RegTech: Emerging answers to the rising cost of risk management and compliance

The Dbriefs Banking & Securities series

Frank Aguilera, Managing Director, Deloitte & Touche LLP
Eric Wrobel, Managing Director, Deloitte & Touche LLP
Subramanian Raman, Senior Manager, Deloitte & Touche LLP
Dilip Krishna, Managing Director, Deloitte & Touche LLP

June 14, 2017
Agenda

• Introduction
• Challenges facing risk and compliance functions
• Transforming compliance through analytics and technology
• Considerations and benefits of modernizing compliance through Robotic Process Automation (RPA) & Cognitive Intelligence (CI)
• Q&A
Challenges Facing Risk and Compliance Functions
Risk and compliance functions face external pressures and organizational challenges. Emerging technologies and evolving industry practices provide opportunities to become more efficient.

- **Ever evolving regulatory/legal requirements**
- **Increased depth and frequency of regulatory examinations**
- **Increased regulatory expectations across all lines of defense**

**Internal challenges**

- **Executive leadership buy-in and support**
- **First line engagement**
- **Ineffectively leveraging IT**
- **Resource challenges**

**Regulatory pressures**

- **Rationalization of first and second line responsibilities**
- **Reliance models**
- **Proactive oversight and execution**
- **Enhanced talent expectations and “doing more with less”**

**Evolving industry practices**

- **Robotic process automation (RPA)**
- **Cognitive intelligence (CI)**
- **Risk sensing**
- **Big data / Enterprise data analytics**

**Emerging technologies**
Given the current internal and external pressures facing risk and compliance management programs, the opportunity exists to strategically review an organization’s risk and compliance management program.

**Moving from...**
- A reactive response “cost center”
- Inefficient implementation and execution
- Lack of a holistic view of risk
- Underinvestment in technology and infrastructure

**Toward...**
- A predictor of risk and provider of opportunities for cost savings
- Integrating activities into business process & decisions
- More complete usage of technology, data, and analytics capabilities
- Technology and talent solutions to enable efficiency and effectiveness
Polling question #1

What do you think is the greatest risk and compliance management challenge your clients are facing today?

• Emerging technologies
• Regulatory pressures
• Internal challenges
• Evolving industry practices
• All of the above
• Don’t know/Not applicable
Transforming Compliance through analytics and technology
Overview of emerging technologies

The RPA and CI spectrum ranges from enabling technologies that improve parts of the business, risk or compliance process to sophisticated technologies with cognitive elements.

<table>
<thead>
<tr>
<th>Area</th>
<th>Technologies</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation</td>
<td>Data integration</td>
<td>Integrated data to provide a consistent information foundation <em>(e.g., Compliance Risk and Regulatory Data Warehouse)</em></td>
</tr>
<tr>
<td>Analytics</td>
<td>Predictive analytics</td>
<td>Software solutions using predictive models <em>(e.g., Compliance Risk Models)</em></td>
</tr>
<tr>
<td></td>
<td>Data visualization</td>
<td>Software placing data in a visual context <em>(e.g., GRC Dashboards)</em></td>
</tr>
<tr>
<td>Automation</td>
<td>Robotic Process Automation</td>
<td>Rules-based systems that mimic human behavior to automate parts of repeatable processes</td>
</tr>
<tr>
<td>Cognitive intelligence</td>
<td>Natural Language Generation (NLG)</td>
<td>Applications that accept structured data inputs <em>(spreadsheet-like rows/columns)</em>, to generate seemingly unstructured narratives</td>
</tr>
<tr>
<td></td>
<td>Natural Language Processing (NLP)</td>
<td>Applications that process unstructured data <em>(e.g., text)</em> and allow querying and generation of structured data</td>
</tr>
<tr>
<td></td>
<td>Machine Learning (ML)</td>
<td>Applications that are able to improve predictability and operation based on data they receive over time</td>
</tr>
<tr>
<td></td>
<td>Augmented Intelligence (AI)</td>
<td>Applications able to mimic human behavior, such as visual perception, speech recognition, decision-making, and translation between languages</td>
</tr>
</tbody>
</table>

*What’s changed:* increased computing power readily available, cheaper access to analytical tools, increased understanding of analytical computing capabilities by management.
We are on the cusp of “Business 4.0”
Digitization of business processes via RPA & CI, and advances in data science have sparked the Business 4.0 revolution

