strategy included outsourcing key areas of the Finance and Accounting function, including Order to Cash, Procure to Pay, and Record to Report processes, to three global delivery centers in China, Romania, and India. | The organization deployed Genpact’s OneFloor tool to facilitate real-time collaboration. Using OneFloor, the organization’s teams have built stronger relationships, with more familiarity between teams, through immediate critical communication. With video chat calls, team members put a “face to the name” and became more comfortable resolving problems together. Team members shared their screens to view issue logs and other materials such as automated systems errors, making resolving issues much more easily. Teams relied less on cumbersome and elongated email trails or conference calls that had previously resulted in longer cycle times and misunderstandings between teams. Additionally, the collaboration tools segregated users with a “virtual partition,” enabling internal teams to interact with each other while facilitating work with external teams. | • Helped build relationships  
• Improved enterprise communication and collaboration across silos and geographies  
• Increased efficiency and time savings across teams  
• Speeded up problem resolution and created greater accuracy  
• Increased customer satisfaction  
• Improved access to knowledge and document-sharing  
• Email traffic decreased by 21% |
| The outsourcing service partner team faced many challenges when it came on board to assist in the transformation. The skills disparity produced gaps in capabilities and understanding. Hostile attitudes created challenges in knowledge transfer between teams. Skepticism was a divisive factor in everyday operational transactions, so that every delay, problem, or stumble during the change was met with unproductive attitudes and behaviors. | With the organization’s teams dispersed in three countries, OneFloor provided a collaborative process that enabled the cross-functional team to deliver a seamless customer experience across country boundaries. Net Promoter Scores increased from 59% to 65%. Team members saw available process owners, reached out to review month-end journal entries so that the correct data was fed into the reconciliation tracker, or collaborated to quickly resolve other challenges, significantly minimizing delays. When delays in payments to vendors were projected, for example, the operating leader notified the process owner at the client site and explained the delay immediately. This shortened the cycle time for decision-making by reducing “phone tag” and emails. Problem-solving that usually averaged five hours to resolve now took only 30 minutes. Collaborative document-sharing and editing improved speed and accuracy by up to 90%. | |
### Case study 2: Global diversified technology and industrial leader

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<th>Challenge</th>
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| The global technology and industrial company’s director of learning and development had two teams, one external and one internal, that were responsible for designing and developing training programs and materials. Email and phone communication were insufficient to overcome the lack of chemistry between the teams and create a more integrated and supportive working relationship in which ideas could be shared. | Glue, Genpact’s portal for asynchronous social collaboration, provided a common platform to support more interaction between the two teams. The shared Glue environment broke down barriers and encouraged more personal and professional interactions. The technical training, instructional design, and graphic design teams enhanced their design and development processes. The teams held "Innovation Days" via the common collaboration platform twice annually, sessions in which the joint team brainstormed breakthrough ideas and approaches. With Glue, the two teams worked as effectively as in a face-to-face environment, with less time and fewer costs associated with innovation and improved idea management. | • Reduced time to find knowledge, expertise, and best practices  
• Increased efficiency between project teams  
• Improved knowledge-worker productivity  
• Reduced cost of travel |

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### Case study 3: Global provider of business and technology services

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<th>Challenge</th>
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| A global provider of business and technology services was facing challenges in ensuring innovation among practitioners. A central team of architects is involved in large and complex business-to-business solution design. The team comprises a core of 50 people but inclusively involves 260+ members. The team’s mission is to build competitive knowledge and define approaches for delivering best-practice advice and services to clients. The team is constantly challenged in not only ensuring innovation among practitioners providing cross-industry, cross-business process, and cross-geography support but also in bringing extensive, complex knowledge to bear for a wide range of stakeholders, including sales, subject matter experts, operations teams, and clients. | Glue, Genpact’s social collaboration solution, evolved significantly from a forum for trading questions and clarifications to a collaboration platform where best practices, trends, and benchmarking materials can be readily used. True collaboration through Glue has had a wide range of positive business impacts:  
  - **Faster response to client inquiries:** 20% decrease in response time and 30% decrease in the effort to pull together the best insights. For example, the team posted a client inquiry on Glue; eight people responded immediately, facilitating an effective client response within 24 hours  
  - **Wider range of expertise:** Glue provides immediate access to specific problem resolutions, industry insights, best practices adopted by other companies, and a wide range of the best insights available from across the organization. Through effective tagging and keyword searches, this access is extremely fast and easy  
  - **Improved productivity:** Reusable templates, write-ups, case studies, and other project-related materials mean that good work already produced can be leveraged and teams do not have to start from scratch with new initiatives | • Reduced time to find knowledge, expertise, and best practices  
• Decreased RFP response time  
• Decreased client response times, with 70% of inquiries answered in less than 24 hours  
• Speeded up new content development using reusable materials  
• Improved efficiency across project teams |
## Case study 4: Global provider of business and technology services

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| A global provider of business and technology services is often challenged when cross-company business and new product development, solutions delivery, and other operational teams, which require internal skills and expertise, fall short of specific business requirements in unique situations. While partnering with clients, these teams may need to explore new areas, seek specific information or insights, or get assistance in developing new solutions. | Genpact’s SolutionXchange is a large global community where external subject matter and domain experts can solve unique business problems and bid on the opportunity to solve client challenges. Over the past year, this community has helped solve 60% of 400+ posted challenges. Problem resolution time for clients, on average, has decreased by 80% by finding the right expertise when it was needed. Successes include the following: | • Acquired needed knowledge and expertise  
• Decreased time to find knowledge, expertise, and best practices  
• Improved solution and idea development  
• Increased customer satisfaction |
| • High-impact transformation roadmap for the hospitality industry: This short-term engagement provided insights into industry best practices and benchmarking techniques to develop a roadmap to strengthen the balance sheet, increase revenues, reduce costs, and make the profit and loss (P&L) statement stronger for a hospitality company. | | |
| • Clinical cross-process metrics and benchmarks for pharmaceutical clients: During a long-term engagement with multiple pharmaceutical companies, Genpact and external experts identified metrics that bridge sub-process activities across clinical data management processes for better performance management and benchmarks. | | |
| • Insurance claims cost reduction: In an engagement with a registered process co-lab expert, Genpact identified and resolved critical factors that caused claims leakage, resulting in a point solution that drove cost reductions of $10–12 million out of $1 billion in premiums. | | |
| • Financial closing scoring matrix: In a medium-term engagement, Genpact and registered experts developed a comprehensive framework of lead indicators and metrics that measured the effectiveness of the financial closing process. | | |

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Enabling global change management for global operations transformation

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| A global provider of business and technology services faced challenges in ensuring global change management. A team responsible for assisting clients in globalizing business operations had clients and team members in the Americas, Europe, and Asia-Pacific. Tasks included restructuring organizations, reengineering business processes, and deploying new technologies. The team needed to collaborate effectively on local and regional issues but also provide high-quality, consistent change management and execution for clients across the globe. | The team established TransForum, a social environment based on Genpact’s Glue asynchronous collaboration platform. Team members across regions shared learning and knowledge and collaborated on related execution issues. Since mobility is necessary for these teams, which are often in transit, Glue was particularly effective, as it is accessible via BlackBerry and iPhone devices. TransForum acted as a unifying force that encouraged more discussion as well as sharing of knowledge and best practices across regional teams. Essentially, TransForum created a more collaborative culture, which led to more robust and consistent global solutions and the following outcomes:  
- "First Time Right" performance scores improved by 5% as knowledge-sharing resulted in fewer repeatable mistakes  
- Voice of the Customer (VoC) metrics increased by 10% on project management as collaboration improved the performance of new managers and leveraged experience to overcome complexities arising across regions  
- RFP response times decreased by 20% and sales collateral improved by featuring the best of what the global team could provide in solution results | - Decreased time to find knowledge, expertise, and best practices  
- Improved solution development and management  
- Decreased client and RFP response time  
- Speeded up new content development  
- Improved employees’ connections to colleagues (61% feel more connected) |
### Case study 6: Fast-growing company with global footprint

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| A global fast-growing company was struggling with distance and            | The company leveraged OneFloor, a real-time collaboration solution, and SolutionXchange, an external community of experts, to create a strong virtual network for the Product Innovation and other teams. Network complexities were resolved through innovative technical solutions to partition users. Using insights from Lean Six Sigma projects and social network analytics conducted on the network, the company identified key "nodes" of influencers who could help drive adoption, backed by a strong internal marketing program. | • Improved innovation ideas pipeline by 50%  
• Reduced solution development and testing time by 30%                                                                                                               |
| over-reliance on travel. Some units such as the new product innovation    |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| team were multi-country by design because they needed to stay close to    |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| markets but had resources globally and would collapse if a strong        |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| collaboration framework were not in place. This in turn affected other    |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| front-end teams, including consulting and sales.                          |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| Deployment of a real-time collaboration solution was challenged by a      |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| highly secure environment and related architectural complexity as well    |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
| as issues with driving adoption in a fragmented user environment.         |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                          |
Ensuring healthy client interactions and responses

### Case study 7: Leading pharma company

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution and impact</th>
<th>Summary of benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>A leading pharma company was dissatisfied with slow responses to inquiries made to the globally distributed external shared services team and struggled to pinpoint the nature and location of the cause.</td>
<td>Genpact leveraged its Zero Surprise Operational Monitoring solution, which uses big data and social network analytics to evaluate the health of the relationships between globally distributed teams every month. This solution takes a proactive approach to identifying and solving problems, allowing for timely investigations and corrective actions. Monthly scorecards generated by the tool clearly reflected a very high average response time and low profiling of central leadership. Using this reporting, the client team identified the designated points of contact for delegating work among the shared services team members. The scorecards indicated that emails were not promptly answered; a client had to send several inquiries before he or she received a response. The scorecards also provided &quot;directional&quot; recommendations based on the best-practice communication guidelines. Changes suggested to improve team behavior patterns and practices included the following:</td>
<td>• Decreased response time • Increased response levels • Created proactive monitoring for issues • Improved client satisfaction</td>
</tr>
<tr>
<td>• Reviewing the structure and ratio of team members to a team lead/manager from the service provider. This would help identify those who could facilitate support and communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Establishing performance metrics mandating that any client email should receive a response in less than 24 hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A global provider of business and technology services wanted to improve management of collective intelligence. An internal group responsible for developing products for service offerings, creating business and industry thought leadership, and identifying approaches for improving internal operations needed a method for harvesting the collective intelligence of the extended team.

Genpact’s Unified Collaboration solution focused on Glue, Genpact’s portal for asynchronous social collaboration. Using Glue, the group facilitated contests among employees for the best solutions and most valuable new ideas. Genpact asked team members to submit Point of View documents and other thought leadership assets for consideration and saw a high response rate; more than 100 assets were submitted. The group set up a panel and a rating system to help choose the winners and resolve the challenge of selecting the top five to 10 ideas. For example, one idea that won involved a methodology for assisting pharmaceutical companies with adopting new drugs. The team made recommendations that included identifying key opinion leaders who could assist these companies in their efforts to effectively promote new drugs entering the marketplace. The group’s related recommendations were incorporated into service offerings for the pharma industry.

The team posts ongoing business challenges and questions to which internal experts and team members can submit resolution proposals. The best solutions are used to improve internal operations and resolve problems. The team also monitors employees and maintains metrics to identify the strongest and most consistent experts, those who provide valuable insights. This helps reinforce employee rewards, promotions, and recommendations for engagement in delivering various client services.

<table>
<thead>
<tr>
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<th>Solution and impact</th>
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</tr>
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<td>Increased innovation and value creation, Improved solution development and management, Decreased time to find knowledge, expertise, and best practices</td>
</tr>
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</table>

- Increased innovation and value creation
- Improved solution development and management
- Decreased time to find knowledge, expertise, and best practices
Leveraging a small and geographically dispersed enterprise solution architects team for global support of sales opportunities

A global provider of business and technology services was facing a challenge to effectively support sales teams globally. A small team of five solution architects, distributed across the US, each support at least three to five global sales opportunities at any time. Business development team members perceived a need for the solution architects to be on-site to develop “win” strategies, but with global sales teams on six continents, and multiple competing priorities, it was neither practical nor time- or cost-effective for these architects to meet in person for each opportunity. Competing priorities and logistics could result in the person dispatched on-site not having the right set of knowledge and skills. This small team was therefore challenged to effectively support sales teams globally.

In addition, the solution architect team was relatively new. These critical resources were difficult to hire, with learning curves of 1.5 years or more. Establishing strong relationships between the team members, creating a sense of loyalty, and retaining these employees were key due to the high investment and critical need for these individuals. However, regular face-to-face team meetings were simply too costly and time-consuming.

OneFloor, a real-time collaboration solution, and Glue, Genpact’s portal for asynchronous social collaboration, were used by the team. OneFloor was incredibly powerful in helping the team work remotely to create “win” strategies and work out solution details with global sales teams. With OneFloor, the solution architects engaged the right resources at the right time on the right projects. The team was not spending valuable time and money traveling, and the company maximized its investment in a small team for global sales support. The team used whiteboard and desktop-sharing features in multi-hour “win” strategy brainstorming meetings that involved the business development leader, global regional manager, and lead solution architects.

Additionally, the solution architect team began monthly one-on-one and weekly team meetings via Lync video and, increasingly, used Lync calls for discussions that would have normally taken place via mobile phones or landlines. Although the team leader may not physically be with team members for six months or more, the team can still see each other regularly and further develop a team mindset.

Glue is used by the global business development teams to gain access to the latest competitive insights, proposed solutions, marketing insights, win/loss assessments, insights from competitor organizations, case studies, and many other materials. They help the sales teams develop critical insights that are used in business development and materials that can help improve productivity and shorten the sales proposal cycle.

### Challenge

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### Solution and impact

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### Summary of benefits

- Helped build relationships and teams
- Developed better enterprise communication and collaboration across silos and geographies
- Increased efficiency and time- and cost-savings across teams
- Increased deal team productivity by 15%
- Speeded up problem resolution
- Improved access to knowledge and document sharing
Mergers and acquisitions are commonly used to drive innovation and growth, but their consummation is complex. Their execution benefits from advanced support operations such as shared services, outsourcing, and particularly Global Business Services (GBS), which can facilitate increasingly complicated enterprise restructurings. M&As leverage superior process maturity, transparency, scalability as well as better economics due to shared operations. Here is a view on the road map CFOs, COOs, and other senior management dealing with significant operations complexity in an M&A environment should adopt.

It is much easier to buy than build but M&A consummation is complex

Worldwide, corporate mergers and acquisitions totaled some $839 billion in 2013, up 20% over 2012. The outlook for 2014 shows a likely further 25% increase. At the same time, business cycles are becoming so dynamic in so many industries (pharmaceuticals, manufacturing, energy, finance, and consumer products, to name a few) that CEOs and CFOs are often hard-pressed to transform their operating models, that is, the way their delivery processes are executed at scale across people, IT, and policies.

These two trends can be highly synergistic, but many companies aren’t harnessing them jointly.

In the meantime, M&A is still a tough strategy. A recent McKinsey study found 86% of CFOs surveyed expect to be tending to M&A-related restructuring issues through 2016. The work will not be easy. Recent studies show approximately three-quarters of all M&A deals fall apart, nearly two-thirds of those completed are financial failures, half erode shareholder value to where they cannot earn back the capital invested in them, and a third produce only marginal returns. Indeed, barely half achieve the cost savings, operational synergies, or revenue expected.

Many studies have examined why that is the case. Staff preparation, behavioral bias, and bad homework are some of the culprits. However, the role of various business process delivery models is typically not explored in detail—quite wrongly, in our experience. Even when the pre-merger analysis is done well and the final decision is fully rational, all too often acquirers do not have the organizational structure and managerial tools to make the deal succeed. A core reason for so many of these failures is the inability of the post-merger integration (PMI) to integrate companies and realize the related synergies: 40% of executives who’ve been involved in M&A deals say that post-merger issues are often the most difficult to resolve. Beyond soft factors such as culture and style, hard elements related to business processes are very often major hurdles (from data collection and analysis to payment systems, purchasing, procurement, and invoicing). Some processes often prove too dissimilar for the acquirers’ PMI team and a challenge for change management efforts to readily standardize.
Companies with global ambitions can face added complications. Compliance with local government regulations, accounting standards, rules on corruption and bribery, as well as management discipline in dealing with them vary from country to country. Information management can be especially tricky because of the potentially wide variation in capabilities related to monitoring, collection, storage, and analytical systems. Lost data, IT downtime, and integration can become critical issues in any merger.

However, a mature operating model, most importantly for the acquirer, can go a long way in reducing the risk of PMI, increasing its speed, and ultimately enabling a functionally effective and efficient steady state.

A different way to look at operational synergies

When Procter & Gamble (P&G) acquired Gillette in 2005, and became the world’s largest consumer goods company in the process, the company’s top executives expected the merged entity to operate at much greater efficiency and scale than the separate parts had. Because of very different sales forces, even seemingly obvious synergies proved difficult at first. Salespeople from the two predecessor companies found themselves gunning for each other’s jobs. In the initial wave of restructuring, good people left, and corporate performance suffered. In sum, the deal was not simple to execute. However, as P&G had adopted and fine-tuned its GBS, the company learned how to overcome process-related aggravating factors, such as sales operations and related order to cash. P&G is one of the strongest merger executors, despite being in one of the most volatile industries.

Advanced operations such as GBS facilitate M&A execution in various ways:

- **Scalability.** The economics of shared services, outsourcing, or combinations thereof in advanced operations can rapidly scale up or down top- and bottom-line operations to accommodate growth in some parts of the business, or loss of volume in others

- **Integration capabilities.** Using GBS, restructuring companies can quickly discover their target operations. This facilitates the integration functions through more transparent and documented processes, better enabled by more robust technology (ERP, workflow, business intelligence, as well as solid master data management frameworks). Additionally, change processes can be managed by teams of change experts and global process owners (GPOs) who have accountability for end-to-end processes irrespective of the actual reporting lines

- **Analytics.** Increasing decision-making across the enterprise, thanks to more robust data-to-insight as well as insight-to-action processes

- **Policies.** Allowing companies to standardize operational and compliance processes and metrics faster, even across seemingly incompatible business cultures, thus enabling repeatability of the transformation across business units, legal entities, or acquired organizations

In a post-merger scenario, key processes such as order-to-cash (OTC), source-to-pay (S2P), and record-to-report (R2R) are impacted materially. Advanced operating models help achieve desired business outcomes as described in Table 1.

<table>
<thead>
<tr>
<th>Key processes</th>
<th>Typical challenges in post M&amp;A scenario</th>
<th>Specific practices in a GBS/SSC environment</th>
<th>Common practices in GBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order to Cash (OTC)</td>
<td>Improper alignment of accounting and processes leading to:</td>
<td>• Creating end-to-end OTC visibility and reporting</td>
<td>• Documentation of OTC processes</td>
</tr>
<tr>
<td></td>
<td>• Lower accuracy of order deliveries due to incorrect customer master setup</td>
<td>• Workflow to standardize and monitor billing management</td>
<td>• Availability of GPOs</td>
</tr>
<tr>
<td></td>
<td>• Delayed cash realisation due to mismatch in billing information</td>
<td>• Workflow tools for dispute resolution/management</td>
<td>• MDM governance/standards</td>
</tr>
<tr>
<td></td>
<td>• Inaccurate collections due to poor account reconciliation</td>
<td>• Proactive collections strategy for select customers</td>
<td></td>
</tr>
<tr>
<td>Source to Pay (S2P)</td>
<td>• Poor vendor realignment and consolidation</td>
<td>• Vendor rationalization/increased use of preferred suppliers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Savings leakage due to inability to renegotiate credit terms</td>
<td>• 100% spend extraction from ERPs and increased spend visibility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Low sourcing effectiveness due to insufficient spend visibility</td>
<td>• Better categorization by using standards such as UPSPSC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 100% cataloguing and no-PO-no pay policy</td>
<td></td>
</tr>
<tr>
<td>Record to Report (R2R)</td>
<td>Differences in book closing and reporting of merged entities leading to:</td>
<td>• Automated interface process within ERP system for sub-ledgers</td>
<td>• Documentation of R2R processes</td>
</tr>
<tr>
<td></td>
<td>• Longer time to close than comparable peers</td>
<td>• Adherence to global corporate calendar</td>
<td>• MDM governance/standards</td>
</tr>
<tr>
<td></td>
<td>• Unreliable financial statements because of high aged open items</td>
<td>• Workflows for manual journal entry reductions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Delayed external reporting due to high number of rectifications</td>
<td>• Simplified, standardized and documented reconciliation policies with equally robust dashboards and reporting mechanisms</td>
<td></td>
</tr>
</tbody>
</table>

Table 1. How advanced operating models help achieve desired business outcomes
Advanced operations: A largely untapped lever for M&A execution

Advanced operations such as GBS are a very strong tool for CEOs and CFOs who must capture maximum value for stakeholders when executing an M&A. PMI can be significantly simplified by the disciplined delivery, as well as superior economics, of advanced operations models.

An example of advanced operations impact in M&A

When one of the world’s largest construction materials manufacturers wanted to expand into global emerging markets to counter declining domestic sales in the U.S., the company did so via acquisitions. The company had a chance to acquire three leading door manufacturers in India, but faced a tight deadline and lacked local market knowledge and in-country human resources and legal expertise.

Genpact’s shared services and process reengineering approach helped manage the three-part merger, from due diligence to a smoothly running new enterprise. Genpact redesigned and integrated the business processes of all four companies into a single shared service center. This included a seamless control process from day one and an end-to-end finance and accounting system for the new enterprise.

The payoff? An integrated back-office operation was up and running in just 12 weeks. In the process, we created a model that is applicable to any industry and business unit that needs to move quickly into an emerging market by acquisition.
Operations leaders often struggle to present the full strategic values of their operating model alternatives to their respective CXOs. This challenge is common across service and support operations, from banking processing to finance and accounting and beyond. Assessing advanced operations’ roles solely through the lens of baseline-cost reductions biases CEOs’ enterprise choices, since the choice of alternatives benefits from a more sophisticated value-modeling approach that accounts for the financial impact of execution uncertainty and market volatility. The same challenge exists when choosing between alternative organizational models, such as internal shared services, BPO, hybrid and global business services. This paper provides executives with the analytics to robustly estimate the full values of these models (taking into account the financial significance of risk, time, and additional quantifiable factors) and to properly evaluate alternative organizational models.

The challenge

Many leaders struggle to assess and present the value of strategic transformations of their operations. Within functions like financial planning and analysis, industrial operations, acquisitions and spinoffs, where sophisticated business case modeling is prevalent, data benchmarks are easily accessible and strategy consultants are readily available. In these cases, sophisticated business cases are routinely built by specialized analysts (including very experienced top managers) and consumed by senior management.

Service operations, on the other hand, be they the core services of a bank, the services of a finance and accounting function, or the services of a sales or even an R&D organization, often struggle to produce the same CEO-grade strategy materials and don’t account for the full values and risks of their strategic options.

The end result is too often the creation of documents that include only transactional cost reductions, and even these are often represented in only a partial way, with a bias towards aspects that are well known. The consequence is that the CEO and the board are likely to discount the strategic values of these plans.

Building a rigorous business case requires two steps

These challenges are surmountable, but they require greater combined operational and financial efforts than they typically attract. Two steps can help operational leaders do justice to their plans and retain the attention of the top management.
• First, determine the **Total Cost of Ownership (TCO)**. **Understand the cost structure** of advanced operations in detail and **map the drivers** of these cost structures in order to understand how to harness the respective economics and to quantify the risk of falling short of financial targets.

• Second, **clarify the full value envelope**, including costs that occur in the event of volatility or enterprise discontinuities, such as fast growth.

In both steps, the impact of **alternative operating structures** on these drivers must be rigorously modeled. This document provides the analytical tools to do so.

**Step 1: What’s the TCO?**

**Understand the cost structure of advanced operations in detail**

Map out cost drivers to understand how to harness the respective economics to forecast financial outcomes more precisely.

**a). The determinants of a real-world shared organization’s cost structure**

It is commonly understood that a business case requires an analysis of the initial setup, ongoing operations, and, potentially, wind-up options. What is not as well understood is the set of economic levers that determines the financial outcomes of each of those phases. For example, while the "production" cost at scale may be similar across different scenarios, significant variability is often observed in the initial phase due to significant variance in agent productivity-variance that mature operations, staffed by experienced operators, can gradually control. The speed of reduction of this variance is a large determinant of the spread in financial outcomes and needs to be accounted for, starting with an understanding of what factors (e.g., waste and rework) provoke the variance in the first place.

Consequently, the considerations on the next pages, which variably impact the inception, steady-state, and model windup/change (e.g., through sale or merger) of such operations, should be modeled accurately for each of these stages.

As shown in Figure 1, two sets of levers exist. Very often, only the first lever (or only a part of it—the direct FTE cost of the associates) is taken fully into account. However, in our experience, much of the variance in operation cost effectiveness is explained by the other levers and their variances.

**Figure 1**

**Overall delivery cost structure**

<table>
<thead>
<tr>
<th>Direct FTE</th>
<th>Production input cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infra</td>
<td>Agent productivity</td>
</tr>
<tr>
<td>IT</td>
<td>Inter-agent variance</td>
</tr>
<tr>
<td>G&amp;A</td>
<td>Waste/rework</td>
</tr>
</tbody>
</table>

**Figure 2**

<table>
<thead>
<tr>
<th>Operations cost levers</th>
<th>Necessary design</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associate comp. policies</td>
<td>- Experience/ tenure mix</td>
</tr>
<tr>
<td>Bench</td>
<td>- Entry level comp</td>
</tr>
<tr>
<td>Direct supervision</td>
<td>- Agent attrition</td>
</tr>
<tr>
<td>Direct support</td>
<td>- Span of control (across supervision levels)</td>
</tr>
<tr>
<td>Transport, cafeteria</td>
<td>- Average time to recruit and train</td>
</tr>
<tr>
<td>Recruitment, training</td>
<td></td>
</tr>
<tr>
<td>Rentals</td>
<td>- Area per seat</td>
</tr>
<tr>
<td>Other infra OPEX</td>
<td>- Seat utilization</td>
</tr>
<tr>
<td>Depreciation</td>
<td>- % idle seat capacity</td>
</tr>
<tr>
<td>IT</td>
<td>- Approval policy and compliance</td>
</tr>
<tr>
<td>Telecom</td>
<td>- Policy for business class travel</td>
</tr>
<tr>
<td>G&amp;A - personnel</td>
<td></td>
</tr>
<tr>
<td>Non-recoverable travel, staff welfare, meetings</td>
<td></td>
</tr>
</tbody>
</table>

**Associate comp. policies**

- Experience/ tenure mix
- Entry level comp
- Agent attrition

**Bench management**

- Span of control (across supervision levels)

**Direct supervision**

- Average time to recruit and train

**Recruitment, training**

- Area per seat
- Seat utilization
- % idle seat capacity

**Rentals**

- Approval policy and compliance
- Policy for business class travel
The inability to pull some of those levers—whether due to scale, to process optimization capabilities, or to access to cost-effective pools—can radically alter these costs. The team responsible for the business case should be able to model the effects of some of the key variables, as well as the impact of a failure to achieve them.

To clarify why such an analysis is required, the example in Figure 3 illustrates the magnitude of a possible impact. Understanding the effect of scale, for example, is often something that individual companies struggle with, unless they have significant experience in transforming and sharing operations. If the requisite scale is not achieved because, for instance, the lines-of-business units don’t release the necessary scope or because of limited process standardization, even a large organization’s cost structure might behave like a collection of small companies and miss the target cost by a significant amount.

To provide practical modeling guidance, the following chart, Figure 4, gives an approximate indication of the materiality of each lever and shows what enhances our ability to harness them. For example, some of the levers and respective subcomponents, such as bench levels, benefit greatly from economies of scale or from increased scope, which enable, for example, the pooling of resources and the spreading of fixed costs. Other levers, such as associate compensation, respond well to global delivery. Failing the ability to use these levers, process improvements can still generate benefits; however, these improvements typically have a greater impact when combined with other levers.

---

**Figure 3**

**Figure 4**

<table>
<thead>
<tr>
<th>Transactional process, offshore example</th>
<th>Potential impact of advanced ops</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of cost</td>
<td>Process improv.</td>
</tr>
<tr>
<td>Associate comp</td>
<td>20-40%</td>
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<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bench</td>
<td>1-5%</td>
</tr>
<tr>
<td>Direct supervision</td>
<td>10-15%</td>
</tr>
<tr>
<td>Direct support</td>
<td>5-10%</td>
</tr>
<tr>
<td>Transportation, cafeteria</td>
<td>5-10%</td>
</tr>
<tr>
<td>Recruitment, training</td>
<td>1-5%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Rentals</td>
<td>5-10%</td>
</tr>
<tr>
<td>Other Infra</td>
<td>10-15%</td>
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<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>IT maintenance</td>
<td>1-10%</td>
</tr>
<tr>
<td>Telecom</td>
<td>1-10%</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>G&amp;A</td>
<td>1-10%</td>
</tr>
<tr>
<td>Travel</td>
<td>1-10%</td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>
Shared service centers (SSC), business process outsourcing (BPO), and modern global business service (GBS) structures can impact these cost structures with varying degrees of certainty, and the business cases for alternatives must be built appropriately. In other words, it is necessary to account for the different likely financial risk profiles of each of these structures and to ensure very robust modeling of the alternatives, since the risk is borne by the client organization.

b). The cost effectiveness of different models rests on their respective abilities to harness the drivers of cost

The theoretical outcomes of the various options (SSC, BPO and GBS—typically with hybrid models) depend mainly on three things: The size that the client’s operations can reach by themselves for the functions in scope; the client’s ability to optimize processes; and the client’s access to labor pools that it can realistically obtain and maintain. Clients that score well and feel that they have little risk in execution are the best candidates to optimize their financial profiles by retaining greater scope in-house. While the results are highly situational, a more granular analysis shows that high-level estimates can be readily made. Figure 5 shows the design choices of different organizational models, as well as their typical ability to drive results.

