Framing the future
A new class of digital tools are reshaping almost every aspect of business....

What do they mean for the future of finance?

“Everyone says they’re a strategic CFO these days.”
Crunch Time

- Data volumes are exploding
- Unstructured is different
- Finance doesn’t have a corner on analysis
- Business cycles are up for grabs
- The talent crunch is real
The Finance Toolset

Seven technologies have growing relevance for how the work of finance gets done.

Core Modernization

- Cloud
- Process Robotics
- Visualization

Exponentials

- Advanced Analytics
- Cognitive Computing
- In-Memory Computing
- Blockchain
Automation Spectrum
Enable machines to replicate human actions and judgement with robotics and cognitive intelligence

"Mimics Human Actions"
- Rule-based, simple to complex (transact.) processes
- Addresses priority business problems driven by process breakages

"Mimics/Augments Quantitative Human Judgment"
- Used for judgment based processes
- Covers machine learning capability
- Interprets human behavior

"Augments Human Intelligence"
- Used for predictive decisioning
- Dynamically self-adaptable and managing

"Mimics Human Intelligence"
Turing Test Definition: "A test for intelligence in a computer, requiring that a human being should be unable to distinguish the machine from another human being by using the replies to questions put to both"
1. Robotic Process Automation
Robotic Process Automation – Gaining Traction

While focus on RPA is intense, we like to say 2016 as the “RPA year of Pilots”; and “2017/2018 as year of Implementations”

Are you familiar with RPA?

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No, I am not familiar with it</td>
<td>13%</td>
</tr>
<tr>
<td>Yes, I have heard about it</td>
<td>42%</td>
</tr>
<tr>
<td>Yes, I have investigated the opportunity</td>
<td>23%</td>
</tr>
<tr>
<td>Yes, it has been piloted in my operation</td>
<td>13%</td>
</tr>
<tr>
<td>Yes, it has been implemented in my operation</td>
<td>9%</td>
</tr>
</tbody>
</table>

Gap between those that have heard about RPA and those that have implemented will fall given that 76% claim they plan to explore the potential of RPA in the coming year.

Interestingly in 2016, among ~140+ companies that we surveyed 9% have implemented RPA while in 2015 it was less than 1%.

Source: Deloitte RPA Survey 2016
Robotic Process Automation – Overview

RPA software provides advanced macro-like capabilities that can be deployed at an enterprise or business unit level.

**RPA is...**
- Computer-coded software
- Programs that replace humans performing repetitive rules-based tasks
- Cross-functional and cross-application macros

**RPA is not...**
- Walking, talking auto-bots
- Physically existing machines processing paper
- Artificial intelligence or voice recognition and reply software

**What it can do**
- Opening email and attachments
- Logging into web/enterprise applications
- Moving files and folders
- Copying and pasting
- Filling in forms
- Reading and writing to databases
- Scraping data from the web
- Connecting to system APIs
- Making calculations
- Extracting structured data from documents
- Collecting social media statistics
- Following “if/then” decisions/rules

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RPA Benefits

RPA can deliver significant strategic benefits that will help to transform business processes going forward.

1. Cost reduction
   - Processing costs reduced by up to 80%
   - Fast payback period (~4-6 months)
   - Improved margins

2. Productivity boost
   - Increased throughput
   - 24/7 activity
   - Quickly scalable
   - Allows focus on value add activities

3. Quality & service
   - Accurate processing & reduced errors
   - Faster processing
   - Improved transparency and data quality

4. Risk Reduction
   - Embedded controls
   - Run pre-defined processes with complete audit trail
   - User permissions allow segregation of duties

5. System integration
   - RPA can integrate most applications in use
   - Links existing IT assets with no change required to underlying architecture

6. Quick results
   - Fast implementation ~ 2-3 weeks per robot
   - Processing costs reduced by up to 80%
   - Ability to experiment and innovate quickly

7. Improved decisions
   - Improved data quality and reporting
   - Enables enhanced decision making for management

8. Employee satisfaction
   - Eliminate performance of high volume repetitive tasks
   - Enables focus on value-add activities
Project Lifecycle: Four distinct phases
Step by step approach

Is this right for my organization?
Pilot with 3 to 5 processes

How can we scale this to make a difference?
What functions should be involved

Large scale implementation to drive direct business benefits

Develop ecosystem – internal and external – to govern and manage the human-robot environment
Meet Amelia, our new Digital Employee

**Introduction**
Amelia can be used to deliver best-in-class service fully automating human-to-human interactions and process execution.