Business 4.0
• This revolution redefines what it means to be a professional
• RPA will have commenced deployment in most large businesses by 2017
• RPA and CI automation will be ubiquitous in business by 2020
• Horizontal machine learning platforms (MLPs) become ubiquitous by 2025

Increasing automation: 2nd most important strategic priority

Interest in automation is increasing at a rapid rate

1 http://www.transparencymarketresearch.com/pressrelease/it-robotic-automation-market.htm
2 http://www.idc.com/getdoc.jsp?containerId=prUS41072216
Risk and compliance management framework

An end-to-end compliance risk management framework sets a standard way to design, assess, implement, and continuously improve an organization’s compliance function.
# Technology, analytics and process enablers

Automation and enhancements should be considered within a broader ecosystem of technology, analytics and process for levers that can enable migration toward a more efficient target state
- Emerging Analytics levers are focused on moving toward proactive data insights and prediction
- Emerging Technology levers are focused on driving efficiency through automation
- Process levers are focused on optimization/re-design of existing program management

<table>
<thead>
<tr>
<th>Domain</th>
<th>Key Activities</th>
<th>Activity Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analytics</strong></td>
<td>- Leverage advanced analytics to improve the prioritization of risk areas for testing and monitoring (e.g., risk sensing)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Perform trend identification and analysis to assist with early risk recognition and prediction to extract actionable insights</td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>- Implement RPA to “replicate” manually intensive processes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Leverage Machine Learning to assist in early risk recognition and decision making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Employ text analytics to capture and analyze new data from un-structured data sources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Integrate and leverage systems to facilitate workflow management, issue escalation, root cause management and reporting</td>
<td></td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>- Unharness resource capacity by leveraging RPA and CI automation tools to increase efficiencies and productivity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Improve accuracy by using rules based processes to automate review and testing processes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Develop dashboards clearly displaying the analysis of concentrations, risk appetite breaches, and other key risk/performance indicators (KRI/KPIs)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Rationalize use of managed services</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Automation Program</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Data Augmentation and enrichment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- System Integration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Resource Capacity Optimization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Information Accuracy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Threshold Monitoring and Escalation</td>
<td></td>
</tr>
</tbody>
</table>
Polling question #2

Which key enabler do you think can provide for the largest gains in efficiency and effectiveness?

• People
• Process
• Technology
• Analytics
• None of the above
• Don’t know/Not applicable
Intersection of technology and compliance execution/oversight

Opportunity for technology and analytics enablement lies within the execution focused parts of the compliance risk management framework

<table>
<thead>
<tr>
<th>Tech categories</th>
<th>Governance</th>
<th>Policies &amp; procedures &amp; reporting</th>
<th>Risk assessment (RA) &amp; regulatory change</th>
<th>Monitoring &amp; testing</th>
<th>Data, measurement &amp; reporting</th>
<th>Escalation, investigation, resolution, &amp; validation</th>
<th>Regulatory interaction &amp; coordination</th>
<th>Communication, awareness &amp; training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundational</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
</tr>
<tr>
<td>Analytics</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
</tr>
<tr>
<td>Automation</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
</tr>
<tr>
<td>Cognitive intelligence</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
<td>⚫️</td>
</tr>
</tbody>
</table>

**Highest impact categories**

- No/minor impact
- Medium impact
- High impact

Copyright © 2017 Deloitte Development LLC. All rights reserved.
The risk management lifecycle

There are a number of automation opportunities along the entire risk management lifecycle.

Use-Cases

1. Risk identification
2. Credit rating/scoring
3. Product pricing
4. Product P&L attribution
5. Limit setting and review

6. Vendor risk management
7. Counterparty/product/position risk exposure
8. Limit management
9. Collateral management
10. Automating risk monitoring

11. Compliance testing
12. Loan review
13. Model validation documentation
14. Risk reporting
15. Model governance and reporting
## Sample use cases