More sophisticated shared organizations, which are often structured as GBS (in which a part of the scope is typically outsourced) have the potential to deliver more material results. These considerations must be taken into account by those responsible for the business case and reflected in sensitivity analyses.

From the analysis above, it is clear why the practical result depends on the theoretical "economic fundamentals" of each alternative model (which are sometime reflected in business cases), but also, importantly, on the sheer execution excellence applied to these fundamentals. Creating these organizational constructs is a nontrivial implementation effort, and a robust business case must take this aspect into account when performing sensitivity analyses for various alternatives. The following are considerations that aren’t often modeled appropriately in business cases.

c). Accounting for real-world leakage and assessing possible deviations from the plan

Attribute a value to uncertainty. While proper investment valuation takes uncertainty into account and discounts outcomes accordingly, business cases for shared services and other operational constructs do so very rarely. This is a mistake because the alternative options carry different levels of financial risk, and management should be given this information as part of its decision-making process. Specifically, the parameters described in the first section of this paper have material financial impact, but the ability of an organization’s business planners to estimate them well varies significantly. This is especially true when estimating risks for internal shared services, in which all of the modeling, as well as the risk of deviation from the financial plan, falls completely on the shoulders of the client. Specifically, the typical budgeting and financial controls for internal shared services often don’t act as good stabilizers for initial budget overruns (an effect known as “burning through the money”). Instead, they tend to incentivize underinvestment (e.g., in talent, infrastructure) in order to keep
short-term costs under control, which, in turn, may perpetuate
cost issues and lead to vicious circles. The business case for top
management should explicitly reflect a wider range of possible
outcomes, since the expected results may be more "noisy" than
those of process outsourcing (in which the modeling is based
on systematic experience and observations and the risk is borne
more fully by the provider).

**Understand what degree of financial risk your company
assumes.** The possibility of a miscalculation is significant, and
not just when your organization is new to these endeavors.
Importantly, the probability of a mistake – and the severity of its
consequences – varies widely:

1. In the case of a BPO agreement, the consequences will be
less severe if the service provider has done appropriate due
diligence and if the contract protects the buyer from part
or all of the price level pressure that may derive from a cost
calculation that is revised upwards. That said, outsourcing
relationships in which the cost has been underestimated
do exist and are potential sources of instability (hence, the
importance of ensuring that the service provider has enough
data points to make an accurate assessment of the outsourced
organization and to enable an estimate of the cost of the
retained organization).

2. In an in-house shared service transformation, the
benchmark data available to the modelers are typically sparse
and not easy to relate to the new situation. For example, how
should a company model the actual cost of hiring people at
scale in an offshore location? Moreover, what will the actual
level of attrition be for key employees when the job market
becomes more competitive, given the actual attractiveness
of the client’s brand and the actual opportunities for job
advancement in the actual scope of the captive?

The sensitivity analysis of the business case needs to account
for the differential risks of the various alternatives: A BPO
provider will often assume the most risk, a mature shared service
organization will be able to estimate and manage these variables
to a certain extent, and a new team in a firm that is new to
internal shared services will have the highest level of risk.

Very often, these analyses are simply not performed-or, if
they are, the potential deviation is applied uniformly across
alternatives. Both of these approaches are inappropriate.

**Avoid blind spots.** Business cases often only use known costs,
without seeking a proper understanding of all the related costs
that should be included in the new organizational structure.
Some such costs may be embedded-sometime invisibly-in
other G&A or business-line cost structures. There is frequently
little clarity regarding how those costs may vary in the future,
whether in the “heat of the transformation battle,” during
steady-state operations that expose the business to pressures
due to new environmental conditions (e.g., offshore labor
markets), or when the business is affected by new internal
ecosystem requests (e.g., governance, service level
agreements, customer satisfaction, etc.).

d). **Benchmark results confirm the model**
It will not come as a surprise that benchmark studies\(^1\)
 demonstrate that the levels of these cost categories
vary significantly between best-in-class and "median"
organizations-and, most likely, so do the variances of the
original business cases.

The analysis uses historical data for rule-based decision-
making (of the sort that is often considered a candidate
for in-house operations). Even in these situations, the best
captives can have, for example, a lower fully loaded cost
per FTE than that of the best BPO providers;\(^2\) however, the
median captive is roughly 40% more expensive than the
median service provider.

The same pattern is visible when comparing the significant
determinants of the cost structure, such as the number of
support staff per productive FTE, the facilities cost, or the
spare capacity for business continuity.

In general, service providers and the very best captives enjoy
structural advantages, such as better opportunities to spread
fixed costs, lower costs of acquisition of resources and
greater attention to indirect costs and process improvements.
In addition, several unquantifiable aspects negatively impact
the business case for the worst performing captives over
longer time horizons. Examples include the opportunity
cost of management attention to remote operations; fewer
career development opportunities for staff (leading to higher
retention costs); and a limited ability to develop leading
practice thinking. Clearly, the best in-house captives are great
performers, and the probability of reaching such performance
should be accounted for in the related business case.

**Step 2: Clarify the full value envelope**
Today, most business cases for shared services or BPOs are
constituted by efficiency and cost measures, and even these
are not fully accounted for. Instead, multiple factors should
be part of a robust analysis, and their cumulated effect
should be brought to the attention of top management.

a). **Resilience to inflation**
The impact of "production" resources' cost inflation is often
not considered, although it affects the alternative operating
models (e.g., SSC, BPO) differently, and, consequently, is
a source of bias between options. Specifically, the cost of
in-house, fragmented operations, which represents the
"baseline" (as shown in Figure 6), is very rarely a steady cost.

\(^1\) Definition of noise in financial terms as dispersion of actual results around expected or trend-line results
\(^2\) McKinsey P360 data
\(^3\) Inclusive of the provider’s EBIT
Instead, it tends to increase over time, and to increase even more rapidly in the event of additional compliance requirements or when additional investments are needed to improve effectiveness. In contrast, the baseline used as a comparison to alternative delivery models is often kept artificially flat, obfuscating a non-negligible source of savings or, at a minimum, predictability. Outsourcing contracts also typically stipulate cost of living adjustment clauses that shift the risk of unforeseen inflation to the provider. Like all “future” financial options, these are particularly valuable in times of volatility or when the client doesn’t control future costs very well.

b). Account for the time-value of money

The speed of the realization of benefits isn’t the same across models. This is true in initial phases, when the ability to access pre-existing knowledge and infrastructure (for example, of existing centers or of a partner) makes a material difference in the cost and investment curve of the first 24 months. As an illustrative example, an advanced 500-person global-delivery operation can save well in excess of $5 to $10 million per year, which translates to around $100,000 to $200,000 per week. If two alternative delivery models take significantly different times to reach steady-state savings, the savings differential in the first three years will be significant. Interestingly, the same applies to the end-of-cycle situation, when the client wants to evolve the operating model and, for example, merge it with other operations or turn it over to a service provider. The value of time spent preparing for these transitions is rarely accounted for, but it can be material.

c). Reduce the time-to-market of business initiatives

While the analysis above only took into account those savings related to the value of time, such savings represent only one part of the full value equation. The ability to deploy support operations quickly or to scale them up to accommodate fast growth is of particular importance in times when developing markets represent growth potential for corporate portfolios and emerging clientele segments may require setups for different types of operations. The inability of support operations to keep pace with demand (or with the sales force) can have a variety of implications: Demand is left unaddressed, resulting in a loss of revenue and EBIT; demand is addressed, but at a higher SG&A cost, resulting in EBIT dilution; demand is addressed, but at the wrong conditions (for instance, such that the sales force cannot use accurate cost-to-serve or discount or credit policies because the supporting operations cannot provide such information in a timely and precise manner); or demand is addressed, but at the risk of non-compliance with local or international regulations. All of these are situations that can expose firms and individual managers to increasingly dangerous liabilities. Again, these scenarios are very rarely quantified. Figure 7 provides a schematic simulation of the analyses that should be run in a robust business case.

d). Flexible cost structure aligned to demand

In addition to having better ramp-up capacities, advanced operational models can typically better handle the (up and down) fluctuations of demand. For instance, they may be able to pool resources better across businesses or to implement more sophisticated staffing forecasts and resourcing mechanisms. They also tend to make workforces more fungible, such as by cross-training people or by redesigning processes so that different employees can perform different parts of the jobs at hand. Figure 8 describes this concept and compares the differential performances of alternative operating models.
e). Evaluating the overall impact

These aspects can materially alter the business case (as shown in the simulation below in Figure 9) based on real-world assumptions, which compare the cost differential of an internal SSC operation and a tightly-run BPO operation. The comparison between like-for-like savings is only one part of the cost envelope. The rest, which often involves even more significant monetary impact, is explained by some of the factors we discussed earlier: protection from inflation, taking into account the baseline cost increase; continuous improvement, thanks to mature business process reengineering capabilities, often

4 Multi-year cost savings projected over five years; Volatility in demand assumed as +/- 20% of the average; Fixed vs. variable costs for client at a ratio of 70:30; Cost-of-flex capacity 20% higher than the base (fixed) capacity; Installed capacity of client’s operations equal to the average demand serviced; In-house SSC: Client capacity can only be adjusted with flex/temp resources by a maximum of 20% and with a three-month lag; Outsourced operation capacity assumed to adjust ~90% with a one-month lag

f). Combining harder-to-quantify, yet “not intangible” items

The analysis above, while significantly deeper than the analysis that is typically performed, still has not fully taken into account other qualitative, but still very tangible, factors. While a more thorough examination of these aspects is beyond the scope of this document, the following Figure 10, attempts to do justice to some of them.

Choices should be made based on realistic expectations, not best-case scenarios. Different delivery models provide different benefits across parameters, such as ease of setup, integration into business and intellectual property provisions, and compliance and control. It is important to note that we observe significant variability in the actual achievement of those benefits, not just because service providers and in-house shared services vary in how tightly they run these operations, but also because the scope of work that is delivered may not be appropriate or may differ from the planned scope. For example, an in-house captive may be built with the intention of delivering high-end and highly proprietary work and of acquiring resources accordingly. However, it is common for leaders of captive operations, while operationally strong, to lack the “salesmanship” capabilities necessary to convince internal clients to migrate the work for which the captive was conceived. When this happens, the expected financial results will not be realized, the captive may be destabilized (for instance, the best staff will quit) and it will become clear that the initial operating model choice should have been different.

A simple scorecard can be a valuable summary tool for executive discussions. Figure 10 provides a synopsis of many of the concepts described so far. It highlights that the values created by the different operating models are commensurate with their abilities to harness three economic “fundamentals” (i.e., labor arbitrage, economies of scale, and process optimization) and shows that different delivery models vary in their abilities to do so. The chart then summarizes what benefits, both quantitative and qualitative, can be derived from these models. While relatively superficial, such an analysis can help in the formation of a strategic options scorecard and in the discussion of alternatives with executives. For instance, it shows that parameters relying on business integration and cultural affinity, if they are important, militate in favor of in-house centers, while benefits that depend on scale and labor arbitrage typically favor offshore captives or service providers with significant scale and global delivery capabilities.
**Figure 10**

<table>
<thead>
<tr>
<th>Business partner</th>
<th>Corp central</th>
<th>GBS Captive</th>
<th>GBS BPO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor <strong>arbitrage</strong> *</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Process optimization</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Economies of scale</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Absolute cost benefits</strong> (FTE related, Infra, IT, G&amp;A)</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Variability</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>High-volume process efficiency</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td>Custom, location &amp; context dependent proc.</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Standardization</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Ease of setup, decision-making</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>IP and business integration</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Compliance and control</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
<tr>
<td><strong>Market entry, scalability</strong></td>
<td>⟨⟩</td>
<td>⟨⟩</td>
<td>⟨⟩</td>
</tr>
</tbody>
</table>

*includes cost arbitrage, and availability of skills

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**Nuances abound:** Cultural affinity may not be relevant for all parts of the scope of an in-house operation, and, similarly, there may be areas of high-volume processing that require proprietary technology or know-how. Such areas, hence, may benefit from being kept in-house. In general, though, experience shows that, too often, these qualitative factors aren’t evaluated dispassionately or in sufficient detail, which means that top management members (who can be cold about important choices) and middle management members (who understand the granular functioning) must find a way to jointly solve problems.

Finally, while an analysis of the impact of choices between models is not part of the scope of this paper, market evidence hints at why an increasing number of advanced operations adopt hybrid models and at why operations should encourage executives to test a larger number of alternatives, each simulating different delivery models for various parts of the functions in scope.

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**Toward more robust business cases and decision-making for advanced operations**

The ability of many operations teams to create robust and sophisticated business cases is limited. Consequently, many decisions regarding advanced operating models are either biased or stalled for the wrong reasons. It is important that the determinants of the business case be understood and modeled and that a full value equation be established, including a proper accounting for volatility and other uncertain scenarios.

While all the expertise necessary to achieve such a thorough planning exercise may not exist in-house, significant experience has been accumulated in the almost two decades since the emergence of the first captives and the widespread use of process reengineering in service-type operations. This experience is accessible in an ecosystem of potential partners and is worth accessing in order to do justice to the decision-making processes of advanced operations.

In doing so, operation leaders (as well as the CFOs, CIOs, and COOs to whom they report) will be able to present more strategic, transformative cases to their CEOs.

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Advanced finance and accounting operating models

Transforming finance and accounting through advanced operating models 62
Intense competition and slow growth in mature markets have magnified uncertainty and put pressure on costs, just as regulators are escalating their demands. Research shows that CFOs and other senior finance executives believe that their function can play a key role but the ability to impact these challenges depends on levels of maturity and preparedness, which vary widely across companies and industries, as well by sub-functions. Read the executive summary for key findings.

Debunking the myth of leveraged AO-FAO solutions 68
As the FAO market has emerged and matured over the past 10–15 years, the role of technology and its impact on FAO outcomes has also evolved. This reflects a broader shift in FAO, where the core value proposition has evolved from cost-savings driven by labor arbitrage to cost-savings and business-impact driven by process improvement and stronger alignment with business outcomes. In parallel, FAO technology has evolved from capturing and documenting financial transactions and compliance reporting, to a more targeted set of capabilities that directly focus on key financial activities such as Order-to-Cash (O2C), Procure-to-Pay (P2P), and business analytics designed to optimize operations and the strategic management of the finance function. Technology is undoubtedly an important lever to enhance value from FAO. An Everest Group Report.

Augmenting the FAO technology landscape – Exploring new engagement models 72
A recent Everest Group study of FAO buyers indicates that access to best-in-class technology is the topmost area of improvement for FAO service providers. One in four organizations believes that their FAO provider can, and should, further augment the existing technology landscape.

Master data management is the next big thing—Seriously 78
As the CFO’s role expands in increasingly strategic support of the entire enterprise, leading companies are evolving their master data management (MDM) to lower risk, boost profitability and competitively differentiate themselves. Accurate and correct master data provide the foundation to create actionable insights through business intelligence and analytics. A granular, timely, enterprise-wide view into the customer, supplier, and employee and product portfolios gives CFOs deep insights that can help the company quickly adjust to market changes, maintain compliance and grow revenue.

Separating impact from hype: How CFOs achieve technology ROI 82
How enterprises approach IT transformation can spell the difference between failing and achieving ROI. A total focus on technology almost invariably fails; companies that take into account the process requirements and the “human factor” have a much higher degree of success.

Continuous transaction monitoring: Using analytics to detect fraud or simple payment errors in real time 86
Organizations today stand at considerable risk of material financial leakage and are subjected to a significant increase of regulatory pressure to find, and fix, improper financial transactions and broken business processes. With traditional measures proving inadequate in the face of growing business complexity, organizations are more vulnerable now than ever before. This increases risk and the failure of businesses.
Executives believe there is untapped potential for advanced technology, process reengineering, and new organizational structures to improve the finance function’s ability to address the most strategic enterprise challenges.

**About the research**

In 2014, Genpact commissioned a research project conducted by an independent research firm. The goal was to assess the potential for new operating models across a wide spectrum of industry sectors and functions. More than 900 senior-level executives completed the survey. The entire report sets out findings drawn from more than 150 respondents engaged in the finance function across a range of industries. This analysis complements other research and insight derived from Genpact’s experience designing, transforming and operating business processes and operations.

**Introduction**

Even as the economic recovery inches forward, organizations continue to face daunting challenges. Intense competition and slow growth in mature markets have magnified uncertainty and put pressure on costs, just as regulators are escalating their demands. CFOs and other senior finance executives believe that the finance function can play a key role in addressing some of these issues. However, its ability to impact these challenges depends on levels of maturity and preparedness, which vary widely across companies and industry sectors, as well by sub-functions. Specifically, Financial Planning and Analysis (FP&A) and master data management (MDM) have emerged as two key areas to watch. Finally, executives believe that the three levers of operating model transformation (technology, process reengineering, and advanced organizational structures) create impact differently. Using commissioned research, Genpact has examined these trends to understand how enterprises are driving transformation to achieve business impact.

**Regulatory compliance, risk management, and cost reduction are the biggest worries confronting senior finance executives**

When asked to name the three top concerns confronting their company, about 56% of respondents point to compliance with regulations, while reducing costs and increasing customer satisfaction rank close behind, cited by 48% of the respondents. However, the most important challenges vary widely across industries. Banking, financial services, and insurance (BFSI) executives include compliance and risk management among their top three concerns, respectively, in 72% and 70% of the cases (Figure 1). Executives in other industries are more concerned about innovation and growth.
Importance of the challenge (% of finance and accounting respondents across industry segments stating that the challenge is among the ‘Top 3’ for their company)

- **Ensure compliance to regulations**
- **Manage risk**
- **Reduce cost**
- **Increase customer satisfaction**
- **Increase growth and scalability**
- **Enable company’s innovation**
- **Enable agility and adaptability**
- **Reduce capital and asset intensity**

**Figure 1**

Improvements in FP&A and MDM have the biggest overall impact in addressing these challenges

- For managing risk, FP&A (64%) and MDM (49%) are far more frequently cited as having material impact than any of the other finance sub-functions.
- For regulatory compliance, MDM is virtually tied with record-to-report for highest impact, followed by FP&A.
- Although FP&A has the most impact, MDM deserves special attention because it is less mature and not all companies are well-prepared to make it evolve (Figure 2).

**Figure 2**

<table>
<thead>
<tr>
<th>Function</th>
<th>FP&amp;A</th>
<th>MDM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mature or more</td>
<td>58%</td>
<td>53%</td>
</tr>
<tr>
<td>Somewhat mature</td>
<td>32%</td>
<td>17%</td>
</tr>
<tr>
<td>Immature</td>
<td>10%</td>
<td>22%</td>
</tr>
</tbody>
</table>

**n=157 finance and accounting executives**
Advanced organizational structures support finance transformation

- Advanced organizational structures include business process outsourcing (BPO) and shared service centers (SSC) as well as hybrid models that combine the two.

- Financial executives give advanced organizational structures the highest ratings for impact on the overall F&A function, with about 59% stating that they can have material impact.

- This source of impact is considered material more frequently than other operating model initiatives, including business process engineering (40%) and radically improved use of technology (38%).

- Advanced organizational structures are also frequently believed to have particularly strong benefits for FP&A and MDM (Figure 3).

Advanced organizational structures have the greatest impact in mature F&A sub-functions

- For every F&A sub-function, the proportion of financial executives who rate advanced organizational structures as having material impact is significantly higher among organizations with mature functions.

- This contrasts with radically improved use of technology and business process reengineering where there is little difference in impact among firms with mature and immature sub-functions (Figure 4).

Advanced organizational structures are being implemented most rapidly

- Senior financial executives have made substantial progress in implementing advanced organizational structures for the FP&A function.

- About 83% say that such implementations are either in progress or will start within 12 months, compared with 76% reported for technology and 74% for business process reengineering.

- There is still considerable opportunity for further improvements in MDM, where a comparatively lower 73% of respondents have advanced organizational structure initiatives in progress or planned (Figure 5).
% of respondents stating the initiative can have a material impact on the function

<table>
<thead>
<tr>
<th>Radically improved use of technology</th>
<th>Business process reengineering</th>
<th>BPO or SSC or hybrid¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall F&amp;A</td>
<td>Mature</td>
<td>Not mature</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>O2C</td>
<td>26</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>R2R</td>
<td>28</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>27</td>
<td>27</td>
</tr>
<tr>
<td>P2P</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>FP&amp;A</td>
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<td>37</td>
</tr>
<tr>
<td></td>
<td>43</td>
<td>43</td>
</tr>
<tr>
<td>MDM</td>
<td>23</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>51</td>
<td>34</td>
</tr>
</tbody>
</table>

¹ BPO-Business Process Outsourcing, SSC-Shared Services

Figure 4

% of respondents; width of the column indicates the % of respondents who believe that the operating model initiative will have a material impact on the function.

Figure 5

¹ BPO-Business Process Outsourcing, SSC-Shared Services

n=157 for finance and accounting executives
Advanced organizational structures are considered to have impact by more executives than other approaches for finance process improvement.

On the other hand, the research has found that (when applicable) improved use of technology is believed to provide the biggest monetary impact, especially for mature organizations (Figure 6).

There are important variations among mature and immature finance organizations, as well as across industries, sub-functions, and company size.

**Conclusion**

CFOs and other senior finance executives believe that the finance function plays a strategic role in addressing the daunting challenges that are still prominent in times of slow economic recovery, continued uncertainty, and heightened regulatory demands. This research examined how those challenges can be tackled by three levers of operating model transformation: technology, process reengineering, and advanced organizational structures.

The related transformation of operations is an untapped strategic lever for the CFO as well as the CEO. However, it is sometimes seen as a formidable undertaking. Few understand the “IT + analytics + process operations” nexus sufficiently. Technological excesses of the past (such as ERP or data warehouses) are well documented. Some technologies are unproven, some uses of analytics are unclear, and older technologies are rigid and expensive to evolve. Finally, it is frequently a struggle to scale deep analytics throughout the enterprise.

Our experience of advanced operating models, accumulated over 15 years, clearly indicates that there are agile and practical ways to transform. The key is to design, transform, and run the processes that power advanced operating models so that they closely align with measurable business goals, thereby avoiding saddling the company with unnecessary and often unmanageable complexity.

This approach focuses more rigorously on the sources of impact and deliberately disregards any practice that does not yield material outcomes. It also takes a more objective and holistic look at technology, analytics and organizational practices. It leverages now-mature “system of engagement” technologies that complement “system of record” technologies. It treats analytics (the arc of data-to-insight-to-action) as a process and determines how to embed insight at scale into the fabric of other enterprise processes; it does not take the typical approach of viewing analytics as a task and a set of technologies. Finally, it harnesses the process and organizational levers available from established disciplines, such as reengineering, shared services, outsourcing, and global delivery.

We think that there is a smarter way to transform operating models and address the most complex strategic challenges. This is a way for CFOs to make their enterprises more intelligent and generate material impact.
For the full report Transforming finance and accounting through advanced operating models, click here².

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² http://go.genpact.com/CFO-research-Advanced-Operating-Models.html
Debunking the myth of leveraged AO-FAO solutions
Role of technology in FAO

Introduction
As the FAO market has emerged and matured over the past 10-15 years, the role of technology and its impact on FAO outcomes has also evolved. This reflects a broader shift in FAO, where the core value proposition has evolved from cost-savings driven by labor arbitrage to cost-savings and business-impact driven by process improvement and stronger alignment with business outcomes. In parallel, FAO technology has evolved from capturing and documenting financial transactions and compliance reporting, to a more targeted set of capabilities that directly focus on key financial activities such as Order-to-Cash (O2C), Procure-to-Pay (P2P), and business analytics designed to optimize operations and the strategic management of the finance function.

Technology is undoubtedly an important lever to enhance value from FAO. However, this should not be confused with simply combining FAO and Application Outsourcing (AO). In fact, market evidence demonstrates that simply bundling FAO and AO together generates no synergy. This paper explains how getting value from FAO technology is not as simple as bundling FAO and AO into a single contract/relationship. The piece also articulates and defines where technology does add value to FAO.

AO+BPO adoption in FAO: The current state
FAO, among all BPO segments, has remained the closest to long-standing Enterprise Resource Planning (ERP) applications. It is well-understood in the market that client organizations have made significant investments and process reengineering to utilize these technology environments for enhanced finance operations. Further, very few CFOs would envision letting go of their in-house ERP system under any circumstances. However, how they implement and access those systems is another story.

While many client organizations maintain ERP systems in-house and outsource their finance processes to FAO service providers, others choose to outsource the implementation, maintenance, and support of their finance ERP environments to IT or AO providers. Since efficient and effective F&A service delivery is often enabled by the underlying ERP systems, some organizations have sought to combine the scope of their FAO services with the same service provider offering AO services. The basic idea is that a natural synergy should emerge from bundling, and help simplify and enhance the technology environment, thereby the F&A operating model as well. In reality, Everest Group research shows that not only has bundling not become common practice, but those that have adopted this approach are increasingly in the minority (see Exhibit 1).

The challenges: Why bundled FAO/AO has not worked
This brings us to the topic of bundled AO and FAO. As the value of FAO has moved creating business impact, the focus of technology improvements in FAO engagements has shifted away from the underlying ERP “system of record”. While a bundled FAO/AO solution might improve the efficiency of
operating the underlying ERP systems, augmentation tools, to be discussed in detail further below, wrap around core systems of record (i.e., ERP systems) to better address the needs of redesigned and enhanced finance processes. In fact, leading FAO providers have implicitly acknowledged the shortcomings of ERP applications by investing in and building out augmenting technologies that fill gaps within and across major ERP modules. Today, 55% of new FAO contracts include augmenting IT components, compared to 42% just five years ago. Further, use of the tie-and-run approach has continued to decline. This is a message from the market that to optimize the functionality of the actual finance operations and analytics, there is a need to go beyond the underlying ERP system and create targeted technology-enabled finance capabilities.

When thinking about the bundling of AO and FAO, one of the first things to consider is the distinction between the bundling of the contracting piece versus the bundling of the actual delivery. We have seen cases where the contracts are bundled due to organizational or management necessities, but are not designed to create integration between the AO and FAO delivery pieces. In contrast, there are also seen contracts that aspire for delivery integration, but do not adequately plan for such in the contract structure. Successful integration of bundling involves both the contracting and delivery components, with a well-thought out roadmap of how to implement the vision articulated in the contract.

Another consideration is the relevance of technology expertise versus finance process expertise. Successful FAO engagements certainly require both sets of capabilities. However, given the shifting focus on the business impact created by FAO, the scales are tipped in favor of finance process expertise. In other words, a larger portion of the value achieved through FAO is attributable to the ability of the FAO provider to bring deep finance process understanding and its ability to enhance existing finance processes to achieve improvements. Further, the provider should understand how technology can address those needs and technical understanding related to the “augmentation” tools and not the underlying ERP. Stand-alone ERP or AO capability cannot adequately address the growing requirements of process excellence needed to deliver world-class performance in core finance processes.

We have not seen true daily benefits to the collaboration – only smaller benefits around contracting.

– Director, BPO Strategy at North American pharmaceutical company

Our experience is that engagements which attempt to bundle AO services with FAO also face challenges associated with the nature of the service provider’s business model. From a practical standpoint, synergy between these two delivery areas is inhibited by the fact that service providers run their AO and FAO practices as distinct lines of business, with distinct delivery teams with differing work locations, incentives, skills, and other barriers. These fundamental realities limit the emergence of natural synergies within the service provider’s organization. A by-product of this dynamic is that service providers with an
AO-FAO model must simultaneously consider the internal needs of their own organization along with meeting the client engagement commitments.

Challenges exist on the client-side of the equation as well. When a single service provider or outsourcing engagement attempts to integrate both the finance ERP application and the finance process delivery components, two different sets of stakeholders inside the client organization must be engaged. The finance organization has its priorities and considerations, as does the IT organization. We find that natural tensions are inherent between these two stakeholders, creating additional layers of complexity and distraction in targeting the core intentions of the FAO engagement itself. In a nutshell, the client organizations are not necessarily well-structured to leverage the benefits possible from a combined AO and FAO engagement.

Further, some of the challenges common to all outsourcing engagements can be amplified in the context of a bundled AO-FAO deal. Governance becomes more challenging, as the number of stakeholders involved grows. Communication practices can become strained as uncertainty emerges about who is responsible for initiating dialog. And lastly, expectations related to innovation or change management can become misaligned as multiple stakeholders on both the client and the service provider organizations look to each other to be the driving force.

Finally and most importantly, the assumption that optimizing or replacing the underlying ERP systems is the optimal approach is flawed. Many improvements can be made without the complexity of changing or altering the ERP systems (which often fail to have sufficient functionality available anyway).

How technology adds value to FAO

FAO solutions typically involve one of the three different technology models, tie-and-run, augmentation, and platforms (see Exhibit 2). Let us take a look at these models and then assess their relative benefits.

- **Tie-and-run:** While initially the favored FAO technology approach, today tie-and-run continues to decline and represents 37% of all recent engagements. In this approach, the service provider taps into and works on the client’s existing ERP environment, without any additional functionality or technology being introduced. The FAO service provider is responsible only for the delivery of finance process execution and no technology capabilities

- **Augmentation:** In addition to delivering finance process execution, the FAO service provider also offers technology

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EXHIBIT 2

Spectrum of BPO technology models

Source: Everest Group
tools, templates, and enhancements intended to increase the functionality of the client’s existing ERP environment. These augmenting technology capabilities often reflect proprietary intellectual property that the service provider has proactively invested in, to build the value of its FAO offerings. Examples of augmentation include workflow tools, interface solutions, business intelligence and analytics, and process automation and robotics, to name a few. As mentioned earlier, augmentation is gaining popularity and involves roughly 55% of the FAO deals signed in the past few years.

