1. Rationalization for a Global World
2. Robotic Process Automation & Digitization
3. Disruptive Technologies
1. Modernization often means we pile new shiny things on top of legacy
2. Eventually we have a tangled and unsupportable Rube Goldberg machine
3. Platform modernization often means re-thinking your operating model for efficiency, resiliency and risk management
Rationalization for a Global World

Location 1
- Modelling
- Portfolio Management
- Trade Order Management
- Pre-Trade Compliance
- Integrated Risk
- Reporting

Location 2
- North America

Location 3
- Europe

Front Office
- Data Warehouse (Golden Copy)
  - Transactions
  - Positions
  - Pricing

Back Office
- Post-Trade Risk & Compliance
- Reporting
- Performance & Attribution

Common Services
- Reference Data
  - Security master & classification, corporate actions / announcements, prices, indices, clients

3rd Party Providers
- External Data Sources
- Global Custodians
- Order Execution

Reconciliation
- Book of Record
  - Portfolio Accounting
  - Fund Accounting

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Robotic Process Automation & Digitization

RPA is the digitization of labor enabled by advancements in machine intelligence, digital, analytics, cognitive, big data, social, mobile and cloud to replace business process functions.

CLASS 1: Basic Process Automation

Basic process automation implemented without IT involvement. Solutions are easily designed, quickly tested and implemented with a relatively low investment or expenditure.

CLASS 2: Enhanced Process Automation

Incorporate more advanced technologies enabling use of structured and unstructured data to support elements of self learning.

CLASS 3: Autonomic/Cognitive

Decision support and advanced algorithms to allow automation of processes that are more cognitive in nature. Solutions incorporate advanced self learning capabilities.

Service Providers & Examples*

01

Potential applications: Trade entry, trade confirmations, manual collateral movements

02

Potential applications: Exception handling (i.e., trade failures, trade amendments)

03

Potential applications: Break reporting and analysis

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## Robotic Process Automation & Digitization

### Wave 1: Labor arbitrage

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost take out</td>
<td>15 – 30 percent</td>
</tr>
<tr>
<td>Model is scalable</td>
<td>To the extent you can scale labor</td>
</tr>
<tr>
<td>Custom/complex, legacy</td>
<td>&quot;Your Mess for Less&quot;</td>
</tr>
<tr>
<td>Access to low cost labor</td>
<td>Necessary to provide continuous value</td>
</tr>
<tr>
<td>Revenue/profit</td>
<td>Correlated to people</td>
</tr>
</tbody>
</table>

### Wave 2: Labor automation

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost take out</td>
<td>40 – 75 percent</td>
</tr>
<tr>
<td>Model is scalable, largely independent</td>
<td>Of labor growth</td>
</tr>
<tr>
<td>Transformative</td>
<td>– new way of doing business</td>
</tr>
<tr>
<td>Access to &quot;rocket scientists&quot;</td>
<td>Who can codify manual processes</td>
</tr>
<tr>
<td>Revenue/profit</td>
<td>Not correlated to people</td>
</tr>
</tbody>
</table>

**Source:** The Outsourcing Institute, Three Secrets Your Traditional Service Providers Are Not Telling You, June 2014

**KPMG analysis**

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Disruptive Technologies: Blockchain

**Blockchain** is a log of all transactions, in a *mutual distributed ledger*, that are verified independently on a network allowing any participant to see the system of record (ledger) with a cryptographic audit trail.

### Transfers – Today

The current traditional ledger structure relies on third custody parties owning transfer of an asset:
- Legacy infrastructure
- Slow clearing and settlement T+n
- Manually intensive
- Prone to errors

### Transfers – with Blockchains

The transfer of the asset ownership is carried out by the blockchain network:
- Shared infrastructure is shared
- Decentralized ledger
- Automated processing
- Cryptographically secured

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3 Blockchain Benefits

Cost savings

- Fully digitized trade cycle reduces # of apps and infrastructure
- Operational efficiencies due to blockchain inherent automation
- Settlement time reduced to near real time
- Cost of capital reduced due to lesser balance sheet exposure
- Lower compliance and regulatory coverage costs
- Lower risk management costs

Qualitative benefits

- Compliance through audit trail
- Transparency of history of events (one truth)
- Regulatory automation
- Record of consensus, cryptographically ensured, auditable trail
- Immutability: Data stored in multiple locations
- Counterparty and settlement risks addressed in permissioned systems
- Introduce unprecedented cohesion to the internal record-keeping process

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3 Disruptive Technologies

Cognitive automation and artificial intelligence

https://www.youtube.com/watch?v=4hC9VxqQKiE&feature=youtu.be