<table>
<thead>
<tr>
<th>Credit risk underwriting exception</th>
<th>Credit risk underwriting QA</th>
<th>Regulatory compliance reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Context</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Large number of mortgage loan applications are outside of guidelines, and require underwriter review</td>
<td>• The credit risk underwriting QA process is time-consuming, involving manual activities such as creating structured data from unstructured data</td>
<td>• Biennial compliance review requires significant effort in a short timeframe requiring a resource “surge”</td>
</tr>
<tr>
<td>• This process involves trade-off decisions that are implicit, not consistent, not formally documented and without a learning feedback loop</td>
<td>• Due to this, the sample size for QA is typically small</td>
<td>• Compliance review is largely manual, and includes structured and unstructured data</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Build data model to make explicit the trade-offs made by underwriters (exception vs. compensating factor). Leverage NLP to capture unstructured data (e.g., underwriter notes) to populate data model</td>
<td>• Use NLP to capture data from unstructured sources (e.g., appraisal report) to automate appraisal review process and reduce review time</td>
<td>• Utilize NLP to collect non-system data to be used in testing and analysis</td>
</tr>
<tr>
<td>• Evaluate the loan performance based on the exception vs. compensating factor model</td>
<td>• Apply Machine Learning to this performance model to identify key credit and quality drivers</td>
<td>• Leverage rules based RPA to automate data aggregation and testing process</td>
</tr>
<tr>
<td>• Apply Machine Learning to this performance model to identify key credit and quality drivers</td>
<td>• Enable a QA process transformation that accelerates process time and enables large sample size to discover QA issues</td>
<td>• Identify Pass/Fail based on rules logic. Escalate Fails to compliance SMEs for further review</td>
</tr>
<tr>
<td><strong>Objective</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Enable better &amp; more consistent credit decisions by creating data from implicit processes and unstructured data &amp; using to define key credit drivers, with ongoing refinement from ML</td>
<td>• Make operational changes based on this learning, including policy changes, routing and underwriter training</td>
<td>• Automation of process with improved review consistency</td>
</tr>
<tr>
<td>• Make operational changes based on this learning, including policy changes, routing and underwriter training</td>
<td>• Enable a QA process transformation that accelerates process time and enables large sample size to discover QA issues</td>
<td>• Reduce population that requires manual review - minimize impact of BAU interruption and reduce short term spike in staffing needs</td>
</tr>
</tbody>
</table>
Polling question #3

What are the types of compliance/risk management activities that you would consider for automation?

• Reporting on the compliance risk management plan
• Aggregating compliance risk management risk assessment results
• Compliance risk management testing and sampling methods
• Escalation of compliance risk management issues
• All of the above
• Don’t know/Not applicable
Considerations and benefits of modernizing compliance through RPA&CI
Getting started: Key strategies and considerations

- Take an end-to-end view in identifying high yield/high potential opportunities

- Gather or create relevant information and data including process flows, productivity metrics, time studies, financial data, FTE data by level team and region

- Engage in some “art of the possible” thinking about future state of the operations in question

- Understand robotics and cognitive landscape, what’s available within your organization and the costs, time to market and ongoing considerations for each

- Consider robotics and cognitive within a wider range of productivity levers such as process re-engineering, near/offshoring, etc. Consider sequencing of maximum benefit

- Encapsulate thinking in a productivity strategy, timeline and metrics that are fit for purpose for the part of the organization in question
Maximizing benefits through robotic process automation

Using Robotics saves the work of fingers and toes and not FTE’s. So how do organizations maximize benefits by investing in RPA?

A fragmented, micro-process based environment creates challenges to gain enterprise wide efficiencies

- Employee roles are **highly fragmented**
- A single FTE works across multiple processes in any given day
- Full **FTE reductions** are not completely realized through RPA
- Automating a **single micro-process** may not generate a sufficient return on investment

Fragmented employee roles in a work environment

Iterative process focused on a single management team

- Perform top-down assessment of all processes within a **single management team/department**
- Identify **right portions** of an end-to-end process to automate
- Breakdown identified processes into micro-process
  - **Bundle** micro-processes based on common characteristics
- **Re-engineer** some aspects of a micro-process to gain efficiencies
- Effectively **sequencing** automation activities
- **Rapid** RPA development for each micro-process
- Deploy RPA and **restructure work** to realize benefits
- **Identify personnel with right skill-sets** during restructuring who can be re-deployed to accelerate RPA implementation
Prioritize opportunities based on cost-benefit

Shortlist opportunities that meet stated business case justification to develop book of work, and revisit remaining opportunities at a later point.