- **Platform:** Under the platform model, the client relies heavily, or exclusively, on the FAO service provider for both the finance process execution and finance technology components. In some cases, clients replace part or all of their ERP environment with platforms offered by their service provider as part of a BPO-plus-technology value proposition. Platforms are the least adopted model among FAO buyers, representing about 8% of all the engagements signed in the past couple of years, and skewed towards the mid-market.

The growing appeal of the augmentation model involves a few key considerations:

- **Control and risk mitigation**—where clients maintain their existing ERP environment, allowing them to control their core systems of record, maximize their past financial investments in the systems, and protect themselves in case of future service provider changes or the decision to bring finance processes in-house.

- **Access to technology enhancements**—without replacing the existing ERP environment, the client can now fill gaps, improve functionality, and address new requirements and regulations by partnering with a service provider that has already solved these challenges.

- **Access to subject matter expertise**—FAO providers differentiate themselves through their strong focus on understanding, optimizing, and solutioning finance processes. Compared to technology providers, FAO providers are better positioned to directly see the impact of the interaction between FAO technology and FAO process execution, making them especially well-suited to drive both components of finance solutions.

Tie-and-run solutions remain an option for many clients, but this approach does limit the ability to grow the impact of the FAO solution over time. Given the persistent gap between process functionality and the enabling finance technology, FAO providers have far fewer mechanisms for creating change to further optimize the client’s finance operations. This scenario also requires intense and ongoing collaboration between the FAO provider and the client’s internal IT organization or their AO provider. Thus, potentially creating more complexity than before and, thereby undermining some of the potential benefits of FAO.

While the thought of relinquishing cumbersome or aging ERP finance modules may appeal to some, evidence indicates that adoption of the platform model in FAO has been slow and that these systems only work well in specific client situations. To date, FAO platforms have focused primarily on specific finance process areas, such as O2C, P2P, or R2R, as a way to offer clients targeted solutions for particular problem areas, and not relying on the service provider for the entire finance technology environment.

**Conclusion**

We believe that FAO value is driven by a few key areas, namely, strong finance process focus and specialization, strong knowledge of FAO technology and how to apply it to finance operations and analytics (but not necessarily a practice in implementing FAO applications), and the ability to invest in innovative finance solutions. Our research has not seen evidence that suggests the bundling of AO and FAO achieves these values. In fact, service providers who need to support both sets of capabilities may actually face the added challenge of investing in and supporting these two distinct practice areas, whereas a best-of-breed provider can dedicate all its resources to building FAO distinction.

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This has been authored by Katrina Menzigian, Vice President, and Vishnu Khandelwal, Senior Analyst at Everest Group.

**About Everest Group**

Everest Group is an advisor to business leaders on next generation global services with a worldwide reputation for helping Global 1000 firms dramatically improve their performance by optimizing their back- and middle-office business services. With a fact-based approach driving outcomes, Everest Group counsels organizations with complex challenges related to the use and delivery of global services in their pursuits to balance short-term needs with long-term goals. Through its practical consulting, original research and industry resource services, Everest Group helps clients maximize value from delivery strategies, talent and sourcing models, technologies and management approaches. Established in 1991, Everest Group serves users of global services, providers of services, country organizations, and private equity firms, in six continents across all industry categories.

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Introduction

As Finance and Accounting Outsourcing (FAO) adoption has expanded and matured over the last 10 years, the role of technology in FAO has grown significantly, where today, there are three distinct approaches – tie-and-run, augmentation, and platform-based. Regardless of which approach the clients adopt, we believe that FAO clients will continue to work with ERP-based System of Records (SOR) for the foreseeable future, many times maintaining multiple environments.

Technology solutions that “tie-and-run” to ERP systems remain an option for many clients, but this approach limits the ability to grow the impact of the FAO solution over time. Alternatively, while the thought of relinquishing cumbersome or aging ERP finance modules may have appeal for some, evidence indicates that adoption of the platform model in FAO has been slow to take hold.

As a result, the technical capability required to manage these complex legacy ERP environments is not the same as traditional ERP expertise, but rather in the ability to augment the ERP landscape and enhance the underlying systems. Everest Group research also suggests that technology augmentation is the new norm in the FAO world.

This report highlights how emerging FAO technology models are positioned to support the evolving needs of FAO clients.

The key themes covered in this research are:

- Why technology matters in FAO
- Existing install-base and associated challenges
- Innovation in FAO technology models and the rise of technology augmentation
- A new approach to technology augmentation and its implications/benefits

Increasing role of technology in FAO

Technology, in the shape of ERP systems, has always been a significant lever in managing F&A of large- and mid-sized organizations.

However, as buyers seek F&A transformation, they are increasingly pushing service providers to deliver more innovative solutions that target delivery of business impact. Technology, long recognized as one such lever to enhance efficiency and effectiveness of FAO solutions, now plays an even stronger role. As illustrated by an Everest Group survey of mature FAO buyers, access to best-in-class technology is among the top three key improvement areas for FAO service providers (Exhibit 1).

FAQ technology models and their use cases

Technology engagement models in FAO can be categorized into three broad buckets depending on the role of the FAO service provider (Exhibit 2).
Today, most large- and mid-sized enterprises have well-established legacy ERP systems to manage their F&A requirements. However, these organizations often face a variety of challenges that, ultimately lead to unoptimized delivery and inhibit the value creation potential of their FAO solution. Table below lists out the issues and associated challenges of working with legacy ERP systems.

<table>
<thead>
<tr>
<th>Issues</th>
<th>Challenges/effects</th>
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<tbody>
<tr>
<td>Disjointed/fragmented ERP environment</td>
<td>- Creates disparity in data extraction, inhibits process standardization, and limits technology upgrades, ultimately leading to increased complexity and cost</td>
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<tr>
<td></td>
<td>- Challenges in developing comprehensive visibility for reporting and analysis</td>
</tr>
<tr>
<td></td>
<td>- Difficulty in implementing and disseminating systematic change across an organization to address policy changes, compliance requirements, and/or process enhancements</td>
</tr>
<tr>
<td>Rudimentary/obsolescent SOR</td>
<td>- Results in non-standardized and erroneous data</td>
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<tr>
<td></td>
<td>- Leads to lack of focused enhancements that target specific F&amp;A process requirements</td>
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However, adoption of both these models depends heavily on the existing buyer situation and appetite for investment. Platform play is limited in FAO, primarily utilized in situations where the buyer intends to replace their existing ERP solution in part or entirely due to its rudimentary or fragmented functionality. Therefore, organizations are increasingly moving towards add-on tools to augment their existing technology landscape.

Rise of technology augmentation

Given that most FAO buyers use an ERP platform as the core F&A SOR, there is great reluctance to relinquish control of such core F&A systems or make sizable investments to replace them. Everest Group analysis finds that in over 85% of the FAO contracts signed in the last three years, buyers retain the ownership and control of their core F&A systems. They prefer utilizing a host of non-intrusive solutions to enable technology augmentation. Such add-on solutions tend to cost significantly less compared to an SOR replacement solution, and tend to be easier to implement, more flexible, less complex in nature, and provide quicker access to functionality. As a result, the transformation, so achieved, is more resilient and less susceptible to fade out during change management. Everest Group analysis clearly indicates increasing adoption of such add-on tools in FAO contracts, referred to here, as the augmentation model (Exhibit 3).

Flavors of technology augmentation

While most FAO buyers recognize technology as a key enabler to the overall FAO solution, most seek solutions that do not fundamentally disrupt the existing technology landscape. Add-on tools provide a simple and non-intrusive way to augment the existing technology landscape of buyers to achieve greater functionality and value on several fronts.

Everest Group research indicates that such technology augmentation can be achieved in a number of ways. The exhibit below illustrates the various ways to augment the existing technology landscape of any organization.
Despite the multiple benefits of utilizing augmenting tools, this approach also has some challenges. Adoption of add-on tools is primarily driven by specific client needs. As organizations adopt such point solutions on a need basis, the overall technology landscape can become inconsistent and fragmented/dischordant over time. Technology users (third-party service providers, shared-services organizations, and/or in-house finance functions) have to work on disparate systems, which leads to inefficiencies and challenges related to technology fragmentation, such as inconsistent data, broken process flows, and lack of integrated reporting.

A new wave of technology strategies

The shortcomings in the existing augmentation approach are pushing stakeholders to explore a new approach that not only enhances the functionality of the existing SOR, but also provides uniformity across the organization by providing a consistent layer of processing systems over and above the underlying SOR. Such an approach can enhance both efficiency and effectiveness of the underlying function and enable enterprise-wide collaboration between globally distributed teams.

As a result, the market is witnessing the emergence of new approaches to FAO technology. Service providers have begun making investments in developing add-on solutions that combine different aspects of augmentation (process, decision support, and delivery enablers) and adopt a process-centric design to provide a non-invasive, integrated, and uniform delivery environment. The underlying philosophy of such an approach is to create a flexible and uniform layer of core processing systems that can be deployed on top of the existing technology infrastructure (ERP systems, point solutions, and other legacy systems) and is primarily focused on simplifying and streamlining user (either third-party provider / shared-services or in-house buyer organization) engagement and interaction with technology. In other words, such an approach can be perceived or viewed as “Systems of Engagement” or SOE.

This approach to FAO technology provides multiple benefits compared to a piecemeal or traditional augmentation approach:

- **Consistent global environment:** SOE approach to technology provides users with a uniform and global processing layer that is consistent in functionality and user experience, regardless of the underlying systems. It creates additional efficiencies arising out of enhanced user engagement, process standardization, and workflow simplification.

- **Complement existing technologies rather than compete:** The process-centric design of such applications can complement the underlying ERP systems rather than competing with them. As a result, such solutions can potentially enable a more productive and collaborative work environment for both internal and external stakeholders.

- **Flexible and agile:** Moreover, such an approach is highly nimble and agile and can support an organizations’ growth (both organic and inorganic) objectives well, as enterprises need not worry about integrating the underlying systems during M&As. Since the add-on tools can overlay multiple ERP systems, such solutions can be quickly deployed during a merger or an acquisition instead of waiting for a lengthy and effort-intensive SOR integration process.

- **Enhanced compliance and governance:** Simplified user interactions with technology and augmented dashboards capabilities leads to enhanced and more effective reporting and compliance.

While this concept already exists in the market for some time now, it has witnessed limited success in the past because of the varied implementation and functionality-related challenges. Use of such solutions earlier required heavy investment in technology due to on-premise installation and provided limited functionality beyond creating a uniform interaction environment for their users. However today, with the wider acceptance and adoption of non-conventional delivery models and advancements in the areas of mobility and analytics, such an approach can be highly successful. The benefits include:

- A cloud-based Software-as-a-Service (SaaS) approach can enable organizations to maintain minimal technology footprint beyond their incumbent investments.

- The SaaS model to technology is faster to implement, requires minimal IT support, and eliminates the hassle of application upgrades for enterprises.

- End-to-end business process analytics embedded within enterprise operations can provide deep insights for driving business outcomes.

- Mobile-enabled operations can further extend the concept of enhancing engagement by empowering users to conduct business anytime, anywhere.
EXHIBIT 5

New approach to technology augmentation – system of engagement

Source: Everest Group

As shown above, this approach forms a uniform layer of engagement between the users and the underlying technology environment. This layer not only increases efficiency, but also reduces the complexity arising out of users interacting with multiple applications and drives greater compliance. Delivered through a cloud-based approach and equipped with state-of-the-art functionalities, such as analytics and mobility, such an approach can transform the way processes are delivered. Following case study illustrates the benefits accrued to clients who adopted this approach.

Case study: How an SOE solution helped an automotive parts manufacturer – a Genpact example

<table>
<thead>
<tr>
<th>Client challenges and needs</th>
<th>Solution adopted</th>
<th>Impact delivered</th>
</tr>
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<tbody>
<tr>
<td>- A leading automotive parts manufacturer faced challenges in its collections process due to fragmented ERP landscape and significant manual intervention</td>
<td>- The client adopted Genpact’s Akritiv systems of engagement</td>
<td>- Enhanced automation</td>
</tr>
<tr>
<td>- The client sought add-on tools to augment its ERP systems and enhance efficiency of its collections process through automation</td>
<td>- Key attributes of the solution included:</td>
<td>- Consolidation of the customer data across the organization; moved to one single environment to manage a customer’s account</td>
</tr>
<tr>
<td></td>
<td>- A uniform engagement layer to cater to all process requirements</td>
<td>- Ability to create business rules to automate the process</td>
</tr>
<tr>
<td></td>
<td>- Cloud-based approach with minimal IT support</td>
<td>- Enhanced visibility and insight around individual accounts and overall portfolio – finance to sales</td>
</tr>
<tr>
<td></td>
<td>- Quick and low-cost implementation</td>
<td>- Reduction in process complexity through a single integrated and streamlined application environment</td>
</tr>
<tr>
<td></td>
<td>- Bolts-on approach to augment the functionality and efficiency of existing ERP systems</td>
<td>- Ability to quickly respond to changes</td>
</tr>
<tr>
<td></td>
<td>- Ease of customization to suit client environment</td>
<td></td>
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</tbody>
</table>
Conclusion

With technology playing a more pervasive role in FAO, organizations are increasingly adopting the augmentation approach to enhance the functionality of their existing systems. Despite the benefits, the existing approaches to technology augmentation may pose challenges arising due to the utilization of several add-on tools that lead to technology fragmentation, and in turn discrete processes and operations. A new and innovative approach to technology is thus emerging, wherein an agile solutions layer, or “Systems of Engagement” is deployed that floats above the existing technology infrastructure and complements clients’ SOR. This approach, which focuses on enhancing user engagement with technology, can help organizations drive greater value by optimizing operational performance and business agility.

About Everest Group

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Master data management is the next big thing— Seriously

Opportunities arrive at the speed of information—and die at the speed of decision-making. What CFOs need most is information—accurate, up-to-date, detailed data to support fast, confident decision-making. And as the CFO’s role expands in increasingly strategic support of the entire enterprise, leading companies are evolving their master data management (MDM) to lower risk, boost profitability and competitively differentiate themselves.

Accurate and correct master data provide the foundation to create actionable insights through business intelligence and analytics—whether the need is to obtain a holistic view into a retail bank customer’s activity to determine credit worthiness or spot fraud, to predict customer behavior, or to determine the cost of a product. A granular, timely, enterprise-wide view into the customer, supplier, and employee and product portfolios gives CFOs deep insights that can help the company quickly adjust to market changes, maintain compliance and grow revenue.

**A more agile enterprise**

A moribund information management system that takes months to update a record simply cannot support fast, sound decisions. An industrialized approach supports all four essential pillars of best-in-class MDM: data, process, technology and governance.

**1. Data**

CXOs need data that is free of duplicates and errors and adheres to global policies for completeness. Maintaining high data quality is a process in itself. It requires deep understanding of how data in each silo is entered, maintained, shared and reported. Determining who needs what information and when is the starting point for industrializing MDM processes.

The most successful companies are achieving satisfactory ROI by implementing enterprise-wide MDM structures that ensure the tools are well integrated with better processes and global policies for maintaining data quality. For instance, one global oil and gas company lowered costs by 35% by creating a center of excellence to standardize its master data processes across all its regions and business lines. These improvement measures also gave the enterprise much greater confidence in decision-making by raising data accuracy to 98% and ensuring that nearly 100% of changes to master data were processed within one business day. This, in turn, provided materially improved agility through better analytics and insight.
2. Processes
As this company discovered, many data management processes can be “industrialized”: simplified, automated and standardized across business lines and delivered via shared service centers (SSC) or Global Business Services (GBS) organizations that ensure compliance to internal policies and external regulatory requirements. Such organizations can drive down MDM costs by eliminating redundancies and integrating and managing customer, supplier and product data in a globally consistent manner. They provide CFOs and their peers reporting that is faster, more accurate and more detailed than most IT-focused legacy systems can deliver.

Partnering with an experienced service provider can help overcome institutional biases and effectively integrate disparate systems. A unified delivery organization also brings together requisite skill sets and uses standardized processes and common tools.

3. Technology
While better tools alone cannot drive more effective MDM, the right technologies are essential for supporting smarter processes. Many commercial master data hubs exist for centrally managing all domains, as well as bolt-on tools and smart technologies. The ability to deploy the right technology cost- and time-effectively often hinges on the ability to centralize process ownership\(^1\) and skills.

4. Governance
The last and most essential component of better MDM is comprehensive, enterprise-wide governance. The best MDM organizations institute policies that ensure every important record meets an established standard and is part of a single source of highly accurate information easily accessible to all stakeholders. The benefits can be significant. These include automated and real-time reports, more accurate forecasting and spend analysis, fewer disputes, and proactive spotting of trends in customer or supplier behavior. Shorter cycle times improve working capital, while the ability to quickly uncover fraud or supplier issues can vastly reduce risk.

Master data objects, when integrated with predictive analytics, provide deep and relevant insights. For example, customer records integrated with predictive analytics that examine customer behavior help the sales and marketing teams create more targeted and effective campaigns.

Many companies fail to realize that more accurate data, better processes and clear governance are required whether or not the company upgrades its data management tools. Since MDM must serve every stakeholder equally with the timeliest and most accurate information possible, it becomes an enterprise-wide responsibility, best managed from an enterprise perspective. Each consumer and producer of data has a role in capturing and protecting that data throughout its lifecycle. This is greatly facilitated by global policies enforced by a unified authority.

Gartner recently observed that a new chief data officer (CDO) role is emerging\(^2\) as an answer to the critical CXO need for meaningful insights. Even when a CDO is not in place, the most successful companies think globally when it comes to MDM. Creating an SSC or GBS MDM organization, whether in-house or partially outsourced, establishes a coherent governance structure with the power to integrate systems and keep each business line and division from instituting separate standards and policies. This MDM target operating model is adept at enforcing standards, monitoring compliance, and choosing metrics to measure success in maintaining data quality and speed of reporting.

**Technology alone is not the answer**

While MDM technology has evolved and matured quickly in the past decade, too many IT-led MDM initiatives fail to justify the return on investment. Commercial off-the-shelf tools for MDM now provide critical out-of-the-box features such as data stewardship interfaces, in-built workflows and higher data quality. And recent advances include social and mobile MDM—integrating external data from social media to create a “system of engagement” available on the user’s mobile devices.

Despite all these innovations, these MDM initiatives are often handicapped by the complexity of large-scale projects and an over-reliance on technology. Companies are discovering that established MDM methodologies and conventional approaches to improvement are no longer adequate.

MDM differs from other types of technology-driven consolidation efforts because of the need to closely tie technology, through business process integration and rule-based operational systems, with formally defined and centrally managed business rules. While data governance functions are rolled out in most organizations, they are often not active and operational. The business does not proactively manage data quality and SLAs through metrics and KPIs, even though the technology capability may exist within the organization. Additionally, project teams often don’t have a detailed understanding of the business outcome being influenced by

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the analysis enabled by master data. For that reason, they are unable to prioritize as required to limit implementation risk and keep projects relatively simple and time-effective.

A purely IT-focused approach is outdated and less effective than holistic industrialized operations that provide fast access to integrated data, enforce data quality and enable robust analytics. Modern businesses cannot afford to deny themselves the benefits of faster cash flow from fewer disputes, lower costs from integrated operations, and the priceless advantage of timely insights that let them seize opportunity as it arises and ward off risk before it is too late.
How enterprises approach IT transformation can spell the difference between failure and achieving ROI. A total focus on technology almost invariably fails; companies that take into account the process requirements and the “human factor” have a much higher degree of success.

The best technology-based transformation focuses on what matters

Why do so many technology upgrades fail short of their goals? How can the vast capabilities of modern technology tools still fail to meet critical user needs or provide material return on investment—with the goal of cost-to-serve, agility and adaptability, standardization, or scalability? Why do so many companies reach the end of a multi-year deployment only to discover they are not materially better off than before and that the world has moved on to the next big thing?

The answer lies in how they approach IT. Too many companies view technology as the primary factor in greater efficiency. They fail to engage in a deep analysis of the processes IT must support or how people will leverage technology. Many implement a vast array of process and technology improvements instead of surgically targeting the actual drivers of desired business outcomes. Sometimes there is a disconnect between what the CIO perceives as necessary and what the CFO needs to accomplish. And, too often, a carefully planned deployment meant to address particular problems is implemented so slowly that by the end business needs have radically changed and the solution is no longer adequate.

ERP is no longer the only answer

A huge, multi-year implementation is no longer the only option available to leverage better technology. In fact, massive implementations can sometimes undermine actual business goals. Although there is still room for Enterprise Resource Planning (ERP) systems, they seldom address all business needs, and may not promote business goals of simplicity, efficiency, and speed of deployment. ERP systems also tend to be expensive customizations, are non-intuitive to business users, and can result in highly fragmented backend IT systems and "data islands" that are costly to staff and hard to evolve.

In contrast, consider the example of a global claims management provider that sought to improve its manual and disparate Accounts Receivable (AR) and collections processes. The company chose to deploy a cloud-based, end-to-end Software as a Service (SaaS) suite of financial and accounting applications in the company’s U.S. operations. A test within a chosen business unit produced improvement so significant that the company moved up the scheduled rollout of the solution to the rest of the company’s U.S. operations by six months. Because the new system easily accesses legacy ERP data but is much more user-friendly, collectors who previously felt as though they were working on separate islands now feel part of one team.
Process is key to better technology ROI

Too many companies fail to closely examine the processes they need to support—specifically the key business outcomes those processes must deliver—before moving ahead with technology upgrades or new deployments. Instead, enterprises should harness domain and process expertise for that purpose, well beyond functional process design specifications, in three steps. First, identify the most important outcomes to achieve and then determine what metrics must be measured to drive results. Then, measure the current performance, benchmark it (either internally or externally), and determine the potential gaps. Finally, pinpoint what technology or process interventions are needed to close those gaps (see Figure 1). The deliverables of such analyses answer key questions such as: Which parts of the process can be automated? Which parts could be eliminated? How do the processes impact the effectiveness of various departments or business lines?

Understanding how the end-to-end process links to other parts of the organization lets planners zero in on business practices that will support better enterprise performance, not just subprocess performance. The planners can then target technologies to help drive better outcomes. For example, in the record to report process, “time to report” is a key business outcome. An effective framework for driving improvement measures and benchmarks the performance of sub-ledger AP metrics such as “days to sub-ledger cut-off” and then develops effective processes that drive movement in those metrics. The underlying technology should support those processes rather than try to force-fit human behavior to accommodate the technology—a common issue in IT-driven projects.

Don’t allow anyone to “boil the ocean”

A process-based approach to technology allows organizations to focus on fewer—but material—parts of the solution. This simplifies organizational alignment as well as technical realization while preserving the business impact. Companies may discover that targeted interventions will solve their problems, at far less cost and with significantly shorter timelines than an enterprise-wide upgrade. Business stakeholders should encourage practical solutions in order to contain the natural tendency of some technology consultants to “do too much” and “cement the solution,” irrespective of the need for simplicity and future agility.
Business stakeholders have a material role to play in the design of technology solutions. They should collaborate thoroughly with IT—and their consultants—to focus efforts and guarantee future flexibility. A robust solution might not last more than a few years because of the likely business changes that will soon intervene. The business case—and related technology choices—must reflect that.

The best technology-based transformation focuses on what matters

Once a more targeted scope has been defined, organizations are better able to leverage advancing technologies: new point solutions, workflows, wrappers, and other tools (including those that leverage cloud-based delivery and mobile solutions), instead of defaulting to ERP deployment or optimization. They can use automation to reduce variances and to industrialize processes, but they should bear in mind that automation cannot do everything and that workflows found within traditional solutions are often too rigid to enable large, distributed groups of people, especially in high-end functions such as Financial Planning and Analysis (FP&A), risk management, and controllership.

Tools for collaboration and insight are required in a global economy, and they must be intuitive to be effective. Modern technology users accustomed to mobile apps and easy interfaces expect the same from their business software.

The good news is that today’s technology is much more agile than in the past, able to leapfrog the traditional cycle of upgrades invariably subject to “sunk cost” issues created by older technologies. Cloud-based solutions, mobile extensions, and “systems of engagement” can sit on top of traditional “systems of records” (e.g., legacy ERP or data warehouses), increasing efficiency and effectiveness while keeping the effort finite.

The claims management company used the new SaaS solution to link disparate systems and improve AR operations. The new, comprehensive cloud-based solution represented a paradigm shift in the company’s technology deployment while fulfilling the company’s objectives.
Continuous transaction monitoring: Using analytics to detect fraud or simple payment errors in real time

Organizations today stand at considerable risk of material financial leakage and are subjected to a significant increase of regulatory pressure to find, and fix, improper financial transactions and broken business processes. With traditional measures proving inadequate in the face of growing business complexity, organizations are more vulnerable now than ever before. This increased risk and the failure of businesses to take corrective action, can easily trigger a crisis that results in heavy losses, bad publicity—and in some instances, bankruptcy. Faced with this challenge, more and more organizations are adopting “Continuous Transaction Monitoring”—a process that enables them to monitor virtually every payment throughout their system as soon as it is made.

“Continuous Transaction Monitoring” [CTM] refers to a process that enables organizations to extract-and then analyze-transaction data in near-real time. With the use of audit analytics, organizations run their customer order processing, purchasing and other general ledger transactions through pre-set filters. Through the use of statistical logic and industry best practices, these automated audits help internal auditors monitor user activity and controls—and quickly detect events that represent risks to the organization. This, in turn, enables these businesses to remain in compliance with the growing number of regulatory requirements and reduce risk of material financial leakage.

Axis, a fully owned subsidiary of Genpact, delivers a solution that is less intrusive and provides increased compliance. In contrast to technology vendors selling complex software that requires clients to implement burdensome and costly upfront training, Axis creates value by providing customers the root cause which leads to improper transactions. This helps clients invest time in closing gaps within their processes. Also, it spares clients from the upfront expenses required by other vendors—and enables them to take advantage of Axis’ “pay as you use” service.

Introduction

Organizations can make erroneous payments for many reasons that range from accidental double invoicing to willful acts of employee or contractor fraud. Historically, auditors conducted spot checks to detect fraud and other irregularities. But this approach was labor-intensive, incomplete and invariably occurred too late to be of value—since any discrepancies were usually detected weeks or months later during reconciliation or post-closing audits. This lag often left organizations with limited recourse to recapture any erroneous payments.

It’s only been in recent decades that computer systems capable of monitoring virtually every transaction have become available. The enactment of a number of anti-fraud measures over the past decade—including the USA Patriot Act, the Sarbanes-Oxley...
Act of 2002 and Europe’s Financial Services Action Plan—has provided additional impetus for companies to invest in new systems to ensure tighter financial controls.

Organizations need to maintain tighter controls over their financial transactions. That’s because the risk of making these improper payments has increased in recent years for many reasons, including:

- Increased complexity and globalization of business
- Huge volume of financial transactions
- Increasing variance in technology platforms
- Growing number of ways in which transactions get processed through enterprise systems

But creating tighter financial controls isn’t easy for most organizations—particularly those who continue to rely on old-fashioned spot checks and assurance by auditing a sample of transactions by their auditors. Axis has identified three of the biggest challenges that organizations face in trying to stay on top of all of the financial transactions that flow through their books:

Evaluating whether an exception is genuine or not can be difficult if there are a large number of “business as usual” exceptions. Indeed, given the increased complexity in today’s transactions, breakdowns in business processes are likely to occur more frequently.

The Challenge: A food and beverage conglomerate outsourced its accounts payable processes to a third-party service provider. But the company suspected that duplicate vendor payments were being made.

Genpact traced the duplicate payments to errors in the data provided by the client—but determined that the filters the contractor created to catch duplicate payments were not comprehensive.

The Solution: Axis first identified duplicates in the vendor master data, and then built a refined set of rules and processes for catching future overpayments.

Business Impact delivered: After reviewing nearly 470,000 line items of data, Axis’ team identified roughly 3,000 potential overpayments. The observations were graded and prioritized which led the client to recover close to $5MM from its suppliers.

Differences in organization, process and technology result in varying levels of compliance. Too many organizations leave it to the CEO, CFO and the board of directors to oversee compliance, and then use paper-based processes and manual IT procedures. The best performers are those who appoint a Chief Risk Officer to oversee and manage compliance-related issues—and fully automate the relevant processes, especially in IT-enabled business functions.

A large number of integrity checks need to be performed at every step of the way. These checks are necessary to detect such irregularities as invalid vendors, duplicate purchase orders, payments to employees, and mismatched invoices. Failure to detect these types of irregularities can occur when organizations rely too much on external parties due to a lack of internally trained staff.