**Peak into Amelia’s Brain**

- **Episodic Memory** to understand context of the conversation, and provide immediate relevant answers after understanding the intent of the user.

- **Neural Ontology** to allow a very natural conversation with end users using natural language.

- **Process Ontology** to execute a process in order to address the user’s needs. Amelia is also capable of integrating with the background IT systems & applications.

- **EQ Ontology** to enable Amelia to adapt her responses to conversation’s sentiment and the user’s emotional state.

**Amelia’s Core Capabilities**

<table>
<thead>
<tr>
<th>Services</th>
<th>Knows how to operate all your IT systems</th>
<th>Monitors your client’s sentiment and adapt accordingly</th>
<th>Learns best practices directly from your top employees</th>
<th>Provides you instant scalability</th>
</tr>
</thead>
<tbody>
<tr>
<td>your customers in natural language, answers their questions or executes a service or sales process</td>
<td></td>
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</tbody>
</table>

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Amelia is an artificial intelligence platform that can understand, learn and interact as a human would to solve problems. She makes it possible to automate knowledge work across a broad range of functions. With Amelia able to shoulder the burden of tedious, often laborious tasks, she partners with human co-workers to achieve new level of productivity and service quality.
Typical Amelia Use Cases
Some typical use cases for Amelia

<table>
<thead>
<tr>
<th>Function</th>
<th>Core Use Case</th>
<th>Industry Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales &amp; Marketing</td>
<td>Create an omni-channel experience using cognitive agent as interface, and assist with sell/upsell/cross-sell goods and services</td>
<td>• Insurance or Mortgage agent able to provide quotes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Travel / Hospitality agent able to book / change travel and services</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Retail sales rep able to make sales and advise on purchases</td>
</tr>
<tr>
<td>Account Servicing</td>
<td>Facilitate Know-Your-Customer activities and gather information relevant to lifecycle support/servicing; facilitate feedback cycles</td>
<td>• Banking Account Service Agent (credit card fraud, money transfer)</td>
</tr>
<tr>
<td></td>
<td>Facilitate B2B interactions (e.g., billing, account management/services)</td>
<td>• Healthcare Provider advisor to connect patients to providers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cross-industry account service support</td>
</tr>
<tr>
<td>Customer Support</td>
<td>Execute transactional services and provide technical guidance/support for products</td>
<td>• Technical support (FAQ, troubleshooting, scheduling service appt.)</td>
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<tr>
<td></td>
<td></td>
<td>• Banking, Insurance, Retail Off-hours customer support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Healthcare office assistant for scheduling treatments</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Recruitment, employee onboarding, learning &amp; development, transfers, internal policies, position management</td>
<td>• HR Help desk agent, able to answer FAQ, advise, file paperwork.</td>
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<tr>
<td></td>
<td></td>
<td>• Support key HR processes including direct deposit, expense reporting, position management, payslip breakdown</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Facilitate recruitment process as candidates’ primary POC</td>
</tr>
<tr>
<td>Business Ops &amp; Finance</td>
<td>Support for internal policies and standard procedures &amp; Facilitate finance processes, procurement</td>
<td>• Travel &amp; Expense support agent, able to answer policy questions and help with reports</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supplier Service agent, able to assist with invoice or payment status</td>
</tr>
<tr>
<td>IT &amp; Helpdesk</td>
<td>Technology support for internal tools and technologies</td>
<td>• IT help desk agent, trained to support L0-L3 requests</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(password reset, Wi-Fi access, printer access, VPN provisioning, USB access)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Production support agent, able to advise on company policy, provide guidelines on operating procedures</td>
</tr>
</tbody>
</table>
**Typical Benefits reported by clients**
Testimony by recent client showed 24/7 reachability, 40 to 60% cost reduction through automated processes, reduction in MMTR and waiting time by ~300%, 64% of related queries being handled successfully by Amelia in 3 mons training

