Digital transformation — the re-invention of business models and creation of new value through technology — is the most important change companies are addressing today. Yet most transformation efforts fail. Why is that and how can we avoid it?

A major reason is because transformation is traditionally approached in silos. This same mistake is being repeated in the digital era. Companies focus effort on enhancing customer-facing activities, OR in digitizing their legacy environments. To succeed, the traditional silo-by-silo treatment of the front/middle/back office must be jettisoned.

True digital transformation re-imagines customer engagement, increases operational capability and augments process execution with new enabling technologies across the business. Front/middle/back becomes less about distinct activities with hand-offs and more about a continuum of capability created by thinking and acting across them. Digital transformation is ultimately about applying a set of concepts throughout every facet of how a business is run.

We work with front/middle/back office terminology because it is familiar to every firm:

- **Front office**: The touch points where the end customer interacts with the organization
- **Middle office**: The operations, infrastructure and data layer needed to support the front office experience
- **Back office**: Technology infrastructure and operational processes needed to run the organization

Successful digital transformation transcends silo thinking to deliver tangible benefits such as:

- Delivering compelling and seamless customer experiences
- Harnessing data and information to provide better context to those experiences
- Transforming legacy systems and operations to better respond to changing customer needs and expectations
- Having Digital channels work in tandem with other channels to deliver seamless experiences

**Transforming the Front Office: New Customer Experiences**

Some organizations think they have “done” digital transformation by creating digital customer touch points like web and mobile apps. This is really digital substitution. Context or experience is not transformed. Customers quickly become frustrated as the digital veneer that raised their expectations of a fulfilling experience lacks any real integration to the operational capabilities required to truly deliver one.

A core tenet of a sustainable approach involves human-centric design principles [1]: we want to understand all aspects of the customer and their interactions with the business. Customer journey mapping — documenting experiences through their perspective — can achieve this.

Analyzing journey maps can create opportunities to address instances where the customer experience is broken. These opportunities can be referred to as “moments of truth” and are the very focus of digital transformation efforts. Mapping “moments of truth”
will show where transformation is required to make the customer’s experience contextual and personalized — for example by identifying the right channel or approach for a given interaction — such as straight through automation or referral to an expert.

Design Thinking is another highly applicable methodology that promotes experimentation and creation of robust, fail fast scenarios and continual learning to drive better customer outcomes.

These components give Design Thinking an edge over traditional approaches:

- **Empathy.** Teams work to truly identify their customers, empathizing with their experiences, needs, wants and drivers.

- **Visualization/Ideation.** This phase involves exploring a variety of possible solutions, looking beyond the obvious and prioritizing among what could be a large list.

- **Experiments/Iterations.** In this phase, ideas are quickly tested with results fed back into the process.

A front-office transformation effort led by Design Thinking principles can guide a business to iterate, learn and launch the optimum customer-interaction framework:

- Examine interactions from the customer’s perspective rather than an organizational context

- Design an omnichannel experience that is seamless, contextual and aware of all interactions across the different channels.

- Connect the digital and human touches needed to drive the right customer experience.

Examples of front office transformation are prevalent across all industries. One of the myriad examples in healthcare includes identifying and closing gaps in care. “Gaps” are disparities in healthcare engagement among different groups of health plan members. Reducing gaps typically focuses on improving engagement across member demographics to drive better care and health outcomes.

Health plans can use design thinking to understand the needs of different member segments. Each segment has a different journey map and different preferences as to how they interact with the health plan. Using the Empathy phase of the design component, one can build a customized journey map for members in that segment and employ Digital interventions specific to their needs. In addition, one can complement Digital interactions with human follow ups from care coordinators to ensure members have a comprehensive experience across all channels.
Banks, for example, are mandated to collect and verify detailed information about their customers by Know Your Customer (KYC) regulations. Most banks have developed a customer master that aggregates existing information from disparate systems. In addition, they must verify that information from several known databases, enhancing the customer master with both structured and unstructured data from inside and outside the organization, as well as through digital and non-digital interactions with the bank.

Having a holistic view of the customer not only helps the banks meet critical regulatory needs but also helps them interact and deliver superior customer experience through being better informed about a customer’s propensity to buy certain products, or where needs might be triggered by specific events in their lives.

The middle office is equally about leveraging customer data to enhance the context of the customer’s experience. Descriptive Analytics is an approach organizations use to describe retrospectively what has happened with a customer. It is used to categorize, characterize, and classify data about the customer to chart trends, identify segments of customers who behave similarly and helps the organization better understand the past.