Measurable Impact

Even as the risks of financial irregularities have grown, Axis believes that significant improvement in operating and process metrics can be achieved through CTM. Quantitatively customers can look towards achieving:

- Bottom line growth up to 0.5% and a top-line growth of up to 1% upon coverage of all major transactions (P2P, O2C, GL,T&L, FCPA, P-Card)
- Up to 100% audit coverage of transactions provides improved assurance towards organizational and regulatory compliance
- Up to 30% reduction in audit cost due to pragmatic use of technology
### TOP 3 LEAKAGE POINTS

<table>
<thead>
<tr>
<th>BUSINESS PROCESS</th>
<th>TOP 3 LEAKAGE POINTS</th>
<th>% TRANSACTION VALUE AT STAKE</th>
<th>% PREVENTED THROUGH CTM</th>
<th>BUSINESS IMPACT</th>
</tr>
</thead>
</table>
| Procure to Pay        | • Data errors and omission                                                           | 12-17%                      | ~90%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Unauthorized payments                                                              |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Overpayment                                                                        |                              |                          |                                                                                                               |
| Order to Cash         | • Delayed collections                                                                | 20-30%                      | ~97%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Unauthorized changes in masters                                                    |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Invoice and billing mismatch                                                       |                              |                          |                                                                                                               |
| Travel & living       | • Policy non-compliance                                                               | 7-12%                       | ~85%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Overpayment                                                                        |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Unauthorized payments                                                              |                              |                          |                                                                                                               |
| General ledger        | • SoD conflict                                                                       | 11-17%                      | ~97%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Whole number entries - rounding off                                                |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Unusual account pairing analysis                                                   |                              |                          |                                                                                                               |
| FCPA                  | • Out of country payments                                                            | 6-7%                        | ~80%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Gift/sponsorships/ government payment analysis                                      |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Unusual payments                                                                  |                              |                          |                                                                                                               |
| P-Card                | • Purchases from approved/ regular vendors                                          | 10-15%                      | ~80%                     | Operating metrics:  
  • Decrease in working capital by up to 3–5%  
  • Increase in cash flow by 2–3%  
  • Bottom line improvement by up to 0.1–0.2% of revenues  
  • Improve revenues up to 1%  
  • DSO reduction by 10–15%  
|                       | • Policy non compliance                                                              |                              |                          | Process level metrics:  
  • 10–15% savings from employee recoveries  
  • Prevention of accounts misreporting  
  • Prevention of foreign corrupt practices by up to 80%, reducing probability of penalties |
|                       | • Improper/illegal payments                                                          |                              |                          |                                                                                                               |

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### PARAMETERS

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>WITHOUT CTM</th>
<th>WITH CTM</th>
<th>BUSINESS IMPACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transaction coverage</td>
<td>10-15%</td>
<td>100%</td>
<td>Up to 5X increase in transactions under audit</td>
</tr>
<tr>
<td>Transaction completeness and accuracy</td>
<td>60-70%</td>
<td>65-80%</td>
<td>Up to 15% improvement in transaction quality</td>
</tr>
<tr>
<td>Operating control</td>
<td>70-75%</td>
<td>80-95%</td>
<td>Up to 20% increase in controls</td>
</tr>
<tr>
<td>Turnaround time</td>
<td>100%</td>
<td>70-75%</td>
<td>Up to 30% reduction in audit completion time</td>
</tr>
<tr>
<td>Auditor cost</td>
<td>100%</td>
<td>70-75%</td>
<td>Up to 30% reduction in cost of audit operation</td>
</tr>
</tbody>
</table>

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Significant improvement in operating, process and assurance metrics can be achieved through CTM.
Axis provides CTM solutions that help detect and analyze suspicious transactions and other anomalies, enabling clients to take quick corrective action against the root cause leading to:

- Duplicate payments
- Missed supplier discounts
- Large purchase orders that exceed an employee’s approval limit, but that are split up to avoid detection
- Fraudulent payments by insiders to a “phantom vendor” company
- Payments that violate the U.S. Foreign Corrupt Practices Act
- Many other questionable transactions

**Structuring and solving the challenges**

The approach from Axis is a unique combination that is aimed at defining, managing and running an organization wide CTM program.

Axis knows that before implementing a CTM program, organizations must first establish a control environment that is linked to its goals and objectives. To create this control environment, Axis deploys a team of domain and CTM experts who help clients:

- Assess the current control environment and the risks to organizational goals and objectives
- Build a complete control environment for the organization
- Determine the frequency for monitoring the controls
- Identify and capture the data that measure the effectiveness of the client’s risk management as well as its other controls

**Platform Hosting and Data Mining.** As a result of the merger mania of the past two decades, many large organizations are juggling a patchwork of systems. So before an organization can attempt CTM, it must be able to extract data from every one of the disparate systems in its universe. To ensure that clients have clean data that can be easily extracted and analyzed, Axis provides:

- Pre-built data request templates by process, vendor, analysis, and type of Enterprise Resource Planning (ERP) system. Axis can provide pre-built extraction for systems from the major ERP vendors including SAP, Oracle, JD Edwards, PeopleSoft and Lawson.
- Custom scripts to rapidly extract data in an automated manner
- Out-of-the-box analytics libraries supporting numerous processes
- Dedicated experts with extensive experience in gathering data quickly and ensuring the accuracy and integrity of data before analysis
- A collaborative approach to verify that each client understands how to interpret the extracted data in real time

**Transaction Analytics.** For large organizations that process thousands of transactions each day, detecting fraud or other irregularities is like finding the proverbial needle in the haystack. Organizations can only succeed on this front if they have access to the most sophisticated algorithms and analytics. Axis has developed cutting-edge analytics that can identify error patterns in near time—and take immediate corrective action. Axis provides its clients with:

- Heuristic algorithms that learn and improve continuously
- Analytics based on predictive logic, including fuzzy logic, pattern recognition and statistical analysis
- Granular and actionable insights by process and sub-process, IT system, and nature of the transactions
- Lists of analytics performed under each area and sub-area, with detailed sub-analytics by process, vendor, and ERP system

**Exception Management & Closures.** Attempting CTM is futile if an organization’s auditors can’t quickly pick out which of the hundreds—or even thousands—of anomalous transactions that occur each day are truly worth investigating. To stay on top of its data in real time, organizations need to be proficient in exception management, root-cause diagnostics leading to exception and process gap closure. Axis supports clients with:

- Risk profiling of exceptions based on factors such as process type, vendor or criticality
- Integrated exceptions in instances where exceptions are linked to each other
• Follow up of genuine exceptions and recommendations on process, technology fixes etc.
• Collaborative approach with client to determine and manage "genuine" exceptions

**Management Reporting.** Even after the algorithms and analytics are in place, and the CTM system starts flagging irregular transactions, the real work has only begun. That’s because every organization that implements CTM realizes that it’s an ongoing learning process as the types of waste, fraud and abuse continue to change. To stay abreast of the latest trends, organizations need robust reporting. Axis provides management teams with holistic and comprehensive reports documenting every relevant exception. This enables executives to take action against fraud or compliance failures. Axis provides:

  • Granular reporting of exceptions based on criteria such as process type, vendor or ERP system
  • Assessments of the root cause of the exception and validating the same with the business/process owner
  • Details of initiatives, including process changes or technology improvements, that can eliminate exceptions
  • Recommendations on new analytics based on reporting and business changes

---

**Case Study: Design and implementation of fraud risk framework for a multinational pharmaceutical and consumer healthcare company**

**The Challenge:** AP accounting process outsourced to third party service provider. Instances of fraud payments within the organization. Multiple data sources and decentralized process ownership.

**Axis Solution:** Axis identified vulnerabilities which could be exploited for fraudulent purposes. Analyzed transactions to determine data points for fraud risk, evaluated impact and potential exposure for each fraud scenario.

Detailed investigation to identify and grade real fraud instance.

**Business Impact delivered:** Identified fraudulent payments made by employees in their personal account by changing the bank account of vendors ~$0.5MM. Identified instances of PO splitting, resulting in identification of kickbacks.
Advanced procurement and supply chain models

Transforming procurement operations through advanced operating models 94
Procurement executives worldwide agree on the top challenges facing their organizations: Cost, compliance, and customer satisfaction. In this new research, they also pinpoint the greatest opportunities to be gained from advanced operating models whose full potential has yet to be tapped.

"Industrialization" of sourcing and procurement operations 98
Global Business Services (GBS) can benefit the sourcing and procurement function because they have the ability to streamline processes under a unified—although not always centralized—operating entity. This paper presents a scientific, granular approach to procurement transformation, proven through industry-specific experiences.

The supply chain: The CFO's crystal ball 104
There is a secret weapon in the CFO's battle to stay ahead of globalization and a fast-evolving marketplace filled with complexity and risk. That is the data gleaned from examining the supply chain—a primary source of information that can help to accurately forecast a company's revenue outlook.

Tail-end spend: How to reap significant savings with the right operating model 106
Two unexpected truths about tail-end spend are emerging as companies look for ways to relieve margin pressures. Achieving transparency and efficiency in tail-end spend is easier and requires fewer resources than generally believed—and the returns are much higher if the right model is deployed.
Transforming procurement operations through advanced operating models

Procurement executives believe there is untapped potential for advanced operating models to address the top enterprise challenges.

About the research

In 2014, Genpact commissioned a research project conducted by an independent research firm. The goal was to assess the potential for new operating models across a wide spectrum of industry sectors and functions. More than 900 senior-level executives completed the survey. Respondents were screened based on their ability to materially influence functional decisions. This analysis complements other research and insight derived from Genpact’s experience designing, transforming, and operating business processes and operations.

This document presents findings drawn from 121 senior procurement executives from across all industries. About 60% of the procurement executives surveyed are based in North America, predominantly with large companies with more than 10,000 employees.

Introduction

CPOs and other senior executives are challenged to adapt to a rapidly changing business environment and to create greater business value. Transforming business processes to implement advanced operating models is a big part of the solution, but levels of process maturity and preparedness for transformation vary widely across business functions. The three levers of operating model transformation—technology, process reengineering, and advanced organizational structures (shared services, business process outsourcing, and hybrids)—create impact differently. Using commissioned research, Genpact has examined these trends to understand how institutions are driving transformation to achieve business impact.

Procurement executives believe cost reduction is the top challenge, by far, facing their enterprises

• About 65% of procurement executives identified cost reduction as one of the top three challenges facing their company.
• Regulatory compliance (46% of respondents) and customer satisfaction (41%) ranked far behind.
• These responses contrast somewhat with those of executives in other functions who were more likely to point to regulatory compliance or growth and scalability as their firms’ top challenges (Figure 1).
% of respondents from various functions stating challenge as among the ‘top 3’ for their company

Ensure compliance to regulations
Increase customer satisfaction
Reduce capital and asset intensity
Manage risk
Reduce costs

Overall
Finance
Procurement
Marketing
Operations

Figure 1

n=912 from all industries

Sourcing/category management is seen as addressing the biggest challenges

- The majority of procurement executives said that sourcing/category management can have material impact on multiple challenges.

- “Impact indexes” weighed the impact of each function according to the importance of the business challenges the function addresses.

- This analysis showed that sourcing/category management is most likely to have a broad impact, followed by supplier risk and performance management and business intelligence and reporting (Figure 2).

Function impact index\* combining stated importance of challenges and stated ability of a function to address them

Sourcing/category management 191
Supplier risk and performance management 174
Business intelligence and reporting 156
MDM 136
Transactional procurement 122

\*Impact of a function on a company’s challenges is defined as \( f(x) = \sum x_i y_j \), where \( x_i \) is the % of respondents who believe that improvement in the function \( x \) will have a material impact on the challenge \( y \) and \( y_j \) is the % of respondents citing the challenge as among the ‘Top 3’

Figure 2

n=121 procurement executives
Business intelligence (BI) and reporting as well as master data management (MDM) were least mature and least prepared to evolve further

- Transactional procurement was seen as the most mature function, with 72% of procurement executives rating it mature or very mature.
- The sourcing/category management function, however, was more frequently seen as prepared to transform further, with 76% of executives rating it prepared or fully prepared.

Procurement executives saw advanced organizational structures as more broadly applicable, but technology initiatives may generate slightly greater monetary impact

- Business intelligence and reporting as well as master data management were at the other side of the spectrum (Figure 3).
by most procurement executives as having a bigger material impact on key business challenges than other levers of operating model transformation.

- The research has shown that improved use of technology can provide the biggest financial impact where the technology is applicable, though the expected impact varies substantially depending on the maturity of the procurement function.

- Executives who rated their company’s procurement functions as immature expected larger financial impacts from advanced organizational structures and business process reengineering (but not technology) than executives who rated these functions as mature (Figure 4).

**Conclusion**

Senior procurement executives are challenged to adapt to a rapidly changing business environment in an economy that remains unpredictable. The researchers examined how those challenges can be tackled with three levers of operating model transformation: Technology, process reengineering, and advanced organizational structures.

The related transformation of operations is an untapped strategic lever for the CPO as well as the CEO. However, it is sometimes seen as a formidable undertaking.

Our experience of advanced operating models clearly indicates that there are agile and practical ways to drive positive change. The key is to design, transform, and run the processes that power advanced operating models so that they **closely align with measurable business goals**, thus avoiding saddling the company with unnecessary and often unmanageable complexity.

This approach **focuses more rigorously on the sources of impact** and deliberately disregards any practice that does not yield material outcomes. It also takes a more objective and holistic and practical look at technology, analytics, and organizational practices.

Finally, this approach harnesses the **process and organizational levers** available from established disciplines, such as reengineering, shared services, outsourcing, and global delivery. We think there is a smarter way to transform operating models and address the most complex strategic challenges. This is a way for CPOs to make their enterprises more intelligent and generate material impact.

This document presented the highlights of research findings. Discover more in the [full report](http://go.genpact.com/CPO-advanced-operating-models-research14-reg.html).
“Industrialization” of sourcing and procurement operations

The sourcing and procurement function is increasingly mandated to contribute to the growth and agility necessary in these volatile and uncertain times. Its current operating models are, however, seldom able to deliver on these expectations—often lacking enough resources to tackle at scale emerging challenges, such as analyzing global and fragmented supply chain risks, as well as enabling frequent changes of company “perimeter” brought on by geographic expansion, M&A, and so on.

Global Business Services (GBS), an evolution of shared services with a larger global footprint serving multiple functions, can benefit the sourcing and procurement function because they have the ability to streamline processes under a unified—although not always centralized—operating entity. Decoupling business functions combines the advanced use of metrics, scientific process management, specialized data analysis, and effective IT enablement. It can industrialize business support processes and operations and—when combined with end-to-end process management—can result in the ability to scale, lower costs, and superior delivery. The resulting transformed business processes enable faster decision-making and the ability to adapt to market conditions. This paper presents a scientific, granular approach to procurement transformation, proven through industry-specific experiences.

Enterprise strategy and the demand on procurement

Procurement leaders, now more than ever before, are key players in the transformation of their company’s operating models; however, their function is routinely strained by such challenges as:

- Tactical, transactional activities are still the core of many procurement organizations’ DNA, such as creating POs, helping execute contracts, responding to supplier issues, and running routine negotiations with suppliers. Contributing to the growth agenda warrants closer alignment to business operations and closer involvement in decision-making processes
- Moving beyond cost savings. Procurement faces, and often struggles with, the consistent demands of contributing
to "higher touch" roles, such as category management, demand forecasting/management and supplier risk, and relation management, over and above driving costs from supplier contracts.

- **Solving for globalization and centralization.** Serving global markets and newer geographies can sometimes be at odds with the centralization of the procurement function. The central and regional procurement leaders are asked to deliver greater value from global activities while providing efficiency at reduced operating costs.

- **Factoring supply chain risks**, such as supplier bankruptcy, financial crisis, natural disasters, and price/currency volatility, are a "byproduct" of business volatility. The supply chain is prone to controllership risks because of its multiple physical and transactional hand-offs.

- **Evolving technology and analytics** beyond the comparatively limited current use. Limited automation has often resulted in a lower (and slower) than expected ROI on technology. Predictive analytics—employed for commodity price volatility, price forecasting, and so on—is still underutilized.

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**Industrialized procurement operations: A key to agility and resilience**

**Industrialized operations** can, when executed well, help access new growth opportunities, create resilience to hostile market or regulatory conditions, and facilitate enterprise-wide product and business model innovation. They also enable faster innovation in volatile marketplaces.

For instance, increasing the size of a large operation by 20% (or strengthening business infrastructure in a new country) typically takes a year or two, but industrialized operations can often achieve this in half the time. For some processes, when the scale of business process service is increased by a factor of ten due to consolidation, the shared model can deliver a 50% savings in cost per transaction. (A leaner, more predictable cost structure also enables resilience and the consistent global application of best practices.)

We have already stressed the industrialization potential across functions within various industries. Figure 1 below reveals that procurement is one of the least "industrialized" functions based on its limited inclusion within captive outsourced Global Business Services (GBS) when compared to business processes such as F&A, HR, and IT. Taking industrial manufacturing as an example, Genpact estimates that 30% of the existing procurement activities can be industrialized through sourcing and direct/indirect procurement support.

**Across industries, companies display a reduced propensity to manage procurement processes when they are compared to finance, HR, and IT processes**

![Figure 1 - Significant potential may still exist for "industrializing" procurement operations](image)

As Figure 2 shows, we estimate that this effect can translate into business benefits amounting to $30 million for every $1 billion revenue in manufacturing companies.

![Figure 2 - Companies can realize significant business impact from industrializing procurement support functions](image)

---

1Helping industrial manufacturing companies outperform through right operating models for support functions
Some of the most common procurement areas that can be "industrialized" include:

- **Spend analytics**: Spend extraction, cleansing and categorization; supplier market research; supplier risk assessment
- **Sourcing strategy and vendor negotiations**: Supplier profiling, supplier market analysis, sourcing analytics, preferred vendor selection, and negotiation and e-contracting
- **Source to Pay compliance reporting**: Source-to-contract business cycle by driving contract compliance, transaction compliance (e.g., only POs driven through preferred vendors) and discount capture

### Procurement’s place in the operations maturity curve

The evolution of GBS typically follows three phases (Figure 3), with focus and achievements shifting over time from foundational (often direct-cost driven) activities to more strategic ones. A typical company’s full realization of benefits using the GBS model is achieved when it moves beyond the first two phases, which can take between five and ten years.

However, forward-looking organizations have successfully shortened the path and benefited from the experience of best-in-class early movers.

### Life sciences GBS experiences display maturity curve

Maturation of practices starting to enable leapfrogging

While the creation of a shared entity is important for harnessing scale and labor cost arbitrage, advanced business processes must optimize processes end-to-end, including those that do not belong to the industrialized entity. Data-driven process improvement frameworks like Genpact's Smart Enterprise Processes (SEP™) have distilled the Lean Six Sigma experience of the last decade and can help organizations to measure and improve procurement processes—in turn, enabling their operations to reach world-class levels faster and leapfrog on the maturity curve.

For example, in one major pharmaceutical company (a Genpact client) that spends more than $9 billion on procurement annually, a supplier risk assessment provided valuable insights for contract and price negotiation and lowered their risk of being hit by supplier bankruptcy. By setting up a system to periodically analyze key factors such as the supplier’s financial performance, industry ratings, cost-out initiatives, best practices, business strategies, and strategic initiatives, the company established bankruptcy indicators and benchmarked vendors against their competitors. The system let them segment suppliers into high, medium, and low risk categories and lent significant advantage in negotiations. The procurement function has already shared and outsourced key components of high-end operations like spend analytics, supplier risk and relation management, and category management.

Other situations where we have witnessed successes include:

- **A global beverage player**: Increased spend under management through initiatives such as increasing spend visibility, designing metric structure for monitoring, reporting and benchmarking, identifying relevant technology stack, identifying change management interventions, and

Figure 4 shows that most of the industrialized (and globally delivered) procurement operations are found in 5- to 10-year-old GBS organizations.
An aerospace supplier: 18% cost savings through sourcing from lowest cost country (LCC) through an end-to-end advanced and globally-delivered program management including sourcing, procurement, and logistics, in addition to part development, contracts negotiation, and new work transfers, ensuring improved timeliness for deliveries.

Advanced operating models, including the industrialization of higher-touch support operations, have enabled the procurement function to leverage a robust platform in order to create capacity and acquire sufficient capabilities to assume a more strategic role.

These examples illustrate how advanced operating models, including the industrialization of higher-touch support operations, have enabled the procurement function to leverage a robust platform in order to create capacity and acquire sufficient capabilities to assume a more strategic role.

**Toward an advanced procurement operations model**

Scientific understanding of the operating model of procurement organizations, such as SEPM, are now mature and allow organizations to correctly estimate the end-to-end business impact of target operating model choices, hence facilitating effective design and more targeted change. Still, building out GBS capabilities is not banal. The variability across scope, location, and delivery models indicate that while broad strategies and comparisons have a place in this process, each business case is heavily dependent on company-specific factors.

A thorough analysis of the following four dimensions, described in Figure 5, is critical to selecting the right target operating or delivery model.

- **Review as-is state and rationale.** Understand the current state of performance, identify candidates for improvement, and review the process and sub-process practices
- **Identify top improvement opportunities.** Use best-practice metrics and frameworks to benchmark key areas, identify top areas for improvement, assess the feasibility and risk of options, and conduct a preliminary analysis of benefits such as cost, efficiency, or effectiveness
- **Identify delivery alternatives.** Assess options for consolidating processes into internal global shared operations, externally sourced operations, or a combination of both
- **Determine change implications.** Outline both financial and risk-related implications for each location and structuring option (e.g., various types of risk)

- **Build a business case for each alternative.** Compile a high-level business case that encompasses process improvement, organizational structuring options, location choices, and change implications
- **Develop a detailed roll-out plan.** Develop a roll-out plan to reach the targeted operating model by process and by location
- **Build the final business case.** Identify emerging options for each process and develop financial and implementation plans

**Summary**

In this paper, we shared Genpact’s analysis and examples of how leading procurement organizations are transforming their operating models. As discussed in a previous paper, *The Adaptive Roadmap*[^2], business agility in times of unprecedented volatility is an imperative that demands a new role for many functions. Embracing new operating models can make companies not only more resilient, but also able to out-perform competitors in times of volatility[^3].

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[^1]: [Source: Genpact experience](http://www.genpact.com/docs/resource-/the-adaptive-roadmap-whitepaper.pdf)
[^2]: Innovation and industrialized business operations: An industry-specific view
For organizations looking to redefine their procurement operating models, a significant amount of specialized knowledge is needed to navigate the continuum of design choices. While every company and every industry presents unique challenges, in such a specialized field, it is possible to leverage the experience of early and sophisticated adopters. Combining this experience with a clear understanding of the organization’s strategic needs, capabilities, and industry context can help craft the right strategy for a target, advanced, and possibly “industrialized” operating model.
The supply chain: The CFO’s crystal ball

There may be a secret weapon in the CFO’s battle to stay ahead of globalization and a fast-evolving marketplace filled with complexity and risk. If you are overlooking the possibilities in your supply chain, you’re probably not alone.

This weapon has been there all along, as an integral part of a company’s everyday operations that holds the key to improving working capital and cash flow and better understanding risk. It can even predict revenue and profitability with a far greater degree of certainty than most people ever imagined.

This secret weapon is in fact the data gleaned from examining the supply chain—a primary source of information that can help forecast a company’s revenue outlook. Understanding what factors affect products as they move through a supply chain, and how those factors impact pricing and customer satisfaction, provides a near real-time model a CFO can use to gain a more accurate idea of market factors affecting the company. Even one critical component or raw material can significantly impact an organization’s entire approach to sourcing and its profitability.

Forecasting commodities pricing: critical to beating market volatility

The past few years have seen great increase in market volatility, especially around oil and commodities. CFOs can overcome the challenge of balancing inventory investment and procurement cost by developing an analytical model that scrutinizes macroeconomic factors affecting metals and provides a price driver analysis of the factors that cause price variations. The model can also provide fundamental analysis of the demand supply gap in critical commodities, and a technical analysis of historical and current movements of primary price and volume.

For example, aluminum is a key raw material for a global wind turbine manufacturer based in India. The company needed up-to-date market analysis, assessment and projection of aluminum prices in order to make timely and advantageous sourcing decisions. By developing an analytical model, the manufacturer more accurately forecast commodity prices and made better decisions with regard to sourcing, ultimately lowering its purchase price by 8%.

This ability to factor in variations and adjust the model in near real-time significantly improved the organization’s ability to adjust to changing market conditions and seize opportunities. The better the CFO is able to sift through complex data sets and form a clear picture, the better the supply chain teams can forecast and set targets that drive better results.

Improve your inventory turns

With a double-dip recession looming and high uncertainty regarding the banking system, prudent fiscal management of working capital has become the acute need of the hour. Improving inventory turns is a major concern within the supply chain and an obvious focus for any CFO concerned with optimizing working capital. CFOs need in-depth understanding of the composition of their inventory investments and the
The CFO and the supply chain

Progressive organizations are leveraging technology to integrate the CFO into the supply chain organization, using ERP systems and reporting that allows CFOs to extract data that aids in timely decision-making. Such an entwined operation benefits both functions. The CFO is better able to forecast revenue and profitability, decreasing risk and increasing cash flow. The supply chain team is better able to create and deliver on plans that mirror the organization’s operational capabilities and goals. This close integration has resulted in some organizations giving the CFO direct responsibility for the supply chain function.

Companies seeking a way to get control of working capital and see farther into the future would do well to take a close look at their supply chain. It just might provide the secret weapon they need to stay ahead of both the competition and the market.

Drive out risk end-to-end

Volatile impacts the end-to-end supply chain, which in today’s global supply base can be quite deep and extended. The supply chain is prone to controllership risks because of its multiple physical and transactional hand-offs. The CFO who clearly understands the entire procurement and fulfillment process and the workings of the physical supply chain is much better positioned to understand the cascading effect of risk. Clear insight into the drivers of supply and demand, costs and the end-to-end process can enhance the CFO’s role in guiding policies that mitigate risk and drive better results overall. Start with a thorough financial evaluation and peer benchmarking of the company’s supplier base.

For one major pharmaceutical company that spends more than $9 billion on procurement annually, such a supplier risk assessment provided valuable insights for contract and price negotiation discussions with vendors and lowered their risk of being caught in supplier bankruptcy issues. By setting up a system to periodically analyze key factors such as the supplier’s financial performance, industry ratings, cost-out initiatives, best practices, business strategies and strategic initiatives, the company established bankruptcy indicators and benchmarked vendors against their competitors. The system let them segment suppliers into high, medium and low risk categories and lent significant advantage in negotiations.

For more information, visit www.genpact.com/home/solutions/direct-procurement

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Two unexpected truths about tail-end spend are emerging as companies look for ways to relieve margin pressures. Achieving transparency and efficiency in tail-end spend is easier and requires fewer resources than generally believed—and the returns are much higher if the right model is deployed.

Tail-end spend has become a significant source of savings for companies thinking outside the box of traditional procurement. The “tail” constitutes around 20% of overall spend, but in most instances, the huge number of suppliers in this procurement bucket forms the single largest spend pool. Opportunities to relieve margin pressure and simplify operations abound here, but not many companies have taken steps to maximize tail-end spend management, believing that returns are minimal for the resources required.

Rethinking that perception can yield rich rewards. As Everest notes in a recent study\(^1\), tail-end spend management can help organizations optimize leftover spend, driving 50% savings over and above the 5–10% achieved by traditional spend management. Underestimating the potential gains from better tail-end management and overestimating the effort involved can cost companies up to 10-15% per year in unrealized savings on the bottom 20% of the spend. This translates into an incremental 2–4% hard savings on the overall addressable spend base.

Tail spend can be split into two parts: the unmanaged spend that comprises 10–20% of the spend base, with a potential of saving 2-5%, and the last 5–10% of spend that contributes to up to 75% of the transaction density. Therefore, the strategies for managing both buckets are distinct. The former is more savings- and compliance-driven, while the latter banks on efficiency and eliminating millions of transactions that lead to higher cost per transaction and low first-pass yield of the process.

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1 Betting on Tail Spend to Save Coin, Saurabh Gupta, Vishnu Khandelwal, Abhishek Menon, Everest, March 2014
**Traditional management methods are costing businesses money**

Conventional strategies for managing tail-end spend such as procurement cards, catalogs, supplier consolidation, and spot buying do not provide a clear picture of vendor complexity, goods acquired, or where the money actually went. Much of the problem is attributed to firms not being able to get a good handle on the “real tail.” Procurement professionals tend to look at the tail through one of the following prisms:

- Viewing certain categories (non-core) as tail, such as a financial services firm that considers facilities management a tail-end category
- Considering transactions below a certain threshold as tail transactions
- Regarding suppliers below a certain annual spend limit as tail-end suppliers

As shown in the graphic on the next page, the reality is that the true tail is a combination of all three. For example, in facilities management, certain suppliers below an annual spend of $500k are considered tail-end suppliers. However, within this set are suppliers whose average purchase ticket size is less than $50k. These fall into the realm of instant consolidation.

Working on disparate platforms tends to hide the level of supplier fragmentation, which leads to duplicate contracts and suppliers. This results in issues with supplier normalization and spend visibility, with many smaller vendors going unmanaged. Non-compliance with policies is a leading cause of over-spend in the tail; firms can realize 4–5% annual savings through demand management and curtailing ad hoc purchases as well as improved compliance.

**Getting more with less**

Achieving comprehensive tail-end spend management is much easier than most companies believe. The best way to begin is with a close assessment of available resources, since many companies mistakenly believe the ROI to be attained is too low and the resources required too high. Available resources could encompass:

- Site procurement
- Corporate procurement
- Shared services
- Centers of Excellence (CoEs) and/or third parties
- Onshore, offshore, and hybrid service delivery models

A good way to decide on partner support is to gauge the situation from the perspective of in-house technology maturity and the availability of necessary bandwidth and category experience to manage the tail in-house. Service providers demonstrate a great deal of flexibility in adapting to changing client situations.

Third-party expertise can be especially helpful for the tail when the partner brings extensive local buying knowledge, staffing resources, and technologies that enhance the entire process. Newer engagement models benefit the tail using category aggregators and transactional consolidation through specialized tail-end Procure to Pay (P2P) platforms. These platforms manage tail-end vendors from master data setups through procurement to settlement of payments. The right mix of these models can significantly improve ROI on the tail spend.

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**Contributing factors to tail-end spend**

- All suppliers who are not strategic suppliers
- Suppliers who purchase below a threshold level
- Supplies not used over a 6-9 month timeframe
- A Level 3 sub-category that is not “strategic”
- Categories where there is historically very low PO penetration
- Service categories where specifications are not standardized
- Tactical and leverage categories

- Non-catalog requisitions
- Requisitions with no item reference and low value
- Requisitions that do not have a preferred vendor or reference to a contract

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**The “real” tail**
Industrialized processes produce higher savings

The goal of any operating model should be to support more effective processes. The massive tail-end vendor base means that 80–90% of procurement transactions occur here; standardization/consolidation in this space tends to ripple across the entire Procurement organization. Tail-end spend lends itself well to industrialized processes that eliminate the silos where savings leakage occur. Standard, automated workflows and rule-based controls speed processing and enforce compliance with global policies. Enhanced data collection and spend analysis pave the way for moving tail-end spend to larger, managed contracts or even eliminating it altogether.