<table>
<thead>
<tr>
<th>Increased User Satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Easy <strong>interaction through natural language</strong> (no more complex web flows)</td>
</tr>
<tr>
<td>• <strong>24 x 7 reachability</strong> (no more closing times for customer service)</td>
</tr>
<tr>
<td>• <strong>Instant access</strong>, scales with demand (no more waiting queues)</td>
</tr>
<tr>
<td>• <strong>Execution</strong> is done at <strong>machine speed</strong> (no need to wait for operators)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Better Financial Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Reduced cost to serve</strong> (40 to 60% reduction through automated processes)</td>
</tr>
<tr>
<td>• <strong>Lower development and maintenance cost</strong> for online platforms (as Amelia allows to remove part of web flows and reduce site footprint)</td>
</tr>
<tr>
<td>• <strong>Increased ‘natural’ x-sell / up-sell opportunities</strong> (through monitoring human emotions in real life to determine permeability)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Maintain Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Same situation gives same answer, always</strong> (and is fully logged)</td>
</tr>
<tr>
<td>• <strong>Transparency on type of answers by situation</strong>, including clear approval process for new actions and advice by Amelia</td>
</tr>
</tbody>
</table>
3. Natural Language Generation
“We are drowning in information but starved for knowledge” - John Naisbitt

While 74% of firms want to be “data driven”...

... only 29% say they connect analytics to action

Sources:
1 www.forbes.com
2 www.forrester.com
Finance organizations struggle to be effective Business Partners, primarily due to more time doing manipulations than analysis.

Most Finance organizations spend excessive time on processing data rather than performing analysis.

“45% of finance functions lack efficiency within their finance processes, reducing their capacity to focus on Business Partnering.”

...as reflected by limited technology supporting analytics

- Basic reporting tools, supported by offline spreadsheets: 5%
- Mainly spreadsheets: 5%
- Reporting and predictive tools widely available, minimal use of spreadsheets: 23%
- Reporting and predictive tools, allowing informative analytics: 67%

“Only 10% of surveyed companies use technology enablers to drive analytics and insights.”

...resulting in reduced capacity for Finance organizations to partner with the business

“2 in 3 Finance organizations spending less than 30% of their time partnering with the business”

Source:
1 Deloitte Business Partnering Survey
NLG is the automation of narratives and derivation of insights from structured data

**Data**

**Natural Language Generation**

**Audience**

- Produces an analysis and text automatically
- Generates standardized text from the same domain knowledge base
- Tailors the text to the user’s expertise level and context
- Drives actionable insights, increases productivity, and operational efficiency

**Government**: Allows agencies to more quickly understand large volumes of data, resulting in being able to respond more quickly to alerts or suspicious activities

**Marketing Agencies**: Generates campaign summaries, media buyer reports, ratings overviews, and brand management reports to win new business

**Financial Services**: Delivers personalized portfolio summaries, reports, and asset allocation reviews to clients, while reducing cost of production

**E-Commerce**: Automates product descriptions in driving efficiency and productivity of employees

**Real Estate**: Creates compelling property descriptions, making listings more appealing to buyers and sellers

**Media**: Enables coverage across more sports, politics, business, finance, and crime stories thereby increasing reader base
Although a new concept within Finance, NLG can be used to generate efficiencies on tasks with medium effort/variability.