With a robust, stable and standardized data infrastructure in place, companies have the foundation to create predictive analytical models. Past performance is reviewed with a view toward future results through analytics’ ability to detect patterns or relationships and then extrapolate forward in time. Predictive analytics can detect hidden patterns in large quantities of data and provide better context for customer interactions, even to the point of

Transforming the Middle Office: A Data Continuum for Insight and Action

If the goal of front-office transformation is about understanding the context to facilitate optimal customer interactions irrespective of channel, transforming the middle office makes it possible. Seamless and contextual interactions require a unified view of the customer across all systems and channels. Designing the right data infrastructure is thus a prerequisite.

Companies have invested heavily in systems of record and transactional systems that automatically execute many of the processes the organization relies on. Fragments of the complete customer view are trapped within each of them. The first goal of the data infrastructure is to create a customer master, a consolidated or federated — but nonetheless integrated and complete — set of customer data that can be accessed by or integrated across all systems and processes that might need it.

Traditionally, businesses have collated and correlated structured data from set fields within transactional systems. The value of holistic customer data is high, but that value and context can be multiplied with unstructured information about the customer. Many times this resides in text format (forms, emails, notes) and requires contextual analysis to add value to the customer profile.

Today, this need for deeper customer insight also requires the capture and harnessing of types of data previously unavailable to companies or that not previously existed. The digital era has brought about the creation of new data sets, such as social media. Today’s data infrastructure thus needs to consider the need to integrate unstructured social interaction data with the traditional customer data that organizations already have in their domain.

A truly complete view of the customer built around an integrated combination of structured and unstructured information gives the organization the context to deliver superior customer interactions and experience.
suggesting the optimal point in time to reach out to a customer to head off a problem before it occurs.

Finally, prescriptive analytics can help the company choose the best alternatives for a series of possible actions by providing guidance on the outcomes of different possible actions that a customer might take, or indeed, how they might respond a particular action by the company.

The Healthcare sector provides good illustrations about the necessity of middle-office transformation. Like most industries, about 20% of healthcare data is structured and highly organized in relational databases, while 80% is unstructured in the form of EMR, social media and consumer data. The healthcare industry is exploring the creation of big data platforms that can be used to integrate structured and unstructured data. Recent advances in technology, particularly semantic technology, natural language processing and taxonomy, as well as the increased use of federated, virtual databases are simplifying the ability of healthcare organizations to integrate disparate sets of data while developing a longitudinal view of the member/patient.

With the right data infrastructure in place, companies can leverage descriptive, predictive and prescriptive analytics. In the context of healthcare it allows stakeholders to deliver holistic care across the care continuum. Structured claims and eligibility data owned by payers can be combined with EMR information generated by providers to develop an integrated longitudinal view of the patient’s health. By providing actionable insights to the care coordinators, health plans have seen call volumes significantly decrease because they can proactively address member issues in a single call, as opposed to answering the single question that led to the call. This has led to better customer experience and delivery of care for members while the health plan provider benefits from optimized and efficient operations at lower cost.

Transforming the Back Office

Legacy systems of record and back-office processes were created to solve a single dimension of an organizational problem. A desired outcome of digital transformation is more fluid and fungible systems and processes. This can only happen by redesigning the back office.

Digital technology has paved the way for multiple interventions across the back office, from basic tools such as Robotic Process Automation (RPA) to more advanced techniques such as machine learning and cognitive computing. Together these can be looked at as a continuum of improvement possibilities as companies upgrade legacy environments while optimizing current processes.

Back-office transformation can be viewed across five dimensions:

- **LEAN**: Make the process more efficient by removing errors and redundancy
- **RAPID**: Automate the process by removing manual steps/intervention
- **SMART**: Apply analytics to make the process more efficient
- **LEARN**: Incorporate machine learning to make the process adapt
and route jobs for straight through processing or depending on the degree of an exception, the right human resource by matching the requirement to the right skills, location, processing capacity and so on.

- Machine learning can be applied into an optimized process environment to enable business operations to increasingly LEARN optimal processing pathways.

- VIRTUALIZE: The ultimate transformative goal for back-office operations is to create a COGNITIVE environment with the wherewithal to capture, recognize, route and execute a process in its entirety without human intervention.

**Digitally Transformed: Industry Examples**

In insurance and healthcare, labor-intensive claims processing operations are being optimized by advanced analytical/cognitive capabilities that identify fraudulent claims/transactions in real-time by flagging behaviors that differ from normal activities.