Standard, automated workflows and rule-based controls speed processing and enforce compliance with global policies. Enhanced data collection and spend analysis pave the way for moving tail-end spend to larger, managed contracts or even eliminating it altogether.

Transparency is key. Processes that enable clear, end-to-end visibility into spend from industry to category down to the line-item level help Procurement identify inactive and duplicate supplier accounts, parent-child linkages, and other savings opportunities.

For example, a global energy major leveraged price and demand levers in the tail end to improve preferred vendor spend by 8–10%, reducing savings leakage by nearly $7 million. Tail-end spend analytics and vendor consolidation across multiple categories in the tail were the key levers.

Activity in the tail end cuts across all categories but offers especially significant opportunities in non-strategic and service categories. Focusing on a few categories to start helps refine the process and builds confidence in the operating model.

Better delivery models deliver benefits too significant to ignore

A global approach to tail-end spend management using industrialized processes and strong controls offers proven benefits in savings, improved compliance, a more rational supply base, and enhanced reporting quality regarding spend and risk factors. Leveraging external partners might be necessary to acquire the necessary assets, but the cost is offset by the additional savings gleaned from the provider’s category expertise, scale, and off-the-shelf technologies. Outcome-based commercial models from specialist providers in this space offer ROI ranges of 4–5 times the investment, with faster payback. For companies with approximately $1 billion in spend, 10% saved in the tail end adds up to $20–25 million—per year. In this era when every cent counts, such returns are worth the cost of implementation.

Put technology to work

Better processes need better supporting technologies such as:

- Consolidating low-value transactions on standard non-ERP-based platforms of record to help drive better master data quality and control of the growing tail
- Business Process as a Service (BPaaS) delivery models for technologies that are globally accessible and quick to implement and provide a unified platform that monitors and enforces compliance across the organization
Advanced operating models in banking and financial services

Commercial banks look for talent and technology as they strive to industrialize operating models 112
New regulations have reduced the available pool of credit, creating a need for cost reduction. However, as in the retail space, commercial banks are investing in people and technology, both required to improve customer satisfaction. Longstanding business processes are being called into question to cut expenses while improving client responsiveness, and enhancing the quality of deliverables in the market has become even more critical. To take advantage of growing demand, lenders are focusing on building customer relationships through greater investments in business development and gaining traction in new markets.

The retail banking industry sees changes in leadership as banks pursue growth and new operating models 114
As retail banks continue to adjust to the new regulatory environment, old business models are being challenged by more wide-ranging client preferences such as multi-channel banking. While cost cutting is still a priority, many banks have focused building their abilities to increase customer satisfaction and improve risk management.

Transforming banking operations through advanced operating models 116
A new study of executives in large enterprises reveals the top challenges facing banking executives worldwide—and how advanced operating models drive the most effective solutions. In this study they also pinpoint the greatest opportunities to be gained from advanced operating models whose full potential has yet to be tapped.

Transforming risk management in the financial sector through advanced operating models 124
A new study of executives in large enterprises reveals the top challenges facing risk executives, who believe there is untapped potential for advanced operating models to address the most important strategic enterprise challenges.

Predictive analytics model validation: Building a model validation group to better mitigate risk 130
Predictive models bring their own set of risks that call for specialized risk management techniques, usually delivered by a corporate model validation group (MVG).

Remediation as a Service: A cost-effective response to regulatory and strategic change 134
In recent years, the annual cost of client data remediations to the financial services industry has soared to hundreds of millions of dollars. At the same time, tougher regulations have increased the need for accuracy. With margins under pressure, a combination of shared services and an industrialized approach can enable data remediation at lower cost and in a more scalable, consistent, and transparent manner.
Multi-dimensional time series-based approach for banking regulatory stress testing purposes: Introduction to dual-time dynamics 140
The following paper details an advanced stress-testing methodology called Dual time Dynamics (DtD) that has been developed to aid in the stress testing of retail banking portfolios and has the potential to be delivered as part of a bank’s target operating model.

How big data will transform the equipment finance industry 148
The Equipment Leasing and Finance Foundation commissioned Genpact to carry out a forward-looking study on industry benefits derived from big data.

A 38% increase in production costs drives new operating models through business process outsourcing 152
The residential mortgage industry continues to present challenges to lenders, however, the resulting push for operational excellence has accelerated the development of Business Process Outsourcing (BPO) models available to the industry.

Retail banks need nimble yet scalable operations to enhance customer centricity in the digital age 154
Retail banking customers expect seamless access to their banks through multiple channels, requiring banks to invest significantly in digital channels that, when done correctly, offer the potential for significant cost-savings along with increased customer satisfaction and profitability.

Creative solutions to building a business: Launching a leasing company from scratch 158
The entrance of third-party providers has enabled financiers to create a leasing business from scratch, mitigating much of the risk associated with launching operations through top industry processes, technology standards, and limited upfront investment.

Analytics in banking 162
Advanced analytics-backed operating solutions are helping the banking industry become smarter in the face of myriad challenges.

Marketing analytics in retail banking 172
Today’s banking customer not only demands more services, but is better informed about competing offers, prompting banks to embrace marketing analytics.

Mortgage portfolio analytics 176
Volatility and margin pressure in the mortgage industry are prompting lenders to explore better ways to operationalize advanced analytics.
Commercial banks look for talent and technology as they strive to industrialize operating models

While showing signs of improvement, the commercial banking environment continues to exhibit a good deal of uncertainty and change. According to our own recent research, leadership changes contribute the most to volatility at 48% in 2014 (till October) compared to 27% in 2013, whereas adverse financial conditions at 32% in 2014 (till October) compared to 8% in 2013. These are pretty much in line with measures that commercial bankers adopted in response to increased levels of volatility seen in 2013. New regulations have reduced the available pool of credit, creating a need for cost reduction. However, as in the retail space, commercial banks are investing in both the people and technology required to improve customer satisfaction. Longstanding business processes are being called into question to cut expenses, while improving client responsiveness and enhancing the quality of deliverables in the market has become even more critical. To take advantage of growing demand, lenders are focusing on building customer relationships through greater investments in business development and gaining traction in new markets.

In order to meet these goals, commercial bankers (including businesses that leverage lending captives) are exploring advanced operating models, such as shared services, outsourcing and BPaaS solutions. In doing so, they are striving to streamline and enhance processes, as well as shift toward more variable cost models while accessing future-oriented technology platforms. A recent survey, conducted by an independent research firm commissioned by Genpact of 206 executives from the commercial banking space, revealed that on average, banks see over $600 million in impact from advanced technologies, business process reengineering, and shared services. Advanced delivery models that leverage these three fundamentals have become more appealing in this environment because they require comparatively much lower capital expenditures and allow for greater scalability. Shared operating centers can, for instance, more easily attract and retain cost-effective talent in areas such as risk management, analytics and underwriting. They also secure the quality of delivery during growth, helping to improve reporting, cycle times, and processing accuracy.

On the whole, the commercial banking industry is experiencing relatively higher volatility levels. Financial conditions and

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1. Unprecedented economic volatility necessitates that global enterprises adapt, and often this is through transformed business operations. Genpact Volatility and Adaptation Index (VAI) is a directional, quarterly measure of this volatility and related signs of adaptation. [www.genpact.com/home/volatility-adaptation-index](http://www.genpact.com/home/volatility-adaptation-index)
2. Transforming banking operations through advanced operating models
industries and institutions' financial conditions are deteriorating further. Against a backdrop of rates and flat revenues, commercial bankers' strategy has been to promote new growth: first by way of acquisition and expansion, then via leadership changes and/or internal restructuring.

For more information, visit www.genpact.com/home/volatility-adaptation-index

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The retail banking industry sees changes in leadership as banks pursue growth and new operating models

As retail banks continue to adjust to the new regulatory environment, old business models are being challenged by more wide-ranging client preferences such as multi-channel banking. While cost cutting is still a priority, many banks have focused on building their abilities to increase customer satisfaction and improve risk management. The emergence of these trends is highlighted in our most recent research, which shows an uptick of volatility events over last year. Many banks have reported instances of increased leadership changes, contributing about 57% to overall volatility in 2014 (till October) compared to 24% in 2013, while M&A activity fell sharply, amounting to only 3% of total volatility in 2014 (till October) versus 34% in 2013. And they are aggressively pursuing growth in both new and existing businesses, while seeking more viable cost and capital structures.

New technologies, shared operating centers and outsourcing have allowed banks to reduce fixed costs in favor of a more variable and "industrialized" model. A recent survey, conducted by an independent research firm commissioned by Genpact of 201 executives from the retail banking space, revealed that on average, banks see over $500 million in impact from advanced technologies, business process reengineering, and shared services. Certain areas, such as mortgage originations, are already looking to move toward models that combine technology, reengineering, and advanced operating models as part of a Business Process as a Service (BPaaS) solution in order to amplify this impact. Indeed, the drive toward more flexible operations continues to accelerate across a broad spectrum of banking services such as wealth management, equipment leasing, business banking and auto finance.

While banks continue working to handle the new requirements and regulations of the past few years, it has come at a cost. The consumer will bear some of this burden, but the performance of the old business model will also be more volatile as margins are compressed.

To avoid major capital expenditures, firms are seeking a single operating platform across multiple markets. However, those with mature captive processing centers require additional technology and talent investments—a difficult trade-off if it comes at the expense of customer retention and revenue expansion initiatives. As a result, banks are increasingly looking to new BPaaS and shared services models, which leverage specialized resources,
technologies and economies of scale, to make their businesses more efficient and adaptable going forward.

Of all industries covered by Genpact’s Volatility and Adaptation Index\(^2\), retail banking has seen by far the highest levels of volatility. The industry is changing rapidly—with traditional business models challenged by evolving client preferences such as multi-channel banking—and many banks are reporting adverse financial conditions. In response, they are adapting predominantly via acquisition or expansion as well as by changing leadership. Many are also restructuring and/or undertaking cost-cutting measures.

\(^2\) Unprecedented economic volatility necessitates that global enterprises adapt, and often this is through transformed business operations. Genpact Volatility and Adaptation Index (VAI) is a directional, quarterly measure of this volatility and related signs of adaptation. http://www.genpact.com/home/volatility-adaptation-index

For more information, visit www.genpact.com/home/volatility-adaptation-index

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According to recent research, banking executives believe there is untapped potential for advanced operating models to address the most strategic enterprise challenges.

About the research

In 2014, Genpact commissioned a research project conducted by an independent research firm. The goal was to assess the potential for new operating models across a wide spectrum of industry sectors and functions. More than 900 senior-level executives completed the survey. Respondents were screened based on their ability to materially influence functional decisions. This analysis complements other research and insight derived from Genpact’s experience designing, transforming, and operating business processes and operations.

This document presents the findings drawn from 238 senior executives engaged in the banking industry. They are predominantly located in North America (81%) and come from companies with more than 10,000 employees. More than 70% of the banks covered by the survey offer both retail and commercial services. The sample includes 201 banks that offer retail services and 206 that offer commercial services.

Introduction

As the banking industry restructures in the wake of the financial crisis and a rapidly changing regulatory landscape, COOs and other senior banking executives are grappling with unprecedented change. In addition to regulatory and cost pressures, there is a growing imperative to meet increasing customer expectations in a volatile market. Transforming business processes to implement advanced operating models is a large part of the solution, but levels of process maturity and preparedness for transformation vary widely across banking functions. For retail banks, payments processing and account setup and servicing offer opportunities for wide-ranging impact, while anti-money laundering is specialized but critical. Operational transformation in commercial banking seems slightly more likely to focus on risk management. The three levers of operating model transformation—technology, process reengineering, and advanced organizational structures (shared services, business process outsourcing, and hybrids thereof)—create impact differently. Genpact has examined these trends to understand how banking institutions are evolving their operations to achieve business impact.

Regulatory compliance, risk management, and customer satisfaction are the main challenges confronting retail banks today

- Ensuring compliance with regulations is cited most often, pointed to by 72% of retail banking executives as one of their three top challenges (Figure 1).
- Managing risk ranks close behind, at 71%, followed by increasing customer satisfaction, at 58%.
- Operations executives in retail banks face similar challenges as do their counterparts in other functions.
Commercial bank executives face many of the same challenges as their counterparts in retail banks

- Ensuring compliance with regulations is cited often by commercial banking executives, with 76% indicating that it is one of their three most important challenges (Figure 2).

- Risk management is close behind, at 70%, followed by increasing customer satisfaction, at 59%.

- Operations executives in commercial banks tend to give nearly equal prominence to compliance and risk management, each at 74%, as well as customer satisfaction, at 69%.

% of respondents from various functions stating challenge as among the ‘Top 3’ for their company
FUNCTION IMPACT INDEX*
combining stated importance of challenges and stated ability of a function to address them

<table>
<thead>
<tr>
<th>Function</th>
<th>Impact Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments processing</td>
<td>156</td>
</tr>
<tr>
<td>Mortgage servicing</td>
<td>146</td>
</tr>
<tr>
<td>Account setup and servicing</td>
<td>142</td>
</tr>
<tr>
<td>Mortgage origination</td>
<td>136</td>
</tr>
<tr>
<td>Anti-money laundering</td>
<td>134</td>
</tr>
<tr>
<td>Multi-channel customer management</td>
<td>99</td>
</tr>
<tr>
<td>Retail brokerage</td>
<td>97</td>
</tr>
<tr>
<td>Retirement services</td>
<td>83</td>
</tr>
</tbody>
</table>

*Impact of a function on a company's challenges is defined as \( f(x,y) = \sum_j x_i y_j \), where \( x_i \) is the % of respondents who believe that improvement in the function \( x_i \) will have a material impact on the challenge \( y_j \), \( y_j \) is the % of respondents citing the challenge as among the 'Top 3'.

n=48 retail banking operations executives

Retail banking operations executives say payments processing has high potential for impact on customer satisfaction

- Payments processing (90%), followed by account setup and servicing (86%) are most frequently seen as having material impact on customer satisfaction.
- In retail banking, anti-money laundering stands out as the most frequently cited function for addressing both regulatory compliance (89% of respondents) and risk management (77%).
- However, impact indexes that take account of both the importance of each challenge and the ability of each function that addresses it indicate that payments processing is perceived as having the biggest impact, with an index of 156, compared with 146 for mortgage servicing and 142 for account setup and servicing (Figure 3).

Commercial banking operations executives most often point to the business banking/origination servicing function as having potential for addressing key challenges

- In commercial banking, the largest proportion of operations executives say that the risk management function can materially impact regulatory compliance and risk challenges.
- More than two-thirds say that business banking origination/servicing can have material impact on customer satisfaction.
- These two functions also have the highest scores on impact indexes (Figure 4).

Anti-money laundering is considered the most mature retail banking function

- Retail banking operations executives see anti-money laundering and payments processing functions as the most mature functions, with 94% and 90% of respondents rating them, respectively, as mature or very mature, while nearly 40% see retirement services as not yet mature.
- 98% of operational executives say that anti-money laundering is well positioned to mature further (prepared or fully prepared), and the payments processing function is close behind, at 86%.
- Mortgage servicing and retirement services rank at the opposite side of the spectrum, as about one-third of the respondents lamented their limited preparation to mature further (Figure 5).
**FUNCTION IMPACT INDEX**
Combining stated importance of challenges and stated ability of a function to address them

\[ f(x_i) = \sum_{j=1}^{n} x_{ij} y_j \]

where \( x_{ij} \) is the % of respondents who believe that improvement in the function \( x_i \) will have a material impact on the challenge \( y_j \); \( y_j \) is the % of respondents citing the challenge as among the 'Top 3'.

---

**Figure 4**

% Respondents stating the preparedness of their organization to mature a function

<table>
<thead>
<tr>
<th>Function</th>
<th>Fully prepared</th>
<th>Prepared</th>
<th>Somewhat/Not prepared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anti-money laundering</td>
<td>72</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td>Payments processing</td>
<td>44</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Retail brokerage</td>
<td>39</td>
<td>45</td>
<td>16</td>
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<tr>
<td>Account setup and servicing</td>
<td>50</td>
<td>33</td>
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<tr>
<td>Multi-channel customer management</td>
<td>43</td>
<td>38</td>
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<tr>
<td>Mortgage origination</td>
<td>32</td>
<td>46</td>
<td>22</td>
</tr>
<tr>
<td>Retirement services</td>
<td>33</td>
<td>37</td>
<td>30</td>
</tr>
<tr>
<td>Mortgage servicing</td>
<td>32</td>
<td>35</td>
<td>33</td>
</tr>
</tbody>
</table>

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**Figure 5**

n=35 commercial banking operations executives

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n=48 retail banking operations executives

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119
Most commercial banking functions are mature, but risk management and business banking operations are prepared to mature further and impact key business challenges

- Most commercial banking functions are relatively mature, with the proportions of operations executives rating them mature or very mature ranging from 94% for business banking origination/servicing to 88% for auto finance.
- Risk management and business banking origination/servicing are thought to be the best prepared to mature further, with nearly 90% of respondents rating both functions as prepared or well-prepared.
- At the opposite end, auto and equipment finance are less prepared to evolve (Figure 6).

Executives see advanced organizational structures as more applicable to evolve banks’ operating models, but BPR and technology are considered to be able to generate greater dollar impacts

- Advanced organizational structures—including shared service centers (SSC), business process outsourcing (BPO), or hybrids—are more frequently cited by retail banking operations executives as having material impact than either business process reengineering (BPR) or the radically improved use of technology.
- Notwithstanding significant variation across functions, the proportion of respondents stating that advanced organizational models can have material impact on the function is highest (or tied for highest) for five of the eight functions (Figure 7).
- On the other hand, while they tend to be less broadly applicable, technology and BPR seem to deliver higher dollar impacts (about US$260 million per annum, compared to about 160 million for advanced organizational models).

Commercial banking executives say advanced organizational structures are most likely to have material impact on business banking operations

- In commercial banking, advanced organizational structures are more frequently cited by operations executives as having greater material impact on business banking operations, equipment finance, and auto finance (Figure 8).
- The radically improved use of technology is most often seen as having an impact on risk management.
- Both technology and BPR are seen as generally having a higher dollar impact in situations in which they are applicable (about US$300 million per annum).
% of respondents stating the initiative can have a material impact on the function

<table>
<thead>
<tr>
<th>Function</th>
<th>Radically improved use of technology</th>
<th>Business process reengineering</th>
<th>BPO or SSC or Hybrid¹</th>
<th>Impact index*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payments processing</td>
<td>48</td>
<td>40</td>
<td>58</td>
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<tr>
<td>Mortgage servicing</td>
<td>35</td>
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<tr>
<td>Anti-money laundering</td>
<td>40</td>
<td>33</td>
<td>42</td>
<td>134</td>
</tr>
<tr>
<td>Multi-channel customer management</td>
<td>48</td>
<td>52</td>
<td>48</td>
<td>99</td>
</tr>
<tr>
<td>Retail brokerage</td>
<td>25</td>
<td>19</td>
<td>33</td>
<td>97</td>
</tr>
<tr>
<td>Retirement services</td>
<td>21</td>
<td>19</td>
<td>46</td>
<td>83</td>
</tr>
</tbody>
</table>

n=48 retail banking operations executives

% of respondents stating the initiative can have a material impact on the function

<table>
<thead>
<tr>
<th>Function</th>
<th>Radically improved use of technology</th>
<th>Business process reengineering</th>
<th>BPO or SSC or Hybrid¹</th>
<th>Impact index*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business banking origination/servicing</td>
<td>51</td>
<td>54</td>
<td>60</td>
<td>155</td>
</tr>
<tr>
<td>Risk management</td>
<td>51</td>
<td>46</td>
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<td>133</td>
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<tr>
<td>Equipment finance</td>
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<td>20</td>
<td>31</td>
<td>91</td>
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<tr>
<td>Auto finance</td>
<td>11</td>
<td>17</td>
<td>23</td>
<td>74</td>
</tr>
</tbody>
</table>

¹ BPO – Business Process Outsourcing, SSC – Shared Services

Function impact index* combining stated importance of challenges and stated ability of a function to address them

n=35 commercial banking operations executives

Conclusion

As the banking industry restructures in the wake of the financial crisis, COOs and other senior banking executives are focused on overcoming the challenges of proliferating regulatory requirements, a more complex risk environment, and increasing customer expectations. The researchers examined how those challenges can be tackled with three levers of operating model transformation: technology, process reengineering, and advanced organizational structures.

The related transformation of operations is an untapped strategic lever for the COO as well as the CEO. However, it is sometimes seen as a formidable undertaking.

Our experience of advanced operating models, accumulated over 15 years, clearly indicates that there are agile and practical ways to transform. The key is to design, transform, and run the processes that power advanced operating models so that they closely align with measurable business goals, thus avoiding saddling the company with unnecessary and often unmanageable complexity.
This approach focuses more rigorously on the sources of impact and deliberately disregards any practice that does not yield material outcomes. It also takes a more objective and holistic look at technology, analytics, and organizational practices.

Finally, this approach harnesses the process and organizational levers available from established disciplines, such as reengineering, shared services, outsourcing, and global delivery. We think there is a smarter way to transform operating models and address the most complex strategic challenges. This is a way for COOs to make their enterprises more intelligent and generate material impact.

This document presented the highlights of the research findings. For the full report, click here.

1 go.genpact.com/COO-banking-finance-advanced-operating-models-research14-reg.html?source%3D=Gbanner
Risk executives believe there is untapped potential for advanced operating models to address the most important strategic enterprise challenges.

About the research

In 2014, Genpact commissioned a research project conducted by an independent research firm. The goal was to assess the potential for new operating models across a wide spectrum of industry sectors and functions. More than 900 senior-level executives completed the survey. Respondents were screened based on their ability to materially influence functional decisions. This analysis complements other research and insight derived from Genpact’s experience designing, transforming, and operating business processes and operations.

This document presents findings drawn from 135 senior risk executives from across all industries, of whom 115 are from the banking, insurance, and capital markets sector. About 60% all risk executives are based in North America, predominantly with large companies with more than 10,000 employees.

Introduction

CROs and other senior executives are challenged to adapt to a rapidly changing business environment. Transforming business processes to implement advanced operating models is a big part of the solution, but process maturity levels and preparedness for transformation vary widely across business functions. The three levers of operating model transformation—technology, process reengineering, and advanced organizational structures (shared services, business process outsourcing, and hybrids thereof)—create impact differently. Genpact has examined these trends to understand how institutions are driving transformation to achieve business impact.

Risk management and regulatory compliance are the top challenges facing financial sector risk executives

- About two-thirds of financial risk executives identified risk management and regulatory compliance as the top challenges facing their company.
- Banking executives are more challenged by the need to increase customer satisfaction, and insurance executives have greater concerns about growth and stability.
- Executives in the capital markets industry pointed to decreasing capital and asset intensity as a top industry challenge more often than other industries (Figure 1).
Importance of the challenge % of executives in specific industries stating that the challenge is among the ‘Top 3’ for their company

![Image of a chart showing importance of challenges across different industries.]

- Banking
- Capital markets
- Insurance

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Banking</th>
<th>Capital markets</th>
<th>Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manage risk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure compliance to regulations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase customer satisfaction</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Reduce costs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enable agility and adaptability</td>
<td></td>
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<td>Increase growth and scalability</td>
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<td></td>
<td></td>
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<tr>
<td>Enable company’s innovation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduce capital and asset intensity</td>
<td></td>
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</tbody>
</table>

**Figure 1**

n=115 executives from the risk function

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**Stress testing has the greatest impact on risk management, but KYC and AML have significant effects on multiple business challenges**

- Financial sector risk executives identified **stress testing** as having **material impact on risk management** and Dodd-Frank compliance as the most relevant for regulatory compliance.

- Know your customer (KYC) and anti-money laundering (AML) were found to have major impact on all three industries’ top challenges.

- Impact indexes accounting for the importance of each challenge and the ability of each function to address it indicate that **KYC and AML have the greatest impact**, with an index of 127, followed by **stress testing** (115) and loan underwriting and origination (for banking; 108) (Figure 2).

Function impact index* combining stated importance of challenges and stated ability of a function to address them

<table>
<thead>
<tr>
<th>Function</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>KYC and AML</td>
<td>127</td>
</tr>
<tr>
<td>Stress testing</td>
<td>115</td>
</tr>
<tr>
<td>Loan underwriting and origination</td>
<td>108</td>
</tr>
<tr>
<td>Collections</td>
<td>105</td>
</tr>
<tr>
<td>Loan portfolio monitoring</td>
<td>101</td>
</tr>
<tr>
<td>Basel implementation</td>
<td>94</td>
</tr>
<tr>
<td>Dodd-Frank compliance</td>
<td>92</td>
</tr>
<tr>
<td>Basel II</td>
<td>89</td>
</tr>
</tbody>
</table>

*Impact of a function on a company’s challenges is defined as $f(x) = \sum x_i y_i$, where $x_i$ is the % of respondents who believe that improvement in the function $x$ will have a material impact on the challenge $y_i$, and $y_i$ is the % of respondents citing the challenge as among the ‘Top 3’.

n=115 risk executives from capital markets, insurance and banking

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**Figure 2**
Loan portfolio monitoring and underwriting along with KYC and AML functions stand out as most prepared to evolve; stress testing and Dodd-Frank compliance are the least prepared

Banking executives indicated that loan portfolio monitoring and loan underwriting and origination are the most mature functions and among the best prepared to evolve (Figure 3). Capital markets executives pointed to KYC and AML and Basel 2 and Basel implementation as the most mature (Figure 4). Insurance executives stated that KYC and AML are first in maturity and preparedness to evolve, and collections is the runner-up (Figure 5).

Executives from all three financial industries agreed that stress testing and Dodd-Frank compliance are consistently among the least mature and least-prepared functions.
Risk executives see advanced organizational structures as broadly applicable, but technology can deliver slightly greater dollar impact:

- Advanced organizational structures (SSC, BPO, or a hybrid) are regarded by a larger proportion of risk executives as having material impact on key business challenges.
- Research has shown that improved use of technology can provide the greatest financial impact where applicable, averaging $225 million annually for the risk function compared with $185 million for advanced organizational structures (Figure 6).

Figure 5

Figure 6

n=28 risk executives from insurance

n=115 risk executives from capital markets, insurance and banking
Conclusion

CROs and other senior risk executives are challenged to adapt to a rapidly changing business environment in an economy that remains unpredictable. The researchers examined how those challenges can be tackled with three levers of operating model transformation: technology, process reengineering, and advanced organizational structures.

The related transformation of operations is an untapped strategic lever for the COO as well as the CEO. However, it is sometimes seen as a formidable undertaking.

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This approach focuses more rigorously on the sources of impact and deliberately disregards any practice that does not yield material outcomes. It also takes a more objective and holistic look at technology, analytics, and organizational practices.

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This document presented the highlights of the research findings. For the full report, click here.

1 go.genpact.com/CRO-advanced-operating-models-research14-reg.html
Predictive analytics model validation: Building a model validation group to better mitigate risk

Banks are increasingly turning to predictive analytics as a key component of their risk management strategies, especially in the wake of Basel II. However, predictive models bring their own set of risks that call for specialized risk management techniques, usually delivered by a corporate model validation group (MVG). Although many institutions have set up these groups, they often lack the structure and resources to deliver on anything more than the bare regulatory requirements.

By taking a more comprehensive approach to developing the MVG, banks can further mitigate the risk of steep regulatory penalties and even capture significant business value beyond the compliance function. The following overview outlines practices that can foster the creation of an operationally independent and effective Center of Excellence (CoE) for model validation.

Creating the right model validation group

Establishing an independent and highly qualified MVG with the authority to delve into every aspect of developing and using a model across the enterprise is key to effectively managing risk.

With advances in computing technology, predictive analytics has become a universally accepted tool for most types of financial decision-making. Banks use predictive models for many purposes, and in recent years, the Basel II requirements have given banks added impetus. All too often, however, the complexity involved in modeling a wide range of real-world risks across multiple business lines has promoted organizational silos and inadequate visibility into underlying methodologies. With even more regulation now on the horizon, model governance has emerged as a critical challenge, but it also offers opportunity.

Experience has shown that a well-designed model validation function can not only facilitate compliance but also contribute broader value to the business.

The idea behind recent regulatory initiatives is to promote a more risk-sensitive capital framework by providing banks with incentives for implementing good risk management practices. Basel II, for example, gives banks greater freedom to monitor and quantify credit risk, operational risk, and market risk in specific ways. This less prescriptive approach has triggered an avalanche of new mathematical and statistical procedures. However, this growing flexibility has its own challenge: “model risk” stemming from assumptions, biases, and errors in the models themselves.
Regulators are aware of this, and they’ve set out two possible mitigation strategies. Banks can allocate capital reserves to absorb losses caused by the flawed use of models. Given the scarcity and cost of capital required, this is not a popular choice. The second option is to establish an independent mechanism for mitigating model risk through an independent model validation function, sometimes known as an MVG.

The MVG should provide assurance to senior management that the bank’s predictive models are performing within established performance thresholds. This means not only validating the performance of each model but also assessing the relevance of model specifications and the methods used to report and interpret model outputs. However, not all MVGs are created equal. The best in class are those governed by a robust and comprehensive execution standards to ensure the ongoing applicability of all models against their intended purposes.

The roadmap for success

Success in managing model risk depends on how the MVG is empowered and the extent to which the model is embedded in the corporate culture. Many banks are tempted to settle for a minimalist approach focused on merely meeting regulatory requirements; as a result, the banks fail to achieve the benefits of robust enterprise-wide risk management, and they do not recognize the growing business value of predictive models. To that end, outlined below are the six best practices for envisioning the ideal model validation group.