Natural Language Generation has potential to:

- Reduce manual effort in time consuming, cyclical reports
- Perform data analyses including trends, changes, patterns, and outcomes
- Extract and incorporate insights from structured data

**Note: Activities shown are meant to be indicative and are not exhaustive**

<table>
<thead>
<tr>
<th>HIGH EFFORT, LOW VARIABILITY</th>
<th>MED/HIGH EFFORT, MED/HIGH VARIABILITY</th>
<th>LOW EFFORT, HIGH VARIABILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities that require significant manual effort and are repeatable have already been automated</td>
<td>Activities that require significant manual effort and have medium to high degree of variability present the most opportunity for NLG automation</td>
<td>Activities that require low effort and have high degree of variability provide limited feasibility and ROI for automation</td>
</tr>
<tr>
<td>Examples include T&amp;E / compliance processes or basic variance analyses</td>
<td>Examples of such activities includes Flash reports, Sales / margin reports, 10K / 10 Q MD&amp;A, C suite memos, R&amp;D spend reports, tax disclosures, etc.</td>
<td>Examples include hedging analysis</td>
</tr>
</tbody>
</table>
Integrating NLG with Robotics can significantly automate Decision Support activities, enabling a greater focus on analysis.

**Illustrative Business Partnering support process**

<table>
<thead>
<tr>
<th>Current State</th>
<th>Desired State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection</td>
<td>Data Collection</td>
</tr>
<tr>
<td>Data Manipulation</td>
<td>Data Manipulation</td>
</tr>
<tr>
<td>Insights Generation</td>
<td>Insights Generation</td>
</tr>
<tr>
<td>Commentary Generation</td>
<td>Commentary Generation</td>
</tr>
<tr>
<td>Driver Analysis</td>
<td>Driver Analysis</td>
</tr>
<tr>
<td>Report Submission</td>
<td>Report Submission</td>
</tr>
</tbody>
</table>

**Legend:**
- 📚 Manual Process
- 🟢 RPA Tool
- ⚪️ NLG Tool

**Business Partnering Potential**

- High
- Low

**Focus of the Financial Analyst**

- Current State
- Desired State

**NLG and Robotics can help shift the focus of Finance organizations from the “what” to the “why” – resulting in greater strategic advice**
To be effective Business Partners, Finance organizations need to shift their focus to more analysis and value-add activities.

The changing role of Finance

Traditional View

Level 0: Data Processing

Level 1: Finance Reporting & Planning

Level 2: Decision Support

Business Partnering

Center of Excellence

BI Investments

ERP, SSC & Outsourcing

Emerging View

Level 0: Data Processing

Level 1: Finance Reporting & Planning

Level 2: Business Insight & Decision Support

Level 3: Strategic Advice

Knowledge based activities

Transaction activities

Natural Language Generation can enable this shift by automating the generation of commentary and reports, allowing for more time on analysis and insights.
In Conclusion..

There’s no single prescription for how a CFO should respond to changes being caused by all things digital, but that doesn’t mean there’s no agreement about the opportunities ahead.

1. CFOs should be deepening their understanding of digital technology and its potential applications

2. Take a close look at process automation as a way to serve the business more efficiently. Also, get your data act together. That’s a prerequisite for being able to analyze and interpret information more quickly and accurately.

3. Reexamine your finance talent model to make sure you’re prepared to meet growing expectations for business partnering.

4. Walk the walk. Show the rest of the company you’re doing your part to reduce costs while freeing up time for more valuable work.
In Conclusion..

In the end, companies will need to chart their own courses. But no matter which future you envision, the leaders will likely be those who figure out how to make digital work for finance – and for the whole business too.

We look at digital transformation as an end-to-end process that affects all parts of the company, including finance.
Speaker

**Timothy Ho**
Email: kwho@deloitte.com

Timothy is a Partner from Deloitte Consulting, leading the Finance Transformation practice in SEA. He has led in various finance transformation programs and initiatives for consumer business, life sciences and manufacturing clients, including finance strategy, organization review, business process and operating model improvements, M&As and end-to-end shared services implementation across the Asia Pacific region. Timothy also has had prior experience in financial systems implementation. Timothy is a Chartered Accountant (CA)

**Nishant Gautam**
Email: nigautam@deloitte.com

Nishant has close to 16 years of extensive experience in IT strategy and large scale IT / business transformation projects. He is aligned to IT Strategy and Autonomics capability.

Nishant has led advisory work for clients’ transformation initiatives focusing on Autonomics, technology transformation, digital transformation, application portfolio rationalization, IT cost reduction, IT M&A DD, SDLC coaching, PPM, and IT operating model. He is also SME in lean SDLC, Agile and DevOps.
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