In customer service, analytics is being used to predict the probability of retaining a customer on a cancellation call in real time. Here, data models assess recent purchases, demographics, payment patterns and bureau data to indicate the profitability of retaining the customer and the discount or new product offer that should be made to keep them, or not.

Back-office processes in many organizations often become overly complex through being subject to multiple, manual iterations over time. They often no longer reflect the “true” process originally designed to serve the business.

Transforming the process starts by re-stating its original purpose (and considering whether it remains relevant or can be made redundant in its entirety) and then:

- First apply LEAN and other techniques cuts EXCESS and ERRORS from the process.

- Second, remove manual interventions using automation, such as RPA to make the process more streamlined and RAPID.

- Embed ANALYTICS. Where processes fail, upstream process components are often to blame. ANALYTICS can reduce the flow of requests into the process.
Companies are leveraging improvements made at the LEAN, RAPID and SMART stages and combining them with Machine Learning to make a new “golden process.” Retailers are using Machine Learning to map customer data across multiple products and channels to offer tailored, real-time recommendations.

In healthcare, neural networks and Machine Learning as part of cognitive computing for language understanding allows automation technology to learn words and phrases associated with population health. Such enabled processes will increasingly be able to leverage previous experiences and user preferences to offer relevant information and expedite behavioral changes.

A VIRTUAL back office is ever learning and fully digitized except for the most crucial moments of truth where the human touch is required to manage complex exceptions or address key customer service issues.

In insurance for example, the First Notice of Loss (FNOL) process provides a good demonstration of how digital transformation can create a positive impact for the customer and the provider when applied across the front, middle and back offices (see below).

In an increasingly digital world the start of the FNOL process (where customers first notify their insurer of an impending Claim) can become the only interaction point between policyholders and their insurer. Expectations of a rapid, positive and seamless claims experience are high.

A re-imagined FNOL process for the digital era:

- New first contact to the front office capability introduced in digital channels such as claim-submission features inside mobile apps.
- Transformed middle-office serves up a range of customer, settlement and process cost analytics while further leveraging analytics to assess the likelihood of the claim being fraudulent.

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**Re-imagined Digitized Claims FNOL**

<table>
<thead>
<tr>
<th>Multi-Channel Intake</th>
<th>Digitized Back Office</th>
<th>Embedded Analytics</th>
<th>Exception Mgmt. w/ Machine Learning</th>
<th>Automated Claims Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile app, portals, FAX, forms</td>
<td>OCR/ICR, Computer Vision, Instant Missing Vision I.D.</td>
<td>Fraud prosperity check, On-Spot Claim Settlement Offering, Claims processing, cost prediction</td>
<td>Exception Queue monitored by advanced machine learning algorithms</td>
<td>Unattended claims setup, Embedded business rules and SOPs</td>
</tr>
</tbody>
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**Benefits**

- **40%** Decrease in Learning Curve
- **30%** Increase in Capacity Creation
- **20%** Decrease in Cycle Time
- **15%** Increase in Fraud Detection
- **10%** Increase in Early Settlement
need to execute their initiatives across front, middle and back office environments in an integrated manner. Treating one area in isolation simply exacerbates shortcomings in others.

To avoid falling back into the traditional, single-silo thinking, companies should keep in mind three simultaneous mandates to have the best chance for transformation success:

With all three working in unison, it is impossible to get pulled back into traditional single silo thinking because the success of the transformation depends on working across them. Furthermore, each one needs the other in order to have true purpose.

Balancing the needs of customers, employees, shareholders and the business operations required to deliver against them, companies must embrace the power of “and” in their transformation efforts: Front AND back offices, transformative AND disruptive cultures, analog AND digital experiences – if they truly want digital transformation to deliver the improved customer centricity and engagement they need.

### Further Reading/References

1. [https://en.wikipedia.org/wiki/Human-centered_design](https://en.wikipedia.org/wiki/Human-centered_design) (simple definition of HCD)
3. [http://www.exlservice.com/?s=digital](http://www.exlservice.com/?s=digital) (EXL case studies and other resources)

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### The transformed back office automatically processes claims that meet specific criteria using robotics, workflow tools, machine learning and cognition. Exceptions are routed to qualified claims experts.

Together, these interventions improve capacity, cycle time, settlements and fraud detection, resulting in satisfying experiences for customers at an optimized cost/time/effort ratio for the insurance provider.

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### Three Mandates for Success Plus the Power of AND.

To deliver digital transformation — today’s key to better customer service, experience and retention — companies

- The drive for ultra-customer centricity
- The need for a flexible data infrastructure to drive context
- The ability to execute with speed, precision and fluidity with digitized operations
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