1) Independence

The ideal MVG is empowered by senior management as an independent team with unfettered access to every predictive model used in the business, regardless of who owns the model or what purpose it serves. Of course, regulatory authorities require the separation of model development and validation. However, the most effective teams have even greater scope, with clear lines of authority that avoid any real or perceived conflict of interest. Ideally, this team reports directly to the chief risk officer (or equivalent) with formal policy guidance from the Risk Management Committee.

2) Competencies

The MVG must possess knowledge and competencies that provide a balance of technical expertise, organizational awareness, and business judgment. Team members must demonstrate authoritative knowledge of mathematical and statistical methods. The team must also have a broad understanding of the business context ranging from regulatory requirements to the enterprises’ strategic objectives. Strong leadership and collaboration pull these individual competencies together to deliver outstanding team results in diverse business settings.

3) Framework

The MVG operates within a structured analytical and policy framework so that every aspect of each model is covered, from design to implementation and ongoing use. The framework establishes an evaluation cycle (typically annual) and directs team efforts toward the central question of whether models are performing within their established performance thresholds. The framework also ensures that each aspect of every model is systematically addressed, including factors such as conceptual soundness, consistency with regulatory guidance, alignment with industry practices, and relevance for the intended business purpose. The ideal framework also incorporates ongoing performance monitoring of each model. This includes assessment of data sources used as inputs as well as outcome analysis to test model outputs against real-world outcomes. Results falling outside established performance thresholds are then flagged for further investigation leading to possible model recalibration or redevelopment.

4) Comprehensiveness

The ideal model validation approach encompasses the full range of KPIs relevant to the business. In other words, the model should not only meet its established technical requirements but also contribute to continuous improvement of the business as a whole. Certainly, the team must be free to determine whether a model is adequate for its intended purpose. However, the team is also alert to the possibility of improvements or expansions to address additional business objectives.

5) Model inventories

The MVG should go beyond evaluating individual models to create an enterprise-wide inventory to facilitate model validation workflow. The inventory tracks when and by whom each model was validated and establishes scheduling and work assignments for the next validation. The outcomes of previous validation processes are described, along with the position of each model in its expected lifecycle.

6) Reporting

The reporting strategy should link critical findings with the specific actions required. Senior executives need to know how much confidence they can place in their overall modeling strategy and in each model. Model owners and other actors need to know how they can improve the performance of their models. Although this might suggest a customized approach for each report, comprehensiveness is still critical to meet the documentation requirements of the firm’s model validation policy. Thus, the ideal situation is to use a reporting template that calls to mind which elements are mandatory and which can be shaped toward specific needs. To carry this out effectively, MVG team members must use tact and judgment to avoid or resolve potential conflicts with model owners or developers.

---

1. A review of 2011 annual reports from 15 global banks revealed only two had reported a separate capital allowance for model risk.
Toward the implementation of MVG

Every organization is unique and has its own requirements when it comes to determining the level and complexity of the model validation requirements. Developing a best-in-class MVG is not a trivial task given the scope of change that must occur without disrupting ongoing business processes. What’s more, robust model risk management is generally only part of a broader shift toward a more comprehensive risk management culture. Since the policy and operational implications can be profound, external assistance may be required to create sustainable improvements, especially if the right resources and knowledge base are not readily available inside the organization. The impact can be significant, and durable.

Best practices for model validation teams

1. An independent governance structure, adequate authority, and clear policies
2. A collaborative team with a range of competencies and experience
3. A comprehensive framework of validation processes
4. A full toolbox of validation techniques
5. A complete inventory of all models used in the business
6. A strong reporting culture
Remediation as a Service: A cost-effective response to regulatory and strategic change

In recent years, the annual cost of client data remediations to the financial services industry has soared to hundreds of millions of dollars. This development is driven by a variety of factors, including regulatory and enforcement actions, internal policy changes, mergers and acquisitions, and technology upgrades. The tougher regulations enacted since the 2007 financial crisis have greatly increased the need for accuracy in client data. This has driven up demand for the specialists who can perform data remediation, while forcing managers to divert resources from their other compliance efforts at a time when margins are already under pressure. However, some organizations are finding that the combination of shared services and an industrialized approach enables them to perform data remediation at a lower cost—and in a more scalable, consistent, and transparent manner.

Faced with intense political pressure following the financial crisis, regulators around the world have come down hard on financial institutions—hitting firms that fall out of compliance in their client record-keeping with fines that run into the tens of millions of dollars. This crackdown comes as financial institutions already are grappling with margin pressures following the crisis, and thus are trying to stretch the dollars they allocate on traditional cost centers such as compliance, operations, IT, and risk management. As a result, many financial institutions are searching for solutions that will enable them to fulfill these new regulatory obligations—and at a lower cost than before.

For financial institutions, this combination of regulatory and business pressures is creating pain points throughout their organization. In the case of client account remediation, compliance staff may struggle to implement the appropriate policy changes, while operations faces a lumpy flow of work from forces that are difficult to anticipate. Given that institutions cannot scale these processes for a short-term remediation project, backlogs can occur—creating additional and unnecessary risks. Such backlogs can be exacerbated by internal decisions as well. This forces firms to weigh the effects of other strategic initiatives—such as the ability to create a consolidated view of each customer’s account—against the effects of potential remediation backlogs.
It is important that all stakeholders in the regulatory value chain recognize their core strengths and responsibilities—and refocus their efforts to maximize the return on allocated funds.

Complicating matters is that each of the internal stakeholders within an organization may have different needs and goals during this time:

- **Chief Executive Officers** seek full regulatory compliance with as little effect on business operations as possible
- **Chief Financial Officers** are looking to generate maximum returns from each of the allocated budgets
- **Compliance Officers** want uninterrupted compliance with rules that reflect industry best-practices and leave an easy audit trail
- **Operations Managers** put a premium on scalable and cost-efficient resources that deliver consistent results
- **Risk Managers** want transparent processes with no backlogs, continuous monitoring capabilities, and a complete audit trail
- **IT Executives** need a non-invasive solution that spans the enterprise with little or no upfront investment

To deliver the maximum value for each dollar allocated, the solution also must be scalable and make the best use of both processes and technology. For financial institutions, developing the people and technology to be able to meet these requirements—while generating maximum ROI (Return on Investment)—is no small task. However, when the solution is redrawn as part of an “as a service” model, there is a greater ability to satisfy the needs of each internal stakeholder.

To arrive at the right solution, it is important to understand what is causing the recurring spikes in remediation and renewal efforts seen across the industry. These challenges relate to two broad forces: increased regulation and the strategic changes within operations.

Of course, satisfying internal stakeholders is only half of the equation. The punitive sanctions and monetary fines issued by regulators show that financial institutions must get serious about complying with the tighter customer-data requirements. As a result, financial institutions face the daunting challenge of complying with the new regulations while also carefully measuring their policy response and financial investment in compliance programs.

When formulating a response to the changing regulations, executives and managers—particularly those in operations—must consider the following challenges:
Risk management. Managers must maintain a strong, but flexible, risk mitigation effort even as the regulatory environment changes.

Audit trail. Managers must keep a clear view of all remediation activity and make it available to auditors.

Working with multiple regulators. This includes designing large-scale remediation efforts to remain compliant with the regulatory standards set by different regulators across all jurisdictions.

Customer data. Ensuring customer-data security throughout all stages of remediation efforts.

Internal policy. Ensuring total compliance with minimal effects on normal business activities.

Technology. Integrating remediation processes with other company platforms and data vendors as part of a strategic solution.

Of all these challenges, the demand by regulators for a more robust audit trail for both internal and external stakeholders can present a particular challenge for managers leading remediation projects—particularly those that are large and complex. That said, maintaining a clear, transparent, and easily auditable remediation process is an important pillar of any remediation solution that is designed to be strategic, cost-effective and repeatable.

In addition to the costs of complying with the regulatory changes, financial institutions also are struggling with tighter margins. While some of this margin pressure is due to the restrictions regulators have placed on riskier activities like proprietary trading, there are other forces at work. Increased competition, changing customer requirements, and advances in technology are also putting pressure on the operating models of many institutions. As a result, institutions have few opportunities to reduce costs without affecting their ability to comply with the new regulatory regime.

As financial institutions reassess their current business models—scrutinizing everything from their business lines to their geographic footprint—leadership must decide the best ways to invest in people and technology to meet their objectives. When it comes to remediation, however, leaders face many tough decisions involving resources, processes and technology. These include:

Limited resources and uneven workflows:

- Determining the appropriate level of resources can be difficult when there is no clear view of the effort required for large remediation engagements
- Managing and tracking efforts effectively can be tricky once a project is underway
- Cleaning, reviewing and remediating entity data requires a staff of specialists—a solution that is not always easy to scale. However, scalability can be important given the uneven and unpredictable nature of remediation workflows
- Maintaining a workflow that’s free of backlogs can be costly, since the only alternatives are increasing permanent staff or entering into large-scale consulting engagements

Process and technology challenges:

- Many institutions that recorded rapid growth over the past decade failed to implement standardized remediation processes across business lines and geographies. This leads to a tactical response rather than a strategic one
- While there was some coordination in rulemaking by regulators from different countries, there is still a plethora of country-specific regulations that continue to change
- Projects can suffer from the lack of a sub-process view and effort requirements from internal groups
- Industry benchmarking doesn’t always exist across remediation processes
- Migrating client account data from legacy to strategic remediation platforms can be difficult
- Poor integration with other firm platforms and data vendors with limited use of new technology for remediation efforts can be common
- There is a growing need to cross-reference between internal and external client identifiers and provide flexible management of legal and other hierarchies

Operational challenges clearly indicate that remediation efforts need to adopt a new model

Clearly, operating leaders face a variety of regulatory and
strategic challenges that can conflict at times. Under the standard operating model for remediation, diverting resources to satisfy some challenges can create a need for compromise on others—resulting in a zero-sum effort. In light of the new regulatory regime, firms can no longer afford to compromise when it comes to regulatory or strategic requirements. That means the current operating model for remediation will not work going forward.

What is Remediation as a Service and how does it solve the challenges of increased regulation and the drive for strategic change faced by all financial institutions?

When performing remediation, organizations need a model that is consistent enough to ensure reliable results, yet scalable so that it can handle the uneven nature of the workflow. It must also provide optimal value to the regulatory compliance team without being overly obtrusive for individual stakeholders and their core functions—and without sucking up all of the allocated investment. The Remediation as a Service model meets these criteria. This model helps ensure that financial institutions meet their compliance requirements in a consistent and scalable way—without requiring the kind of outsized investments in people and technology that could disrupt other strategic initiatives.

Since remediation efforts are not a standard feature of the compliance process, large-scale events can place undue stress on other areas as managers shift resources from those areas to reduce the backlog of remediation work. Remediation as a Service allows firms to execute remediation efforts quickly, while removing some of the variability in long-term costs. This occurs with the use of a scalable base of experienced practitioners who employ their Lean and Six Sigma process expertise along with proprietary technology for managing remediation workflows.

**The Remediation as a Service model enables the following benefits**

- **More consistent compliance.** Uninterrupted compliance remains a firm's top priority when budgetary, operational, and IT concerns are allayed.
- **Improved response time to regulatory changes.** With less investment in staff and systems, firms can be more nimble in their adoption of new requirements.
- **The ability to tailor policies to optimize the cost of compliance.** The “as a service” model mitigates operations and technology concerns, enabling firms to focus on compliance.
- **Real-time performance monitoring with tight controls.** Remediation as a Service enables complete visibility and control, while providing a clear and accessible audit trail.
- **Flexibility.** Remediation can be performed on “Know Your Customer” and Foreign Account Tax Compliance Act (FATCA) rules, entities, documents and data, since the top-level workflow remains the same.

Remediation as a Service can **reduce operational costs by:**

- Ensuring portfolio rationalization
- Reducing rework and other operational inefficiencies
- Creating economies of scale through shared recruitment, infrastructure, IT, and other General and Administrative (G&A) costs
- Improving institutional knowledge from multiple remediation efforts and employing non-proprietary processes and data
- Enabling firms to avoid long-term investments in remediation efforts and focus instead on core activities and initiatives

**Remediation as a service concept**

- On-demand support at needed scale
- Consistent and reliable output
- Transparent real-time view
- Cost efficient
- Remediation-specific markup language-based integration
- Financial institutions

<table>
<thead>
<tr>
<th>Remediation as a Service™</th>
<th>Genpact Remediation as a Service™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparent auditable end-to-end workflow management</td>
<td>Remediation/renewable-focused batch process</td>
</tr>
<tr>
<td>Industry-experienced &amp; trained team of KYC analysts, SMEs</td>
<td>Reusable data: public screening, public KYC profile</td>
</tr>
</tbody>
</table>
By using "industrialized" operations, financial institutions can execute bulk remediation efforts while accommodating changes in the regulatory environment. The idea behind industrialized operations is to combine all of the elements of a well-run factory—analytically driven processes, superior benchmarking and metrics, cutting-edge technology and a highly organized labor pool—and create a remediation solution that is capable of delivering more to the regulatory compliance value chain. When a service provider industrializes the remediation process from end-to-end as part of the “as a service” model, the financial institution receives greater value.

**Industrialized operations—Specialized and advanced process, people, and technology practices**

The Remediation as a Service model also enables firms to take advantage of industrialized operations, a technique that uses specialized and advanced process, people, and technology practices without the need for an upfront investment.

The Remediation as a Service model alleviates the need for financial institutions to make big upfront investments while ensuring that the key benefits of global business services—including scale, process engineering, and cost arbitrage—are part of the service delivery.

**Remediation as a Service enables a provider to embed business process principles and expertise in delivery**

- A business-driven on-boarding process with activity level metrics and linkages to outcomes
- Definitions of actionable metrics across process activities and tasks
- Lean/Six Sigma-based methodology for process optimization and improvement opportunities
- Optimized cost of ongoing on-boarding and KYC/AML operations
- Quantitative and qualitative diagnostics of current remediation processes with actionable roadmap to target state, including benchmarking against industry peers
- Detailed analysis and documentation of current processes, regional regulations, and firm-specific rules related to entity risk profiling and document collection

Remediation as a Service reduces operational risks through optimized output. Effective remediation improves account data accuracy, and flexible processes enable an organization to respond easily to additional regulatory or business-driven changes. To maximize efficiency, all processes are broken out at a sub-process level and driven by metrics.

By breaking down and rebuilding the remediation process from end to end, Remediation as a Service can provide additional benefits not realized in current models:

- Matching peaks and troughs in workflow by using a scalable base of dedicated staff accessed through the "as a service" model
- Building rhythm and efficiencies by dividing remediation work into different "queues," and assigning the right work to the right person
- Eliminating variations in analyst productivity with technology that can collect data on multiple productivity indicators to create baselines for specific processes
- Ensuring full use of staff through an ongoing analysis of process utilization as a function of productive time and total time

**It is time to change the operating model for remediation work**

The challenges faced by leadership in the financial services industry highlight the need for a new type of solution.

Financial institutions must provide global regulators with the clear picture they seek—affirming their compliance across all business lines and jurisdictions, while not affecting their normal
business operations. In addition, the mandate to maintain compliance in the most cost-efficient way dictates the need for a strategic solution.

Financial industry executives expect the output from the remediation process to resemble that of a well-run factory, with consistent results and a miniscule defect rate. They also want scalable solutions with the ability to better match costs with effort. The use of industrialized operations by service providers provides the elasticity these executives seek while delivering a more effective and scalable solution for their remediation efforts.

**Balancing regulatory and strategic initiatives no longer has to be a zero-sum game.**
Multi-dimensional time series-based approach for banking regulatory stress testing purposes: Introduction to dual-time dynamics

Under the regulatory paradigm of banking risk management, banks are required to perform stress testing of internally computed risk parameters to ensure they are holding adequate capital to offset the effects of downturn events. For this purpose, most of the contemporary stress-testing practices are limited to one dimension of the calculation, where endogenous risk parameters are predicted by modeling and scenario-based values of exogenous parameters (macroeconomic variables). This approach inherently fails to consider the simultaneous impact of other endogenous variables in predicting the risk factors. This real-life limitation is approached from a multi-dimensional time series standpoint. A multi-dimensional time series approach is adopted to combine the impacts of natural portfolio dynamics (endogenous characteristics) and macroeconomic performances (exogenous characteristics) to model and subsequently predict the portfolio performance.

As part of this approach, a vintage-level model is introduced, wherein customer vintage and age in the portfolio are considered to be additional endogenous characteristics contributing to portfolio performance. The approach has been tested on live data and it has been observed that the proposed model is more accurate in predicting the portfolio performance than other contemporary approaches such as one-dimensional models, generalized additive models (GAM), cross-sectional models, two-way proportional hazard models and age-period cohort (APC) models. This approach has also been adopted and tested on several historical downturn events and it has successfully and accurately predicted the occurring events.

Problem statement
The dynamics underlying retail banking portfolios are far from simple linear systems. For example, a model to predict Net Loss for purposes of measuring capital might employ key risk identification parameters such as default rate (DR), Probability of Default (PD), Exposure at Default (EAD), Loss Given at Default (LGD) and Active Account Rate (AAR). The individual impact of
these risk parameters cannot be pre-assumed but must be derived analytically.

Components of portfolio performance can include:
- Vintage life cycle: Maturation (age based)
- Seasonality (Exogenous: time-based)
- Management actions (Exogenous: time-based)
- Competitive and economic environment (Exogenous: time-based)

In contemporary practices (including global and local regulatory guidelines), single equation-based regression models and scenario-based assessment techniques are recommended to predict an endogenous variable (dependent variable) by modeling fluctuations in exogenous macroeconomic variables (independent variables). This technique fails to consider the impact of other independent endogenous variables in performance prediction. In banking portfolio performance prediction, both endogenous (natural portfolio dynamics) and exogenous (macroeconomic parameters) characteristics either jointly or independently impact the portfolio performance.

The question is, how does one combine the impacts of natural portfolio dynamics (endogenous characteristics) and macroeconomic performances (exogenous characteristics) in determining the predictive portfolio performance?

**Approach**

Since the prediction of portfolio performance is a time-driven event (trend is modeled by using historical information and potential occurrence of a scenario is used to predict futuristic portfolio performance), this paper attempts to solve the problem by using time series analysis.

Time series is an ordered sequence of values for a variable at equally spaced time intervals. Using the time series model in addressing the aforementioned problem can be twofold:
- Obtain an understanding of the underlying forces and structure that produced the observed data
- Fit a model and proceed to forecasting, monitoring or even feedback and feed-forward control

A conventional/basic time series model looks like this:

\[ y_t = \beta_0 + \beta_1 x_t + \epsilon_t \]

where \( \epsilon_t \) stands for the residual or error terms of a single equation-based regression model. In the modern view, the error terms can also be modeled, assuming that the residuals or errors in the model follow a first-order autoregressive process.

\[ \epsilon_t = \rho \epsilon_{t-1} + \omega_t \quad \text{where } -1 < \rho < 1 \]

Time series patterns can be described in terms of two basic classes of components: trend and seasonality. The former represents a general systematic linear or non-linear component that changes over time and does not repeat. The latter may have a formally similar nature; however, it repeats itself at systematic intervals over time.

These two general classes of time series components are expected to coexist in real-life historical performance data for a retail bank. For example, customer probability of default in the credit card portfolio of a retail bank can rapidly grow during stressed periods (economic downturn), [3] but they may still follow consistent seasonal patterns (e.g., as significantly low default tendency during festive events such as Halloween, Thanksgiving, Christmas, etc). In real life, modeling these two trends together is not easy, since a lot of performance-related data problems are multivariate and dynamic in nature [1]. For example, how is the performance of a mortgage portfolio related to the aggregate economic performance of the country? In this example, it is possible to write a single equation by considering customer default as the dependent variable and macroeconomic parameters as independent variables. But it is likely that in this example there is simultaneity, and that potentially there exists a second equation between the roles of independent and dependent variables.

In the above example, macroeconomic performance indicators are exogenous, whereas default tendency is an endogenous variable. One would expect that additional factors that may explain change in the composition and sensitivity of the portfolio are endogenously and dynamically related to the portfolio performance.

The conventional practice of single equation-based regression models (for predicting portfolio performance) generally ignores the fact that for endogenous dynamic relationships, there is either explicitly or implicitly more than one regression equation [1]. One may choose to continue estimating a single regression and hope that statistical interferences are not too flawed, or decide to estimate a multiple-equation model using a variety of techniques. The need for these dynamic multiple-equation models stems from two very common realities in the risk prediction models. First, variables simultaneously influence one another, so both are referred to as endogenous variables. Second, when considering the relationship among multiple dependent variables (a multiple-equation system may or may not have the same number of endogenous or dependent variables as equations), the unique or identified relationships for each equation of interest can be made only with reference to the system as a whole. Properly determining these relationships requires that information from all equations be used. For identification, there must be enough exogenous variables, specified in the correct way, in order to connect all the equations in a system and the estimate. Estimation requires that exogenous variables from the entire system be used to provide the most unbiased and efficient estimates of the relationships among the variables as possible.
If the customer default rate (PD or DR: dependent variable) is considered to be impacted by two endogenous variables such as customer delinquency status and loan utilization ratio, and exogenous variables such as bureau variables, the equation may stand as [2],

\[
DR(a,v,t) = \beta_m(v) f_m(a) e^{\alpha_g(v)g(t)}
\]

where \(DR(a,v,t)\) is the dependent variable, influenced by two endogenous variables such as loan utilization ratio \(a\) and customer delinquency status \(v\) and exogenous bureau variables, which are a function of calendar date \(t\).

In this equation, \(a\) is the utilization ratio of the customer and \(f_m(a)\) is the function of the utilization ratio. \(\beta_m(v)\) and \(\alpha_g(v)\) are the functions of delinquency status \(v\).

\(f_g(t)\) is the exogenous function of calendar date \(t\), - which can be modeled by using bureau parameters as independent variables.

A multiple-equation time series model [1] can be developed by considering the simultaneous equations (SEQ) paradigm. Model-building with SEQs is based on taking the representation of a single theory or approach and rendering it into a set of equations. Using a single theory to specify the relationships among several variables leads to the identification of exogenous and endogenous variables. The exogenous variables are those that are determined to be outside the system or are considered fixed (at a point in time or in the past), i.e., bureau variables, macroeconomic parameters, etc.

Individually, each of these endogenous and exogenous variables holds a relationship with the default rate (either linear or non-linear). i.e.,

1. \(DR_i(a,t) = \omega f_m(a) e^{\epsilon t} \) ................................(1)
2. \(DR_j(v,t) = \beta_m(v) e^{\alpha g(v) g(t)} \) ................................(2)
3. \(DR_k(t) = e + \nabla t_1 + \nabla ^2 t_2 + \nabla ^3 t_3 + \ldots \) ................................ (3), where \(t_1, t_2, t_3 \ldots\) are macroeconomic parameters and \(\nabla, \nabla ^2, \nabla ^3 \ldots\) are their respective coefficients.

Equations 1, 2, and 3 can be combined by using exogenous variables, i.e., calendar time \(t\) of macroeconomic parameters, to derive a consolidated equation:

\[
DR(a,v,t) = \beta_m(v) f_m(a) e^{\psi(v) g(t)} \] .......................... (4)

**Dual-time dynamics**

**Introduction**

The question of “how does one combine the impact of natural portfolio dynamics (endogenous characteristics) and macroeconomic performance (exogenous characteristics) in determining the predictive portfolio performance?” can be addressed through the vintage concept.

Dual-time dynamics (DtD) [2] is a method of analyzing simultaneous time series effects on risk parameters. DtD operates on vintage data to create scenario-based forecasting models for retail loan portfolios. Vintage performance is measured at regular intervals from the origination date.

DtD separates loan performance dynamics into three components:
- A maturation function of months-on-books (endogenous),
- An exogenous function of calendar date
- A quality function of vintage origination date (endogenous)

Of these three, the exogenous function captures the impact from the macroeconomic environment.

Dual-time dynamics measures factors driving portfolio performance from historical performance data. The lifecycle, environment, and vintage quality components measured by DtD provides a unique view into the factors driving portfolio performance. These models are biased towards the selected model variables and the performance period of the data used to train the model. DtD makes no assumptions about which factors drive portfolio performance. Instead, it measures performance along the dimensions of age, time, and origination date.

Dynamics such as lifecycles and seasonality tend to be stable over time, enabling users to focus on marketing and economic scenarios to drive forecasts.

Separating portfolio drivers into lifecycle, vintage quality, seasonality, policy changes, and economics provides unprecedented flexibility in using scenarios to drive portfolio forecasts. Banks can choose economic indicators for forecasting and specify origins plans. Scenario components are underlaid to produce forecasts. Banks can run forecasts against multiple economic scenarios to stress test portfolios [3] and DtD can quantify the amount that each scenario component contributes to the forecast.

DtD studies the rate of events occurring in aggregate rather than individual events such as default or early repayment that occur at the account level. The idea is that the rate of events \((r)\) is a function of the age \((a)\) of the account, the vintage origination date \((v)\), and the calendar time \((t)\).

DtD separates loan performance dynamics into three components:

**Computation technique**

With DtD, the dependent variable \((y)\) (performance rate can be Probability of Default (PD), Loss Given Default (LGD), Exposure At
Default (EAD), Expected Loss (EL), Active Account Rate (AAR), etc is represented as a combination of three separate functions:

Vintage-level Performance Rate = (Maturation Function of Month-On-Book) x (Exogenous Function of Calendar Date) x (Quality Function of Vintage).

**Model structure and assumptions**
- Assume a mathematical form of the model to estimate, i.e.,
  \[ y(a,v,t) = f_m(a) \cdot f_g(t) \cdot \beta_m(v) \cdot \alpha_g(v) \]
  - \( f_m(a) \) is the maturation function of MOB \( a \)
  - \( f_g(t) \) is the exogenous function of calendar date \( t \)
  - \( \beta_m(v) \) and \( \alpha_g(v) \) are the quality functions of vintage \( v \)
- A potential form of the relationship could stand as:
  \[ y(a,v,t) = \beta_m(v) f_m(a) e^{\alpha_g(v) f_g(t)} \]

**Modeling fitting: Non-parametric estimation of \( f_m(a) \), \( f_g(t) \), \( \beta_m(v) \), \( \alpha_g(v) \)**
- As the functional form of \( f_m(a) \) , \( f_g(t) \) is unknown, the values of \( f_m(a) \), \( f_g(t) \) are to be estimated
- Estimation is done by using an iterative non-parametric technique with a proper convergence criterion
- Proper convergence criterion are set with a presumed error bound on the Mean Square Error (MSE), the range of which may vary based on the quality of data

**Model fitting: Parametric estimation of \( f_m(a) \), \( f_g(t) \)**
- Establish a parametric relationship between age and \( f_m(a) \)
- Build a relationship between \( f_g(t) \) and macroeconomic factors
- Forecast maturity for a given age using \( f_m(a) \) model (using the classical approach, e.g., exponential smoothing)

**Model execution: Estimation of \( y(a+1,v,t+1) \)**
- Using the relationship of \( f_g(t) \) and macroeconomic factors to estimate \( f_g(t+1) \) under different stress scenarios (bank-developed / regulator-guided)
- Get \( f_m(a+1) \) from the forecast of maturity
- Plug the value of \( f_g(t+1) \) and \( f_m(a+1) \) into the DtD model to estimate \( y(a+1,v,t+1) \), i.e., stressed risk factor

**Results and interpretation**
- Figure 1 shows the distribution of the observed default rate across time and vintage. This is also the combined effect of maturation (credit life cycle: top plot in Figure 2), exogenous factors (environment, i.e., macroeconomic parameters: the bottom plot in Figure 2), and the vintage quality (credit quality: the right-hand side, mid-plot in the above representation) on the default rate (dependent variable), which is decomposed into three mutually independent dimensions. Broad steps followed are:
Results and interpretation

1. Separate estimation of the independent effect of maturation, exogeneity and vintage quality with a non-parametric approach (as explained under Computation technique).

2. Model these independent effects under combined impact on the default rate through a parametric estimation approach.

3. Express the default rate with the parametric forms of maturation, exogeneity and vintage effect.

Below are the ways through which the results are attained:

**Parametric estimation of maturation curve**

- The non-parametric estimates of the maturation function, $f_m(a)$ and the exogenous function are to be obtained from an iterative process and then modeled parametrically.
- $f_m(a)$ would be modeled with age, $(a)$ and $f_g(t)$ with the exogenous macroeconomic variables.
- These parametric models of $f_m(a)$ and $f_g(t)$ would be used for forecasting and scenario generation.
- Theoretically the best fitting model for $f_m(a)$ comes out to be a polynomial of degree 6 (as per analyses base data). However, forecasting the high-degree polynomial may yield misleading results because of high variance in the data near the tail (Figure 3); thus it is not recommended.

- The $f_m(a)$ graph has been split into two parts and models are fitted for both the parts separately as shown in Figure 3.

**Parametric estimation of exogenous curve**

- To obtain the parametric relationship of $f_g(t)$ with exogenous factors, different macroeconomic predictors are collected from external sources.
- Due to the time series effect the lag correlation with lag of 0 to 6 months is calculated. The factors which are highly correlated with $f_g(t)$ are taken with corresponding lag.
- Log transformation on actual value of macro factors is also used to obtain an efficient set of predictors.
- The exogenous function of calendar time is modeled with selected macroeconomic factors. By replicating the impact on macroeconomic parameters during historical downturn events, futuristic scenarios are generated by using the scenarios’ default rate (dependent variable), predicted by using the modeled exogenous curve.
- Simple linear regression is used to explain $f_g(t)$ with the macroeconomic parameters.
- Based on the sample data, R-square of the $f_g(t)$ model came out to be 66.15% (Figure 4).
- The comparison of actual and predicted default rate presented in Figure 5 explains the strong predictive power of the model.
Figure 3

Figure 4
Conclusion

The dual-time dynamics technique adopted for predicting retail portfolio performance can not only consider multiple time series effects across portfolio dynamics and environmental fluctuations on portfolio risk parameters, it also overlays additional layers above standard one-equation macroeconomic regression models, thus reducing modeling error residuals. Furthermore, since this approach assumes that within a given vintage customers share the same maturation and exogenous curves, granular environmental impact can be assessed in detail at independent vintage levels.