**Approach principles**

1. **Drive ROI**
   - Focus on the opportunities which will create a business case with desired breakeven

2. **Accelerate toward financial targets**
   - Drive results and cross-org buy-in through early delivery of high-value opportunities

3. **Develop a backlog**
   - Inventory opportunities for later pursuit which can be addressed through DIY or other delivery models

**Key activities**

- **Create comprehensive list of opportunities** based on department ‘FTE-workload’
- **Ratify findings** - process owners and SMEs
- **Prioritize short-term** higher-value targets
- **De-prioritize** targets that are better for in future waves
- **Identify and remove ‘standalone’ opportunities** which do not break even; inventory for later
- **Revisit list of filtered opportunities** and re-add those which can be economically delivered through bundling

**Approach principles**

1. **Drive ROI**
   - Focus on the opportunities which will create a business case with desired breakeven

2. **Accelerate toward financial targets**
   - Drive results and cross-org buy-in through early delivery of high-value opportunities

3. **Develop a backlog**
   - Inventory opportunities for later pursuit which can be addressed through DIY or other delivery models

**Key activities**

- **Create comprehensive list of opportunities** based on department ‘FTE-workload’
- **Ratify findings** - process owners and SMEs
- **Prioritize short-term** higher-value targets
- **De-prioritize** targets that are better for in future waves
- **Identify and remove ‘standalone’ opportunities** which do not break even; inventory for later
- **Revisit list of filtered opportunities** and re-add those which can be economically delivered through bundling

---

Copyright © 2017 Deloitte Development LLC. All rights reserved.
Monetizing through RPA

Monetizing RPA investments through change management, reinvestment of resources

- Focus RPA efforts in processes that affect small groups/functions within larger organization
- Restructure work in groups to free up FTEs for re-assignment
- Restructuring should target FTEs on case-by-case basis
  - Highly skilled resources can lead efforts elsewhere, resources with specific skills for targeting into business, etc.

- Invest FTE savings back into the program (i.e., train resources to evaluate, bundle, and automate processes)
- Reduce dependency on external service providers and help build scale
- Reorganize workforce and deploy resources to other Lines of Business facing shortage of talent
- Involve Change Management and Talent Functions to reorganize workforce
- Redeploy saved resources to perform more value added work like analysis
- Reassign resources further up the value chain based on individual skills, motivation, and alignment
- Reprioritize project inventory and take on projects previously thought unviable
- Support ongoing CTB (change the bank) efforts
- Re-engineer processes to maximize benefits e.g. redesign unstructured reports to structured format
- Leverage RPA to aid in decision making/guide in performing pending tasks (e.g., email alerts)
Polling question #4

What are the benefits that your organization hopes to see from compliance/risk modernization?

• Improved quality of risk management
• Improved efficiency and cost profile
• Better leverage of scarce resources
• All of the above
• Don’t know/not applicable
Question and Answer
Join us July 18th at 2 p.m. EDT as our Financial Services series presents

Robotics and AI in financial services: Capturing value while addressing risks
Eligible viewers may now download CPE certificates.

Click the CPE icon in the dock at the bottom of your screen.
Contact information

Frank Aguilera
Managing Director
Deloitte & Touche LLP
faguilera@deloitte.com

Connect with me on LinkedIn

Dilip Krishna
Managing Director
Deloitte & Touche LLP
dkrishna@deloitte.com

Connect with me on LinkedIn

Subramanian Raman
Senior Manager
Deloitte & Touche LLP
subraman@deloitte.com

Connect with me on LinkedIn

Eric Wrobel
Managing Director
Deloitte & Touche LLP
ewrobel@deloitte.com

Connect with me on LinkedIn
Acronyms used in presentation

- **AI** - Augmented Intelligence
- **BAU** – Business as Usual
- **BPM** – Business Process Management
- **CI** - Cognitive Intelligence
- **CTB** – Change the bank
- **DIY** – Do It Yourself
- **FTE** – Full-Time Equivalent
- **GRC** – Governance, Risk and Compliance
- **IT** – Information Technology
- **KPI** – Key Performance Indicator
- **KRI** - Key Risk Indicator
- **ML** - Machine Learning
- **MLP** - Machine Learning Platform
- **NLG** - Natural Language Generation
- **NLP** - Natural Language Processing
- **RPA** - Robotics Process Automation
- **SME** - Subject Matter Expert
This presentation contains general information only and Deloitte is not, by means of this presentation, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This presentation is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your business. Before making any decision or taking any action that may affect your business, you should consult a qualified professional advisor. Deloitte shall not be responsible for any loss sustained by any person who relies on this presentation.