The DtD methodology has been tested across the globe on several portfolios, specifically on the retail segments. Its forecast remained consistent and apt through the 2001 global recession, the 2003 Hong Kong SARS recession, the great U.S. recession in 2009 and the 2009, global financial crisis. Furthermore, it has been used to successfully back-test the Asian economic crisis of 1997.

References

HOW BIG DATA WILL TRANSFORM THE EQUIPMENT FINANCE INDUSTRY

The equipment leasing and financing industry has yet to realize the benefits of big data developments on a substantial scale. However, this is beginning to change as the potential for advanced analytics becomes increasingly clear to industry leaders, along with lessons from similar industries. The Equipment Leasing and Financing Foundation (ELFF) commissioned Genpact to carry out a forward-looking study of the potential benefits for the industry.

“Big Data: A Study for the Equipment Finance Industry” draws on Genpact’s experience as a global leader in business process and technology management services and big data analytics implementation. This article provides additional insight into these research findings and explores the value of analytics as a business process that supports equipment finance operations.

BIG DATA AND THE EQUIPMENT LEASING AND FINANCE INDUSTRY

The equipment leasing and finance industry has emerged from the economic downturn with renewed vigor. Now the industry faces another challenge. Today’s uncertain market has intensified competition, pressuring firms to cut costs while at the same time customers have grown increasingly cautious. Leading firms are meeting these challenges with more sophisticated systems for understanding market trends, achieving customer insights, and building operational agility. The need to operate “smarter and faster” is frequently acknowledged but less often realized because efficient decision-making increasingly requires consolidating and analyzing massive volumes of business information. This is where big data is most often discussed.

The fact is, the task of integrating large amounts of disparate information from multiple sources—in real time—has overwhelmed traditional database technologies. Big data tools solve this problem with advanced software running on massive parallel computing systems, typically “commodity clusters” of existing low-cost systems. The challenge for every industry lies in developing a practical plan to take advantage of the wealth of data that is now available.
Taking cues from the banking and financial services industry

Industry advances in data management have enabled the nuanced analysis of millions of terabytes of data, highlighting clear and actionable patterns from what was, until recently, information overload. The banking and financial services industry in particular has been a leader in the use of big data analytics, especially in customer engagement and risk management.

The following are some of the key focus areas:

- **Fraud detection**: Predictive analytics detect unusual spending behavior, enabling rapid customer contact when warning signs appear
- **Risk management**: Integration of customer data from new sources broadens the scope of traditional credit ratings
- **Personalization**: Big data analytics compensate for the loss of personal interaction over online channels by creating 360° customer views and targeting customized product offerings
- **Predicting customer behavior**: Advanced analytics reveal customer needs and enable up-selling and cross-selling opportunities
- **Emotional connections**: Sentiment analysis can capture customer feedback through social media and other channels to react quickly in order to resolve complaints and design loyalty programs

The payoff for equipment leasing firms

Big data computing has considerable potential for the equipment leasing business today, and in the longer run is positioned to transform the industry. As the ELFF study puts it: “The use of big data by equipment leasing and finance firms may result in a more comprehensive understanding of markets, customers, channels, products, regulations, competitors, suppliers, and employees.” Applying predictive analytics—the engine of big data—is limited only by a firm’s capacity for innovation. When decision-making is supported by actionable insights drawn from real-time data, equipment leasing and finance companies can achieve more responsive deal structuring, more robust risk assessment, and an improved customer experience. All of this adds up to a healthier bottom line.

Big data analytics enables improved decision-making through several modes. It creates transparency by analyzing and delivering all relevant information over networks that can provide superior visibility into the business. It enables real-time assessment of data from multiple sources, revealing previously unseen patterns. Advanced analytics can even build models to test hypotheses and enable simulation of proposed business models and strategies. The result can not only be better products and services but also the creation of entirely new offerings.

Best practices for implementation

The ELFF study of applications in parallel markets reveals several best practices to guide big data implementations. The most significant takeaway from this research is the importance of assessing potential scenarios for big data implementation using an end-to-end, enterprise-wide approach. The goal is to create a flexible framework that can accommodate evolving objectives across the business over time, while ensuring the scalability and cost effectiveness of the data-to-insight-to-action process. In short, there is increasing evidence that analytics must be treated as a business process, and can be “industrialized” to enable embedding the analysis at scale within the enterprise. Other best practices include:

- Engage stakeholders for each business objective, cutting across specialized functions to achieve a holistic perspective. Consider organizing stakeholders into brand teams who want to understand customers better
- Consolidate what is known about existing data elements and then integrate new information sources, with the understanding that the implementation must adapt to new realities as they become apparent
- Identify every data type and source that can materially inform business decisions while simultaneously exploring opportunities for cross-links and aggregation strategies
- To yield maximum returns, infrastructure investments must be carefully planned, starting with an assessment of alternative deployment models, including deciding between off-the-shelf big data platforms or an in-house infrastructure (such as a commodity cluster)

A key success factor is leadership from the C-suite. Top-level engagement is needed to cut across organizational silos and
to bring together the right combination of stakeholders, data analysts, and information specialists to ensure that the project stays on track to meet its goals.

**Taking a strategic approach**

Big data analytics is rapidly entering the mainstream of management tools as intelligent enterprises search for new ways of generating business impact. Big data technologies have evolved rapidly over the past few years, reaching critical mass only around 2011, and gaining increasing traction since then. The ELFF study found that, globally, 64% of companies have already invested in some aspect of big data or say that they plan to invest by 2015. This includes equipment leasing and financing firms that want to separate themselves from the pack. These firms stand to reap substantial rewards, provided they strategically plan implementation, focusing investment on tools that align with existing business objectives and long-term goals. This means prioritizing business challenges and systematically applying the proven techniques of big data—starting, of course, with the applications that offer the biggest payoffs, but also clearly focusing on an operating model that can effectively embed analytics into the fabric of business operations. **Analytics is not a task—it is a business process supporting others.**
According to the MBA (Mortgage Bankers Association), per-loan costs have increased nonstop over the past two years. In the group’s most recent mortgage banker performance report, production expenses stood at $8,025 per loan, an increase of 38% from the first quarter of 2013. The cost increases largely have come from new compliance requirements and a rigid cost structure unable to scale with the market. Meanwhile, competitive pressure on lenders has surged: overall mortgage origination volume is 54% lower than last year, according to the MBA.

Operational flexibility has become critical for lenders hoping to thrive during these trying times. Except for the largest lenders, however, few are equipped to independently make the necessary ongoing investments in technology, process improvement, and infrastructure to identify and execute transformational programs that can reduce costs and restore profitability.

The problem stems from a poor understanding of the end-to-end lending process and inadequate operating models. In effect, lenders have gravitated toward solutions that optimize and overly "build" only part of the value chain while depriving themselves of the flexibility they need during market shifts. Ebbs and flows in the market traditionally have been met with endless cycles of hiring, training, and layoffs as needs change.

Smaller lenders have been particularly affected. Without a large staff to ensure comprehensive, up-to-date interpretation and implementation of the morass of regulations, this group is faced with some tough decisions. This is leading to historic levels of M&A activity, which in turn increases volatility.

The next generation of operating models

One trend emerging from this perfect storm is a new kind of operating model delivered through BPO. Over the past decade, lenders have increasingly outsourced parts of their operations as a means of reducing costs and improving overall efficiency. Whether outsourcing one or several parts of their business, lenders have gained access to specific business expertise while leveraging onshore or offshore labor resources. Yet as of late, lenders have found that BPO providers are susceptible to the same market pressures and risks as lenders and have not been spared from rising costs. This has increased prices and strained many BPO/lender relationships. As a result, now is the time to rethink business process outsourcing.
The next generation of BPO involves a more holistic approach to the problem. Business Process as a Service (BPaaS) was created to provide any type of horizontal or vertical business process delivered through a cloud-computing environment. It is somewhat similar to Software as a Service (SaaS) solutions that have grown in popularity over the past several years. Instead of just delivering software, however, BPaaS delivers a technology-enabled process or activity in the mortgage chain.

Through BPaaS solutions, lenders can pick and choose processes that match their business policies or those of their partners. For example, BPaaS solutions can include managing email, invoices, or compensation. The solutions themselves are totally configurable depending on the exact process that is needed.

**BPaaS vs. BPO**

BPaaS evolves BPO into a more advanced end-to-end operating model. It differs from traditional BPO in that BPaaS providers provide lenders with technology platforms that multiply the value of process reengineering and often employ “gain share” or “value share” concepts instead of traditional “per FTE” pricing. These concepts align incentives and ensure that both parties are invested in the relationship’s success.

By harnessing technology and analytics so they strictly match up with a lender’s strategic business goals, BPaaS models enable the transformation to a truly intelligent and agile lending operation. The benefits of a collaborative BPaaS model are proven, and the results are significant.

**How BPaaS works**

The BPaaS strategy focuses on reaching clearly identified business outcomes through delivering optimized operations that leverage best practices, best-in-class technology, and cost-effective labor.

**Built-in best practices.** While every lender would like to be unique, the reality is that investors view every 30-year fixed loan essentially the same. When lenders are recognized for their business processes, it’s usually for something negative, such as when errors or omissions occur. A BPaaS strategy ensures that current best practices are incorporated into every business process, resulting in consistent, predictable accuracy and excellence.

**Cutting-edge technology “for life.”** It is difficult for lenders to keep up with changes in technology, and it is especially difficult to scale IT personnel costs relative to volume. A BPaaS strategy lifts this burden from lenders since the BPaaS provider assumes responsibility for updating the underlying technology and optimizing it specifically to cost-effectively engage the staff segment of the advanced operation. The lender benefits from having the best technology without the IT staff overhead to update and maintain it.

**Optimized throughput and cost via global resources.** While onshore outsourcing can offer cost savings, the nation’s largest lenders have embraced offshoring for select business processes. This group has benefited the most through programs that started as purely “cost arbitrage” but evolved to focus on quality, growth, and compliance. Because processes can be ordered a la carte, and with the provider’s costs spread out over multiple lenders, BPaaS models offer smaller lenders the same advantages at affordable costs. The playing field becomes truly level.

By unlocking the top-line benefits of flexible business operations based on a BPaaS model, lenders can successfully address the challenges presented by rising costs, thinning margins, and increasing regulations. Our advice is to pay attention to the year ahead. We will see many more lenders finding substantial benefits through business process outsourcing as a service, and BPaaS will become a familiar term to everyone who is interested in controlling costs and maximizing profits.

This has been authored by Matt Woods, Vice President, Mortgage Services at Genpact. For more information, visit [www.genpact.com/mortgage](http://www.genpact.com/mortgage) © Genpact 2015
Retail banking customers are quickly and steadily moving from branch visits to a more varied range of avenues—that increasingly include digital—to conduct banking activities. Customers now expect seamless access to their banks through multiple channels. That access is proving to be a differentiator in the industry and requires retail banks to invest significantly in digital channels. These developing digital strategies also offer the potential for significant cost-savings along with increased customer satisfaction and profitability. However, capturing this value requires an entirely new level of operations planning that must include more robust and effective technology and processes in the back office delivered through an integrated operating model.

**Retail banking’s response to the rise of the digital consumer**

Over the last decade, the source of differentiation and value creation in the minds of retail banking customers has conclusively shifted from products and pricing to customer experience. Retail banks have taken notice, as indicated in a recent survey in which 83% of retail banking leaders indicated that multi-channel management has a significant impact on increasing customer satisfaction. However, the challenge for the banking industry has been the increasing number of digital avenues customers use to interact with their banks. Customers now conduct more than 50% of all transactions outside the branch, through alternative channels such as web, chat, mobile, or even social media, and this number is expected to reach 75% by 2020. The growing acceptance of these channels across all age groups and income levels has prompted banks to increase investment in their multi-channel capabilities. The effect is most visible in the front end, as websites are now rich in features and functionalities, ATMs use enhanced user interfaces and one-to-one marketing, and mobile apps are widely available. In addition, banks are investing in digitizing through “teller-less” branches, digital walls, interactive work benches, video conferencing between customers and advisors, and some of them are even launching entirely branchless banking options.

1 Survey conducted across senior executives and management selected based on their ability to make or materially influence operating model decisions in the Retail Banking industry

2 Genpact analysis of customer views and data
The response is uneven

Although front-end capabilities have undergone a transformation, back-end systems and processes have not kept pace. Banks remain organized by different business lines with separate owners, systems, and P&Ls. Change-the-bank initiatives in the back office are often stalled due to multiple IT systems with duplicate functions and data repositories. This bifurcated evolution of the front and back office, coupled with the sequential addition of alternate channels, often without an organization-wide, multi-channel strategy, has prevented banks from fully benefiting from their investments.

The ideal solution is to rewire the bank’s IT systems and replace the entire technology architecture with a more nimble platform that can serve as a cloud-based master repository across different lines of businesses. This transformation would provide a single view of the customer, and not only incorporate input from different channels, but also track customers and learn how they navigate channels. However, this type of transformation requires significant investment over a long horizon, and as a result, a staged approach tends to be more common.

Ring-fencing the customer service organization as the first step

Due to the challenges involved with large-scale transformations, some banks are ring-fencing the customer services organization, focusing on upgrading call centers into “contact” centers that serve customers across multiple channels. Contact centers help fulfill a critical need for human interaction when customers experience a disruption in their cross-channel journey. As a result, these banks are more adept at serving customers in today’s environment. However, many still face significant challenges in continuing their transformation, including the following:

- Fragmented technology architecture, resulting in the lack of a single view of the customer
- Limited knowledge of customers’ channel preference and usage behavior, resulting in suboptimal cross-sell/up-sell
- Limited or no capability to use social media for customer servicing
- Lack of adequate training for agents to handle customer interactions across multiple channels, leading to lower first-touch resolution and agent utilization
- Insufficient data quality and analytics functions to leverage the data collected

Using advanced operating models to create greater customer centricity

Addressing these challenges for every customer of a bank can be arduous and must be prioritized. Two levers become important for addressing these challenges practically within a contact center environment. The first is creating clarity regarding the alignment of the segments, products, and channels, and the second is creating customer centricity across channels through technology, analytics, and operations.

Although the first part of the equation is routinely addressed by strategy groups and business leaders, the second still often suffers from weak, defensive approaches to transforming operations. It is critical to leverage advanced operating models aggressively and strategically to “industrialize” the customer centricity required from the contact center. For example:

- Analytics is often the most under-leveraged area within a contact center. As banks look to mine the significant amount of transaction data, intimate knowledge of prioritized customer segments helps identify the right sources and creates a hypothesis-driven approach to generating insights and identifying patterns. Very often, organizations fail to realize that analytics has limited power unless tightly woven into the fabric of business processes, and the analytics work itself is typically a process that can be industrialized.
- Technology in the short- to medium-term will continue to be a combination of different systems and platforms. Banks will have to proactively shape this ecosystem with CRMS at its core, supported by ancillary systems in telephony and niche areas such as speech analytics. This ecosystem can help the contact center develop into a center of excellence, while broader technology inefficiencies continue to be resolved. Just like analytics, the issue with technology is often insufficient understanding of the end-to-end process by IT decision-makers, resulting in solutions that optimize only part of the value chain, and often overly “build” the solution, depriving it of the required flexibility to accommodate future rapid evolutions.

This ecosystem can help the contact center develop into a center of excellence, while broader technology inefficiencies continue to be resolved.
• Operations should be the sole focus of analytics and IT, aiming at the most efficient, effective, and agile solution for “moving the needle” of the core metrics that influence the most material business impacts. A highly metricized operation, clearly identifying the practices that generate material business impact, can be the best “true north” for advanced technology and analytics as well as more traditional business process reengineering and organizational models such as shared services, outsourcing, or hybrids. Transforming processes to harness technology and analytics so that they strictly align with strategic business goals results in a truly intelligent bank, able to transform more effortlessly and then run more effectively, efficiently, and agilely.

As banks increasingly rely on more intelligent operations to bring the front-to-back office processes into the digital age, many are turning to knowledgeable and experienced partners to help in this process. The main reason is that practices evolve so fast that developing those competencies in-house—and executing on them—is very often inefficient from a time and cost standpoint, especially since the changes will be continuous. In addition, experience shows that developing fully integrated multi-channel customer contact centers through partnering can reduce operating costs by as much as 10%. Developing advanced analytics capabilities can enable banks to cut marketing campaign costs by as much as 30% while improving ROI on multi-channel investments by up to 20%. Possibly even more importantly, a partner with a thorough and proven understanding of the “art of the possible” of vendors, technology innovation, customer engagement and risk management, and data-driven analytics can be the deciding factor in whether a change-the-bank initiative is effective in the short term. This aspect, although traditionally important, is particularly vital now that missing a two-year window to recover from a botched transformation can affect banks’ profitability more profoundly than ever before.

Figure 1: Advanced operating models in which economic value is created by the integration of process, technology, and analytics.
Creative solutions to building a business: Launching a leasing company from scratch

With relentless competition driving product innovation, the need for manufacturers across industries to provide asset financing directly to their end customers is steadily increasing. Additionally, the equipment financing industry in general is seeing two key trends: First, new growth is being driven by emerging economies like LATAM and Asia—for example, China’s equipment leasing market has expanded 30-fold during the last five years, with estimated $300 billion in assets.\(^1\)

Second, in established markets, growth is projected to be driven by specific and niche asset classes, with traditional equipment—such as IT and construction—likely to see slower growth rates. For example, as per an ELFA report, spending on IT equipment in the United States in 2012 averaged 2.3% of GDP, as compared to a 5.3% 10-year average. Considering these emerging trends, captives of original equipment manufacturers (OEMs) and startup equipment financiers need to find creative solutions to build their businesses as they embark on their equipment finance journey.

Operating models that enhance the ability to launch flexible product offerings and create operational capacity for introducing value-added services, like fleet and insurance, is the need of the hour. With financiers increasingly entering new geographies—such as Europe, China, Latin America, Asia or Australia—finding local financing partners is becoming all the more time-consuming and challenging, further driving the need to create a radically evolved business unit which enables scale and speed to market.

Emerging financiers face several challenges when starting their financing operations:

- **Setting up a new lending business (especially for non-finance companies):** For captive OEMs, asset lending is a far cry from running a manufacturing business. Captives and startup financiers face typical challenges such as establishing a technology platform, managing credit assessment and building operations teams from scratch. If they get the assessment of the borrower wrong they could end up with a lot of non-performing assets and a bad book. Established

\(^1\) Alta group website
banks and finance companies are naturally adept at evolving in this space but it is not the core strength for an organization starting up afresh.

• **Understanding the 'nuts and bolts':** As financiers set up their asset financing function, fulfilling some fundamental requirements like creating lending policies, defining procedures, setting up processes, accounting books, system configurations, reporting frameworks and sub-contracting can become daunting tasks, especially when there is limited know-how in-house.

• **Building scale to sustain:** Keeping pace with the parent manufacturing entity’s geographic reach is a goal for captives; availability of financing programs is a primary driver impacting product sales. The traditional approach of building lending operations hinders a startup’s ability to build scale quickly.

• **Large capital outlays:** In order to meet hiring, infrastructure and regulatory requirements, potential lenders face huge capital outlays from investment in people, software, hardware, retrofits and platform upgrades. This leads to major cost challenges from day one. Achieving the clarity to sharply focus investment capital to maximize returns can be a game changer.

• **Understanding the ever-changing regulatory maze:** Equipment lenders entering the business must comply with multiple regulations, many of them vague and conflicting. These include the Dodd-Frank Act, the Equal Credit Opportunity Act, the Bank Secrecy Act and the Fair Credit Reporting Act. Noncompliance can result in penalties, and despite the uncertainty surrounding many of the regulations, any program investments must be acceptable to auditors many years down the road.

• **Linear cost structures:** Creating a business model where operating costs do not increase in proportion to the increasing asset base is an important differentiator. Limited application of "best in the industry" practices restricts the ability of startups to fundamentally alter their cost structures.

**The new ideal: Powerful partnerships**

For lenders entering the equipment financing business, strategic partnerships can often provide effective and efficient solutions to meet strategic and financial objectives. The overarching drivers to embrace a partnership model are based on core fundamentals, like the ability to focus on creating tailored financial products, drive product sales (captive OEMs), raise capital and manage credit/residual value risks. This calls for partnering with strategic vendors that bring to the table in-depth experience in managing lending operations and a state-of-the-art technology offering.

Interestingly, partnerships not only free up management bandwidth, but also enable financiers to scale up or scale down operations rather quickly. Since non-core business operations are managed by expert partners, financiers can intensely focus on managing the core elements of the business and their customers.

Partners with global scale and deep domain expertise in equipment financing can provide *complete back office in a box* solutions. Their offerings include services such as writing policies and procedures required to run day-to-day operations, creating complete operating processes with metrics, and then hiring experienced teams comprised of risk managers, operations, accounting and technology experts.

The key points to keep in mind for financiers evaluating strategic partnerships:

• **Partner with deep domain knowledge:** Creating a part of the lending organization outside your four walls comes with built-in operational risks.

  What becomes critical, therefore, is identifying a vendor that understands the ‘nuts and bolts’ of running operations. This includes deep process level understanding, adept use of analytics tools, clear definition of metrics and a well-defined governance mechanism to track day-to-day operations. Multiple transformations have been collaboratively led by partners and financiers in their journey toward collectively building robust financing operations, through a combination of process, analytics and technology interventions. Some examples include:

  - **Asset financiers have improved their deal conversion rate by 5% to 8%, through a 50% reduction in cycle time driven by an improved risk notification process, multiple modes of deal submission and a dedicated deal closure team**

  - **Built-in ‘early warning signals’ in the credit and portfolio management process reduced losses by up to 15% to 20%**

  - **Eliminating rework in the booking and documentation processes reduced operating costs 8-12%**

• **Create a business model that facilitates product innovation:** The very genesis of creating partnerships is to build flexibility to launch innovative products, product variants and differentiated offerings. A combination of a proficient technology platform and a strong operational framework can bring the required product innovation across geographies.

  For example, by implementing a partnership model, a startup financier was able to launch its asset finance business, with geographically customized product variants, on three continents within a span of 18 months.*

• **Technology platform simplified:** Strategic vendors bring innovative technology solutions with no high upfront licensing fees. * Instead, for just $25,000 to $50,000 per month tied to business volume growth, businesses get what

* Genpact insights
they need without compromising on features or functionality. Financiers get a complete suite of products ranging from dealer portals, front/middle-office systems, seamlessly integrated back-office solutions, and invoicing solutions integrated with the general ledger.

- **Partnerships that facilitate speed to market:** A partnership model enabled a U.S.-based equipment manufacturer to launch its financing operations in just three months from scratch!* Creating management bandwidth to focus on core deliverables can facilitate market expansion that is not possible to achieve through traditional methods of building a large portfolio across geographies.

- **Ability to radically reduce the cost of setting up and running operations:** The paradigm shift is from large upfront investments to cloud-based, ‘pay-per-drink’ models. Transitioning from heavy capital expenditure to variable pricing models results in reduction of end-to-end operational costs by 30% to 60%.*

  For lenders entering the equipment financing business, strategic partnerships can often provide effective and efficient solutions to meet strategic and financial objectives. This calls for partnering with strategic vendors that bring to the table in-depth experience in managing lending operations and a state-of-the-art technology offering.

- **Experience in program management at a global scale:** Strategic partnerships give startup financiers the benefits of instant economies of scale. A vendor with proven ability to execute large-scale projects is critical when an equipment financier is looking for a long-term and globally deployable operating model.

Starting equipment lending operations once required considerable time and resources, but now the entrance of third-party providers has enabled financiers to mitigate many risks associated with launching operations. Lenders with funding sources in place and an option to partner in the creation of a turnkey solution bring the benefits of direct customer lending in a quicker, more cost-effective manner with lower risks.

* Genpact insights
Analytics in banking

Conquering the challenges posed by data integration, technology infrastructure, and right talent to operationalize analytics in banking

Analytics is helping the banking industry become smarter in managing the myriad challenges it faces. While basic reporting and descriptive analytics continue to be a must-have for banks, advanced predictive and prescriptive analytics are now starting to generate powerful insights, resulting in significant business impact.

Advanced analytics-backed solutions are enabling banks to not only manage the increasing cost of compliance, but also the risk (both monetary and reputational) of noncompliance. Product and portfolio optimization modeling is helping banks achieve profitable growth in an environment with significant volatility across asset classes and rising losses in traditional banking products. Sophisticated risk modeling presents a powerful way to understand short- and long-term profitability and capital adequacy or, in other words, the chances of a bank’s survival in future. Fraud and AML/KYC analytics are helping banks stay ahead of fraudsters, drug cartels, terrorists, organized mafia, and others in preventing money laundering and associated potential losses. Consumer behavior and marketing analytics are driving sustainable competitive advantage in an era with eroding product differentiation, waning customer loyalty, and exploding volume, velocity, and variety of data.

As a result, the adoption of third-party analytics business services in banking is growing rapidly and is expected to quadruple by 2020.

However, the overall penetration of analytics services in banking is still in the nascent stage and penetration levels are in low single digits. This implies significant untapped potential for value creation. Multiple competing priorities, functional silos, talent crunches, and inadequate data and systems infrastructure are key challenges in effectively operationalizing analytics in financial institutions.
This paper describes the “art of the possible” in analytics, and within the context of how it adds value to the banking industry. The paper focuses on:

- Banking industry challenges and opportunities where analytics can play a role
- Range of analytics leveraged in banking and examples of how analytics creates value for business
- Critical challenges and emerging best practices in operationalizing analytics in banking

**Banking industry challenges requiring greater insight**

The economic crisis of 2008 changed the face of the banking industry. Regulatory oversight expanded dramatically, increasing the cost of compliance as well as the risk of noncompliance. Achieving profitable growth, while ensuring long-term solvency, became challenging, with greater volatility across most asset classes and traditional products losing money. Managing enterprise risk, as well as the increasing incidence of fraud, became strategic priorities. Advancements in technology are significantly improving the speed-to-market, thereby eroding product differentiation and customer loyalty. Analytics is helping banks become smarter in managing these challenges (see Exhibit 1).

1. **Rising cost of compliance and risk of non-compliance**

The financial crisis of 2008 exposed the inter-linkages between credit risk, market risk, and liquidity. This unleashed a wave of newer and stricter regulations such as Basel III, Dodd-Frank Wall Street Reform and Consumer Protection Act, Credit Card Accountability, Responsibility, and Disclosure Act, and the Durbin Amendment. Central banks are acknowledging the fact that some financial institutions may be a “systemic risk” and are demanding greater say and transparency in adherence to risk norms. Several state and federal government consumer protection laws (such as servicer consent orders and servicer alignment initiatives, among others) have also been passed.

**The aftermath of the 2008 financial crisis**

From January 1, 2008 to April 15, 2011, the FDIC closed 356 banks that failed to manage the risks building up in their residential and commercial mortgage exposures.

New regulatory demands for managing AML/KYC1 and fraud have also emerged including FATCA2, FCPA3, FINRA4 rules, BSA5/AML.

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**EXHIBIT 1**

Drivers of analytics in banking

- Eroding product differentiation and customer loyalty
- Explosion in volume, velocity, and variety of data
- Faster response time to changing macroeconomic variables
- Competitive advantage
- Profitable growth and solvency
- Compliance

- Evolving and more stringent regulatory environment
- Increasing cost of compliance
- Significant risk of non-compliance
- Greater volatility across asset classes
- Traditional retail banking products losing money
- Increasing incidence of fraud
- Integrated risk management at enterprise level

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1. AML – Anti-Money Laundering; KYC – Know Your Customer
2. FATCA – Foreign Account Tax Compliance
3. FCPA – Foreign Corrupt Practices Act
4. FINRA – Financial Industry Regulatory Authority
5. BSA – Bank Secrecy Act
amendments, MiFID, global PEP lists, and several others. These regulations continue to be refined, changed, and made more stringent. Consequently, compliance budgets have increased significantly over the last few years. Yet, most banks feel their compliance departments are under-staffed and over-burdened, and the risk of noncompliance is greater than ever before. Penalties for noncompliance have risen in a tough and uncertain economic environment where funds are limited.

2. Profitable growth and long-term solvency challenges

Acquiring and retaining “profitable” customers is more challenging than ever in today’s hyper-competitive financial services market. Traditional banking products (such as checking accounts) are losing money as a result of changing customer preferences. Incidences of fraud and money laundering are also increasing. The mortgage meltdown over the past decade has shown that most financial asset classes can be volatile; hence managing market volatility, credit risks, and liquidity risks becomes imperative for financial institutions.

Historically, all these risks were managed by individual Lines of Businesses (LoBs) somewhat separately. However, since the economic crisis of 2008, the need for integrated risk management at the enterprise level has increased significantly to understand short-term and long-term profitability and capital adequacy or chances of a bank’s future survival. By quickly determining exposure, portfolio value at risk, and liquidity coverage, a bank can determine products to take to market, or markets to exit, much faster. It can also fine-tune responses to changes in interest rates, exchange rates, and counterparty risk to ensure profitability and long-term solvency.

Effective risk management can also lead to significant business advantage. For instance, the output from credit risk models helps banks in risk-based pricing, exposure and concentration limits setting, Risk Adjusted Return on Capital (RAROC), managing portfolio-return profiles, setting loss reserves, and economic capital calculation. The stress testing requirements mandated by the U.S. Federal Reserve led to design and implementation of such models, and now these models are being utilized as potential sources of input for designing features of new and existing products.

3. Creating a sustainable competitive advantage

Advancements in technology are significantly improving speed-to-market, thereby eroding product differentiation and customer loyalty. Customer demographics, buying behavior, and needs are also changing and evolving. Today, banks need a 360° view of each customer to target the right products, cross- and up-sell, and adapt to customers’ changing needs.

By 2020, the world’s computers are expected to hold 35 zettabytes (1021) of data.

– IBM Corp.

Banks generate huge volumes of internal data (customer accounts, credit scoring, payments, assets, etc.) and now need to understand its linkages to external data (interest rates, macroeconomic variables, and customer preferences). The velocity of this data creation is also increasing exponentially. This is compounded by the variety of non-traditional or digital touch-points that have emerged – ATMs, Internet, IVR systems, social media, and mobile, among others. The explosion in volume, velocity, and variety of data is forcing banks to leverage advanced analytics to make sense of the huge and complex information sources, and make near real-time decisions to stay competitive.

The role and impact of analytics in banking

Analytics is helping banks become smarter in managing the myriad challenges they face. Consequently, adoption of third-party analytics business services is growing rapidly, and is expected to quadruple its current size by 2020 (see Exhibit 2). The overall penetration of analytics services in banking is still in a preliminary stage and penetration levels are in low single digits, implying significant untapped potential for value creation.

Analytical solutions have grown tremendously over the last decade in terms of their sophistication and the resulting business impact they create. Banks are deploying a range of analytics today (see Exhibit 3). While basic reporting continues to be a must-have for banks, advanced predictive and prescriptive analytics are now starting to generate powerful insights.

1. Reporting. Basic version of an analytics solution that focuses on building data repositories and reporting the current situation using simple and uni- or bivariate data. Typical examples in banking include suspicious activity reporting and account validation against watch lists.
2. **Descriptive analytics.** Generating actionable insights on the current situation using complex and multi-variate data. Typical examples in banking include customer segmentation and profitability, campaign analytics, and parametric Value at Risk (VaR) calculations.

3. **Predictive analytics.** Predicting the likely future outcome of events, often leveraging structured and unstructured data from a variety of sources. Typical examples in banking include pattern recognition and machine learning to predict fraud, generating risk alerts at customer/product/geography level, design personalized and next-best offers, and trigger cross-sell campaigns.

4. **Prescriptive analytics.** Prescribing action items required to deal with predicted future events using big data from a variety of sources, often associated with simulations in various business scenarios. Typical examples in banking include behavioral PD⁶, LGD⁷, and EAD¹⁰ modeling, channel mix modeling, real-time offer models, next-best offer models, and stress testing for mandated and custom scenarios.

Significant technological advancements over the last decade have made this possible. Traditional data storage and processing technologies could not handle unstructured data; handling of large data sets was time-consuming and prohibitive; response time was too large; and the systems were not flexible and scalable. Several technological advancements have helped overcome these challenges:

- The NoSQL movement created alternatives to relational databases that were unable to handle unstructured data.
- Hardening of Hadoop frameworks enabled parallel processing, thus enabling faster response time and the ability to handle larger data volumes at a cheaper price.
- Cloud-based utility computing provides virtual shared servers, reducing upfront capital expenditure and increasing accessibility.

⁶ PD – Probability of Default
⁷ LGD – Loss Given Default
¹⁰ EAD – Exposure At Default
There are three key areas in banking where analytics has created maximum impact: 1) consumer and marketing analytics 2) risk, fraud, and AML/KYC analytics, and 3) product and portfolio optimization modeling. Typical analytics in each of these areas is summarized in Exhibit 4.

1. Consumer behavior and marketing analytics. Advanced analytics now offers banks the power to study their customers and prospects like never before. Banks that leverage analytics to study customer behavior have been able to significantly improve marketing outcomes (greater topline impact, ability to leverage digital channels, and faster time-to-market) without a proportionate increase in marketing budgets. Key benefits reported include an increased ability to identify profitable customers, expand wallet share with profitable customers, identify relevant cross- and up-sell opportunities, migrate customers from less profitable relationships to more profitable ones, acquire new profitable customers, identify profitable customers, expand wallet share with customers, and segment (for instance, Value at Risk (VaR))

Examples of marketing analytics impact
- A 15% increase in assets by designing unique offers for customers
- Improve time-to-market by ~25%
- Cut marketing costs by 20%

2. Risk, fraud, and AML/KYC analytics. Risk modeling and analytics allow financial institutions to analyze any/all portfolios (of assets as well as liabilities) to forecast likely losses, and make provisions for those adequately. Analytics also enables banks to understand risk dimensions faster, without expanding the pool of human resources. Advanced analytics solutions help reduce the complex and expensive burden of compliance on AML and KYC departments.

Effective use of analytics to fight fraud helps improve profitability, reduce payouts and legal hassles, and most importantly, improve customer satisfaction. Analytics bolsters the ability of existing fraud experts to focus on real threats more efficiently and effectively (by expanding monitored transactions and reducing false alerts). Automated alerts can also be sent to the customer directly. Advanced analytics also helps recognize patterns of fraudulent transactions and then use these to be one step ahead of fraudsters; predict the next such fraud in progress; and recommend preventive action for saving both the bank and the customer. This also helps banks in protecting themselves against potential fallout (non-compliance fines and reputation loss risk, among others) from AML incidents.

3. Product and portfolio optimization modeling. Advanced portfolio analytical solutions not only help determine the quality of asset pools, they also help to determine prepayments, delinquencies, defaults, and cash flows. Analytics allow firms to adjust LTV ratios, in accordance with regulations, to meet capital requirements. If the mortgage portfolio is used for trading/investment, it can also be used to calculate various portfolio risk measures (for instance, Value at Risk (VaR))
Examples of product and portfolio modeling impact
- Reduce delinquencies from 147 to 37 BIPS
- Use PD/LGD models to reduce the time needed to identify problem loans from >100 hours to <5 min
- Reduce time-to-market of new offerings by 99% by calculating multiple risk factors automatically

Operationalizing analytics in banking: Challenges and emerging best practices
Analytics in banking promises significant potential for value creation if the solutions are operationalized, keeping the following three success factors in mind:

1. Business insights are created using data
2. Insights are used to take decisive actions
3. Results from business decisions are fed back to improve data and analytics

This “data-insight-action” loop is summarized in Exhibit 5 below. Operationalizing analytics in banking requires significant investments of time and money across people, process, organization, and technology. This section summarizes key challenges that financial institutions face across each element of the “data-insight-action” loop, as well as provides some of the emerging best practices.

1. Objective

Staying competitive by meeting evolving customer demands and remaining compliant amid increasing regulatory requirements often pulls banks in different directions. Increasing competition strains a bank’s ability to exercise more stringent fraud prevention. For instance, customers want their cards to be accepted widely, but due to the demands of regulatory compliance, the usage is restricted and care advised. Banks have to walk the tightrope between these forces to succeed.

Our risk organization and functions were established to support and enable our organization to achieve strategic goals such as sustainable growth and profitability, competitive advantages, and capital management. Put simply, we recognize risk as a part of the strategic agenda.

— An Asia-Pacific bank

EXHIBIT 5

Typical challenges across the “Data-Insight-Action” loop in banking

Challenge: Multiple competing priorities
- Problem definition/ hypothesis creation
- Set boundary conditions

Challenge: Inadequate data and systems infrastructure
- Extraction
- Collection
- Filtering
- Categorization
- Integration
- Integrity

Challenge: Talent crunch
- Data contextualizing
- Predictive and prescriptive modeling
- Output visualization
- Dashboards and scorecards
- Custom reporting

Challenge: Functional silos
- Enable decision-making
- Embed in business rules
- Modify business processes

5. Feedback
- Learn from actions
- Improve data collection sources
- Refine/adjust objective

Challenge: Ongoing relevance, validity, and improvement
Effective analytics requires a robust and integrated security master, account master, and customer master. Without strong master data management, it is hard to analyze the flow of money, the structure of the instrument/business deal, concentration of liquidity or exposure, and how one component relates to another. However, the underlying data fragmentation makes it hard to get an integrated and reliable internal data stream.

Beyond integrated internal data streams, advanced analytics requires significant amounts of external data. For instance, banks need to track online behavior, social media habits, etc., to build a forward-looking assessment of Customer Lifetime Value (CLV). Since large parts of data gathered and used for understanding customer behavior are unstructured, it is hard to work with traditional and legacy databases and applications. Rapidly changing customer tastes, preferences, and macroeconomic environments also pose a significant challenge in modeling predictive/prescriptive analytics.

Predictive and prescriptive analytics involve various internal and external data sources across lagging and leading indicators. Processing huge volumes of data requires state-of-the-art IT infrastructure. Regular and clean data inputs are also required to ensure that the model generates valid and meaningful output. As a result, data cleansing is also a major challenge. Most of the existing technologies work with traditional channels but are often rendered ineffective with digital media. Moreover, the cost of system modernization is prohibitive.

The emerging best practice

- Leveraging offshore delivery for data management. Increasingly, banks are using offshore resources (Global In-house Centers (GICs) and/or third-party outsourcing) for data integration and data cleansing. Beyond cost arbitrage, offshoring offers access to new talent pools, the ability to leverage different time zones, and capabilities for managing volume fluctuations for data management.

- Long-term planning for overall application and system integration and an agile organizational structure that can adapt and change quickly. Server virtualization and other cloud solutions are increasingly being leveraged.

3. Insight

Implementing advanced analytics is not just about hiring statisticians with advanced degrees. Banks require analytics professionals with business context, data management, technology understanding, and knowledge of existing and emerging regulatory requirements. The problem is further exacerbated given that several regulatory requirements (such as PD, LGD, and EAD modeling) emerged less than five years ago. Such talent is scarce and expensive.

Around 320 third-party outsourcing deals with an analytics component were announced between 2005 to 2007 by banks. This nearly doubled to 610 deals during 2011 to 2013.

— Everest Group (2013)

The emerging best practice

- Centralization of analytics resources via creation of a Center of Excellence (CoE). A centralized team works on analytics across different Lines of Businesses (LoBs) and/or across asset classes.
(mortgages and equity). A CoE-based approach, as opposed to resources embedded within individual lines of business, improves overall utilization of these scarce and expensive resources. It also helps in setting standard processes, driving common governance standards and process rigor, as well as improving ease of accessibility.

- **Leveraging global sourcing.** Using GICs and/or third-party outsourcing service providers enables banks to tap into a global pool of analytics resources. The business case for global sourcing of analytics is less about cost savings and more about expertise.

- **Intra-industry collaboration.** Banks are starting to realize the power of working together, especially in areas such as fraud analytics. Building individual models is costly and time-consuming. The solution is for banks to move to network-based models, where fraud detection algorithms from different banks work together for the group, and help achieve more extensive and better results, while also keeping the costs low.

- **Inter-industry collaboration.** Customer behavior in banking often follows similar patterns as in the hospitality and travel industries, among others. Banks are taking advantage of this fact to create teams of resources having exposure to and experience of multiple industries to create non-linear learning curves.

### 4. Action

Banks today offer a variety of products and services (retail banking, corporate banking, cards, lending, asset management, and wealth management) but are poorly integrated internally from an organization and systems perspective. For example, the view of a customer from the CRM system would not typically incorporate a risk profile, performance history, or regulatory data associated with KYC requirements — yielding an incomplete and possibly inaccurate view of a customer. An end-to-end process view is hard to build, as back-, mid-, and front-office processes are disjointed. This often delays the flow of information required to make decisions based on smart analytics. Moreover, it increases the response time when warning signals are generated.

### The emerging best practice

- **Common analytics platform.** Banks are increasingly centralizing certain functions (such as AML) across all geographies and LoBs into a single platform to establish global systems and processes, capture/prevent suspicious transactions, and report to relevant regulatory bodies.

- **Collaboration between analytics and business units.** Marketing experts across different product lines and analytics SMEs need to collaborate to ensure that analytics insights are taken to action, and the insights themselves are actionable.

- **Real-time actions on market insights.** Banks are starting to realize the power in cutting time elapsed between understanding customer behavior and acting upon it. Not only that, they are also realizing the immediate effect of their strategies in shaping customer behavior.

- **Global knowledge sharing.** The digital revolution is fast erasing distinctions between customers in different geographies. It is therefore imperative that different business units within banks today collaborate more between themselves, and make sure that lessons learned in one geography for customer behavior modeling are utilized in others.

### 5. Feedback

Predictive and prescriptive analytics need to be fluid, dynamic, and open to learning and improving. They are not a one-time exercise and need regular updates and refinements. A continuous feedback mechanism is required from frontline systems, which is hard to implement.

Most variables within an analytics model are customer demographics, financial data, economic and regulatory environment-related data, and the analytical models that need to be designed to accept these data sets. The analytical model, of course, needs to stay relevant and stand the test of time. Making sure that the predicted and actual values stay within a zone of acceptable error is a significant challenge.

Since the 2008 economic crisis, model management needs to be independent of model development. Most models need validation and certification before their release for usage, every 6 to 12 months.
The emerging best practice

- **Self-learning and flexible solutions.** Analytical and simulation models need to be designed, keeping in mind future adjustment and refinements. For instance, sophisticated fraud models are emerging that have the ability to learn from their own functioning and positive identifications made, in order to evolve and improve, reduce false alerts over time, and help banks stay ahead of fraudsters. Also, enabling sharing of results between algorithms helps in triangulation of results.

- **Offshore third-party service providers** can also be used for testing and ongoing maintenance of models. This enables banks to keep model development and validation separate, as well as improve scalability and speed-to-market.

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**Conclusion**

Sophisticated predictive and prescriptive analytic solutions exist today that can improve a bank’s probability of ensuring survival, compliance, profitability and growth mandates, and competitiveness. However, institutionalizing and operationalizing analytics to take smart business decisions is a challenge given the ground realities of functional silos, talent crunches, competing priorities, and outdated data/system infrastructures. The critical question today is not *why analytics?* or *which analytics?* but *how do we operationalize analytics?*

There is no other value-creation lever available today for the banking industry that is as powerful as analytics. But, it needs to be elevated from an IT- or LoB-level discussion to a C-level strategic agenda to really unleash its true potential.
About Everest Group

Everest Group is an advisor to business leaders on next generation global services with a worldwide reputation for helping Global 1000 firms dramatically improve their performance by optimizing their back- and middle-office business services. With a fact-based approach driving outcomes, Everest Group counsels organizations with complex challenges related to the use and delivery of global services in their pursuits to balance short-term needs with long-term goals. Through its practical consulting, original research and industry resource services, Everest Group helps clients maximize value from delivery strategies, talent and sourcing models, technologies and management approaches. Established in 1991, Everest Group serves users of global services, providers of services, country organizations, and private equity firms, in six continents across all industry categories.

For more information, please visit www.everestgrp.com and research.everestgrp.com.

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In a never-ending battle for consumer wallet, banks not only want all the information related to their consumers that they can lay their hands on, they also want it earlier than their competitors. The icing on the cake would be if they can have this information even before the consumer knows what he wants!

In a hyper-competitive financial services industry, the focus on understanding customer behavior has increased further. Today’s banking customer not only demands more services, but is better informed, and is happy jumping ship to a competitor offering better value or lower price.

During the past two decades, not only has the number of customer touchpoints increased manifold, the categories of these touchpoints have also changed dramatically. While earlier, a bank branch was the principal customer touchpoint, today it is hardly the case. The void has, instead, been filled up by a plethora of non-traditional or digital touchpoints: ATMs, Internet, IVR systems, social media, mobile, point of sales, and display systems, among others. The American Bankers’ Association tracked the changing consumer preferences in the 35-54 age group, across 2008 to 2012, and results prove that traditional touchpoints (branches, ATMs, and mails) are being taken over by digital channels (see the figure below).

Rise of digital channels in banking

<table>
<thead>
<tr>
<th>Consumer preference for banking touchpoints, in 35-54 age group</th>
<th>2008</th>
<th>2010</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Branches</td>
<td>29</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>ATM</td>
<td>24</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Mail</td>
<td>18</td>
<td>5</td>
<td>3</td>
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<tr>
<td>Internet banking</td>
<td>26</td>
<td>44</td>
<td>43</td>
</tr>
<tr>
<td>Mobile and phone</td>
<td>4</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Others</td>
<td>7</td>
<td>3</td>
<td>9</td>
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</tbody>
</table>

Source: American Bankers’ Association

Digital channels increasing

Traditional / non-digital channels declining
Banks have started to utilize this consumer shift toward digital channels to deploy a variety of tools and technologies to understand their needs and behavior better, and offer products and services more in line with their requirements. While in traditional channels banks were limited to demographic information for their customers, use of non-traditional channels enables them to have a unique and real-time peek into the customer’s world.

**Impact of leveraging marketing analytics in banking**

There are six key imperatives for banks to study customer behavior:

1. **Understand** customer lifetime value, profitability, and brand perception
2. **Target** the right customer segments, improve hit rates and ROI of marketing activities
3. **Acquire** new customers by executing targeted marketing campaigns
4. **Retain** profitable customers by identifying pressure points where customers may feel disenchanted and shop for alternatives
5. **Grow** share of wallet by identifying cross-/up-selling opportunities through analysis of various customer segments and profiles
6. **Adapt** to changing consumer behavior and create products and services in anticipation

Advanced analytics now offers banks the power to study their customers and prospects like never before (see Figure below). For instance, analytics can be designed around customer data, such as usage trends, service requests history, and branch visits, to develop leading indicators of potentially unhappy customers who may be looking to switch banks. This information can then be shared using appropriate dashboards to relevant personnel, who can then proactively connect with and try preventing the loss of the customer. The data may also be run in a prescriptive analytics program to suggest features and services that need to be designed in existing/new products/services offered by the bank, that may reduce customer dissonance.

A commercial bank increased consistency in overdraft decisions, and created bandwidth for staff, by combining customer’s relationship with the bank with customer profitability data

A U.S. bank improved its time-to-market for campaigns by nearly 25%

A Top 10 U.S. bank improved its ability to predict when a customer is about to make a big purchase by incorporating clickstream data with purchase histories and behavioral patterns

A Top 5 Canadian bank used analytics to score selected customers on a monthly basis and identify strategies to improve customer profitability

A bank used analytics to predict if offering a sweetener for a mortgage product to customer X would be profitable.; Or will the offer be wasted since the customer would’ve bought the product anyway?

A global bank piloting social media analytics in Spain increased positive feedback by 1% and reduced negative feedback by 1.5% within the first six months
Banks that leverage analytics to study customer behavior have been able to significantly improve marketing outcomes (greater topline impact, ability to leverage digital channels, and faster time-to-market) without a proportionate increase in the marketing budget.

**Successfully operationalizing customer behavior analytics in retail banking**

Initiatives to develop predictive and prescriptive analytics for modeling customer behavior typically hit the following major operational challenges:

1. **Understanding customers across the purchase continuum and across multiple channels:** The purchase continuum spans multiple stages (awareness, evaluation, purchase, usage, repurchase, and advocacy) and multiple channels (both traditional/non-digital and digital). Understanding behavior seamlessly across this entire continuum is extremely hard.

2. **Managing unstructured data:** Since large parts of the data gathered and used for understanding customer behavior are unstructured, it is much harder to work with. Rapidly changing customer tastes, preferences, and the macroeconomic environment also pose a significant challenge in modeling customer behavior.

3. **Legacy technology:** Most existing technology works with traditional channels but is often rendered ineffective with digital media. Moreover, the cost of modernizing old systems to handle non-traditional media can be prohibitive.

4. **Functional silos:** Banks today offer a variety of products and services (retail banking, cards, lending, asset management, and wealth management) but are poorly integrated internally, from an organization and systems perspective.

Emerging best practices to successfully operationalize customer behavior modeling and analytics:

- **Combining banks’ internal data with external data to build enhanced customer profiles:** Banks are increasingly integrating internal data (customer’s transaction history), with external data (demographic data, social media footprint, etc.) to create detailed customer profiles. These profiles serve as a ready database to design marketing campaigns and other similar activities. Not only that, these profiles can be kept continuously updated, as well as be used as inputs in any further analytics solutions being designed.

- **Cross-industry pooling of customer behavior modeling resources:** Customer behavior in retail banking often follows similar patterns as customer behavior in the hospitality, and travel industries, among others. Banks are taking advantage of this fact to create teams of resources that have exposure and experience of multiple industries, as this helps in creating non-linear learning curves.

- **Global knowledge sharing:** The digital revolution is fast erasing distinctions between customers in different geographies. It is, therefore, imperative that different business units within banks collaborate more between themselves, and make sure that lessons learned in one geography for customer behavior modeling are used in other geographies.

- **Real-time actions on market insights:** Banks are starting to realize the power in cutting time elapsed between understanding customer behavior and acting upon it. Not only that, they are also realizing the immediate effects of their strategies in shaping customer behavior.

- **Greater collaboration between marketing and analytics:** Marketing experts across different product lines and analytics SMEs need to collaborate to ensure that analytics insights are taken to action and the insights themselves are actionable.

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"Digital marketing will become a significant thing."

– CIO, JP Morgan Chase

"One-to-one marketing is the big promise, and that’s where competitive advantage will be played out in lots of industries over the next five years. And if you don’t figure it out, you’re not going to be best in class."

– EVP, and Group Head, Wells Fargo Wholesale Services Group

"Our aim was to shift marketing-as-an-expense mindset to the idea that marketing is a true profit driver."

– CMO, First Tennessee Bank
Conclusion
As customers become more aware of the options at their disposal, they are becoming more demanding, as well as being less loyal to their existing banks. Financial services firms, therefore, need to study customer behavior closely and offer relevant products and services. The rise of digital channels is proving to be a blessing for banks. Operationalized analytics is providing banks insights into customers’ digital footprints to understand their profiles better and have an unparalleled understanding of their needs. This is critical for banks to ensure not only their profitability, but also their survival.

This has been authored by Anupam Jain, Practice Director at Everest Group.

About Everest Group
Everest Group is an advisor to business leaders on next generation global services with a worldwide reputation for helping Global 1000 firms dramatically improve their performance by optimizing their back- and middle-office business services. With a fact-based approach driving outcomes, Everest Group counsels organizations with complex challenges related to the use and delivery of global services in their pursuits to balance short-term needs with long-term goals. Through its practical consulting, original research and industry resource services, Everest Group helps clients maximize value from delivery strategies, talent and sourcing models, technologies and management approaches. Established in 1991, Everest Group serves users of global services, providers of services, country organizations, and private equity firms, in six continents across all industry categories.

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The U.S. mortgage market is estimated to be more than $14 trillion in size and represents the largest asset classes in the financial industry. However, after the 2008 economic crisis, the focus has shifted from driving topline growth to ensuring overall portfolio profitability. Capital requirements for maintaining compliance with regulations such as Basel II/III have increased. Consumer protection laws such as servicer consent orders and servicer alignment initiatives have increased the cost of servicing mortgages significantly (see the figure below).

This pressure on mortgage portfolio profitability has resulted in multiple banks having to sell off their portfolios. Bank of America sold collection rights for over US$200 billion; Wells Fargo began marketing its rights on US$41 billion of government-backed home loans; and Citigroup sold mortgage-servicing rights for about 21% of its total contracts1. The share of top five banks in the U.S. mortgage market has fallen from 60% to less than 40% over the last five years.

**Role of analytics in mortgage portfolio profitability**

The immediate aftermath of the economic turmoil was more careful and stricter evaluation of loan applications as well as close monitoring of the portfolio performance. This relied mainly on correlation/pattern analysis of lagging indicators such as delinquency. Over the last couple of years (since Basel II), banks have also been developing solutions to leverage leading indicators of mortgage quality to run stress tests under different scenarios and get ahead of the curve.

As a result, mortgage portfolio analytics have evolved from descriptive analytics (algorithms using borrower’s FICO score, ...

current LTV\(^2\) ratio, loan size, and maturity to predict delinquencies) to sophisticated predictive and prescriptive solutions (leveraging state-level data and macroeconomic data, in addition to internal data, and then using econometric models, as simulation predicting mortgage portfolio quality) (see the figure below).

These advanced analytics not only help determine mortgage pool quality, they also help to determine prepayments, delinquencies, defaults, and cash flows for mortgages. Analytics allow firms to adjust LTV ratios, in accordance with regulations, to meet capital requirements. If the mortgage portfolio is used for trading/investment purpose it can be used to calculate various portfolio risk measures (for instance VaR\(^3\)).

Successfully operationalizing mortgage portfolio analytics

Initiatives to develop predictive and prescriptive analytics based on leading indicators of mortgage quality typically hit two major operational challenges:

1. IT infrastructure and reliable data feeds: Predictive and prescriptive mortgage portfolio analytics is a big-data problem. It involves various internal and external data sources across lagging and leading indicators. Processing such huge volume of data requires state-of-the-art IT infrastructure. Regular and clean data inputs are also required to ensure that the model remains valid. As a result, data cleansing is also a major challenge

2. Ensuring the model stays relevant over time: Portfolio risk needs to be analyzed on a regular basis (monthly/quarterly). However, most variables within a mortgage portfolio analytics model are dynamic—borrower’s credit score and other attributes, collateral values as well as structural, economic, and regulatory environment changes over time. The analytical model, however, needs to stay relevant and stand the test of time. Making sure that the predicted and actual values stay within a zone of acceptable error is a significant challenge

A loan valuation process typically results in about 500 billion Monte Carlo simulations composed of multiple calculations that need to be carried out for each macroeconomic scenario

We not only want a greater proportion of our mortgage portfolio to be profitable, we want greater confidence in predicting it

Range of mortgage portfolio analytics

1. Reporting
   - Detailed representation of loan-level information represented collectively around types or terms, enabling easier decision-making

2. Descriptive analytics
   - Static analysis of portfolio to estimate capital requirements, and/or contribution to VaR
   - Based on lagging indicators

3. Predictive analytics
   - Simulate multiple scenarios on individual/groups of loans in a portfolio for default or repayment risk
   - Based on both lagging and leading indicators

4. Prescriptive analytics
   - Stress test using Monte Carlo simulation for mandated or customized scenarios. Outputs help take corrective actions to reduce defaults and estimate capital requirements

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\(^2\) LTV – Loan to Value
\(^3\) VaR – Value at Risk
The emerging best practices to successfully operationalize mortgage portfolio analytics include:

- **Modular and flexible solutions**: Analytical and simulation models need to be designed keeping in mind that they will be adjusted and refined over time. They have to be easily updatable and different models should be able to communicate with each other.

- **Internal layer of data cleansing**: Direct feed of external data can result in compromising the confidence levels of simulation models. Therefore, most organizations implementing sophisticated mortgage portfolio analytics consider building an internal layer of data cleansing that then feeds into the model.

- **Centralized pool of data modeling resources**: Such a team works on portfolio analytics across different asset classes (mortgages, equity, etc.) instead of focusing exclusively only on the mortgage portfolio. A common central pool as opposed to resources embedded with the mortgage line of business improves overall utilization of these scarce and expensive resources. Shared services and Global In-house Centers (GICs) are also increasingly leveraged to build such a team. Offshore third-party service providers can also be utilized for data management and testing of systems to improve scalability and speed to market.

**Conclusion**

A range of predictive and prescriptive analytics is now available that provides real insights into the quality of a mortgage portfolio using both lagging and leading indicators. However, more than technology, success will be determined by how effectively banks design their processes and leverage people to operationalize such analytics.
This has been authored by Anupam Jain, Practice Director at Everest Group.

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About Genpact

Genpact (NYSE: G) is shorthand for “generating business impact.” We design, transform, and run intelligent business operations including those that are complex and specific to a set of chosen industries. The result is advanced operating models that foster growth and manage cost, risk, and compliance across a range of functions such as finance and procurement, financial services account servicing, claims management, regulatory affairs, and industrial asset optimization. Our hundreds of long-term clients include more than one-fourth of the Fortune Global 500—and of those, over 10 are in the top 25.

Genpact began in 1997 as a business unit within General Electric—and this heritage has contributed to our deep understanding of process. As GE made Lean and Six Sigma pervasive, Genpact applied this same industrial engineering ethos to business processes operations for the first time in the world. Built with this single-minded passion for process science and operational excellence, Genpact’s resulting Smart Enterprise Processes (SEP™) methodology focused on delivering business impact while safeguarding costs and limiting initial investment—igniting the global business process outsourcing (BPO) services industry. This proprietary SEP™ framework integrates effective technology and data-driven insight into the fabric of enterprise processes to help our clients be more competitive. In January 2005, Genpact became an independent company to bring our process expertise and unique DNA in Lean Six Sigma to clients outside the GE family, and then in August 2007, we became a publicly-traded company (NYSE: G). Since becoming independent, we have expanded rapidly from 32,000 employees and a revenue of US$823 million, to the current 67,000+ employees and 2013 revenues of US$2.1 billion. Bain Capital became Genpact’s largest shareholder in November 2012 with the strategic objective to grow the company further.

Genpact has significant expertise accumulated over these 16 years of experience running operations for more than 800 complex enterprises and learning from the feedback loop of such extended enterprises. We remain loyal to our heritage of operational excellence as an extension of our clients’ business—reflected by the best client satisfaction scores in the industry. Our global critical mass, however, doesn’t dilute our flexible and collaborative approach. Our experienced management team drives client partnerships personally and manages global operations in 25 countries around the world, with main offices in New York City where key executives and corporate functions are based.

For more information, visit www.genpact.com/technology-impact or email technology@genpact.com.
Services portfolio

Robust global capabilities

- 800+ global clients
- 70+ countries served
- 17 delivery countries\(^1\)
- 70 delivery centers
- 30 languages
- 67,000+ employees\(^2\)

\(^1\) Presence in 25 countries
\(^2\) As of 2014
The Genpact Research Institute is a specialized think tank harnessing the collective intelligence of Genpact—as the leading business process service provider worldwide—its ecosystem of clients and partners, and thousands of process operations experts. Its mission is to advance the "art of the possible" in our clients' journey of business transformation and adoption of advanced operating models.

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