Man versus Machine - The Rise of the Robo Actuary

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The rate of improvement over the last 5 years in a machine’s ability to perform tasks traditionally thought to require human intelligence is astounding.

We are entering a new era, the next big technology revolution, where intelligent machines will work with humans.

The shift has started, organisations are re-thinking traditional work and augmenting it with machine capability.
Agenda

01 What is RPA?
02 Why use it?
03 How do I decide what to automate?
04 Where can RPA be applied within insurance?
05 What does this mean for me and my organisation?
WHAT IS ROBOTIC PROCESS AUTOMATION?
RPA mimics human interactions with software applications, to automate repetitive, rule-based processes

**What is Robotic Process Automation?**

RPA is…

<table>
<thead>
<tr>
<th>RPA is…</th>
<th>RPA is not…</th>
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<tbody>
<tr>
<td>Computer coded software</td>
<td>Walking, talking auto-bots</td>
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<tr>
<td>Programs that replace humans performing repetitive rules-based tasks</td>
<td>Physically existing machines processing paper</td>
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<tr>
<td>Cross-functional and cross-application macros</td>
<td>Artificial intelligence or voice recognition and reply software</td>
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It’s different from other types of automation – it is quick to implement, mimics human processing and minimises the need for costly system integration.

Software, commonly known as a ‘robot’, is used to capture and interpret existing IT applications to enable interaction across multiple IT systems.

Multiple robots can be seen as a virtual workforce – a back office processing centre but without human resources.

A bot is configurable software, which is set up to perform tasks you assign and control.

Typically, each bot runs one end-to-end process, which usually consists of many sub tasks.

Additional bots can be added to tackle complex processes.

HUMAN WORKFORCE + VIRTUAL WORKFORCE = FUTURE WORKFORCE
How does RPA fit in my team/organisation?

The ‘virtual workforce’ reports to the same managers as the human team members, and is controlled by the Robot Manager.
Our view on the state of the market

The different flavours of process automation

- Robotic Process Automation: "Mimics Human Actions & Decisions"
- Cognitive Computing: "Mimics Human Judgment"
- Artificial Intelligence: "Augments Human Intelligence"

Key Tools / Technologies:
- Siri
- WorkFusion
- Aydii
- UiPath
- TensorFlow
- IBM Watson
- Narrative Science
Examples

Robotics that help streamline tech capabilities

**SoftBank’s Pepper the robot**
The robot can provide basic information as well as information on discounts.

**Virtual bots**
1. Chatbots in Insurance, eg: LINA Korea’s chatbot through a mobile messenger app
2. Next Insurance launched of the world’s first full insurance sign up via Facebook Messenger.

**Amelia**
Upload complex technical manuals, digest this in seconds and then answer questions or execute tasks.

**IBM Watson Explorer**
Eg: Fukoku Mutual Life Insurance. Calculate payouts to policyholders by analysing your medical data (eg: length of hospital stays, and prescriptions needed to make insurance payouts).
WHY USE RPA?
Why RPA?

RPA provides organisations with solutions that can be implemented both quickly and cost effectively without large IT integration effort.

Organisational Challenges

- **Cost**: Increasing competition and customer expectations
- **Reliability**: In control, reliable processes, in accordance with laws and regulations
- **Quality**: Uniform, high quality output
- **Growth**: Growth ambition, regulatory, consumer and technology trends
- **Scalability**: Fully scalable, nimble, low-cost operating model

Traditional solutions

- **Process improvement / cost reduction**
- **Outsourcing and offshoring of business processes and IT**
- **Core system replacement**
- **System integration**
- **Move to digital, mobile, and self service**

Alternative solution

**Robotic Process Automation (RPA)**

A new alternative which can be implemented faster, more cheaply, and be more flexible than traditional solutions.
Benefits of RPA

- **Increased process speed**
  A reduction in cycle time, with zero fatigue

- **Reduction in error**
  Double digit reduction in error

- **Increased compliance**
  Rules based automation enforces compliance requirements and keeps audit trails 100% of the time

- **Flexible and scalable**
  Scale up or down based on demand

- **Non-invasive technology**
  No major IT changes or deep integration with underlying systems

- **Detailed data capture**
  Tasks performed can be monitored and recorded at every step

RPA is a complementary process transformation option driving value with low cost and low risk.

* Size of the bubble = benefit to the organisation
“Robotic automation tools are up to 65% less expensive than offshored based full-time employees”

– Everest Group’s Finance and Accounting Outsourcing Annual Report 2014
What is your view on robotics/automation?

- **A useful automation tool, but the big prize will come with cognitive and AI technologies**
- **A temporary stop-gap until my core systems get better**
- **An operating model play, enabling the introduction of a 'digital workforce'**
- **A pure technology implementation**
- **A fad that will disappear in a few years**
HOW DO I DECIDE WHAT TO AUTOMATE?
Is my process a candidate?

**What?**
- Rote consolidation of disparate data sources?
- Manual retrieval of data from legacy systems?
- Rekeying or resubmitting of data?
- Manual interrogation of multiple systems?
- No subjective input?
- Repetitive data gathering?

**Why?**
- Sweet spot for RPA ‘Quick Wins’

**How?**

**Where?**

**So What?**
What processes are suitable to deploy with RPA?

Anything that is rules based and repetitive – Shared Services is a good place to start....

- Finance processes
- Operational processes
- HR processes
- Procurement processes
RPA in action

https://www.youtube.com/watch?v=OT5plcRWUzU

What?

Why?

How?

Where?

So What?
WHERE CAN AUTOMATION BE APPLIED WITHIN INSURANCE?
Actuarial examples

Existing tools can assist in the following ways:

**Data**
Using rules-based processes and data automation to mimic human actions
- Extract data
- Manipulate and prepare data
- Data integrity checks
- Flag data errors and attempt to correct
- Reconcile data

**Model**
Using cognitive automation to enhance the actuarial reserve review process
- Run projections, summarise, check and group results
- End-to-end without human intervention
- Workflow management
- Modelling of development factors and patterns

**Reporting**
Using natural language generation to augment actuarial memorandum generation
- Document selected assumptions
- Provide audit trail
- Provide issue log
- Generate reports

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Current extent of automation

- Fully automated (I am a robot myself)
- We have successfully automated most manual processes
- We have successfully automated a number of manual processes
- We have trialled / are trialling automating a couple of processes
- No automation

Distribution | Data Warehouse | Underwriting | Pricing | Reserving | Portfolio Management | Capital management / Reinsurance / Investment | Reporting | Claims management | Staff management

1 2 3 4 5
Effectiveness of current automation

- Very effective
- Effective
- Somewhat effective
- Not effective at all

Distribution | Data Warehouse | Underwriting | Pricing | Reserving | Portfolio Management | Capital management / Reinsurance / Investment | Reporting | Claims management | Staff management

1 | 4 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0
Can your organisation benefit from more automation?
Where would you like to be in 5 years’ time?

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<th>Activity</th>
<th>General Insurer / Reinsurer only</th>
<th>Life insurer / reinsurer only</th>
<th>Conglomerate General &amp; Life Insurer / Reinsurer</th>
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<tr>
<td>Distribution</td>
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To what extent do current processes need to be re-engineered as part of automation?

End to end or significant process re-engineering (good opportunity to rethink processes)

Re-engineering only where there is significant benefit

Slight process tweaks where this makes sense

No process change unless absolutely required to enable automation technologies

Not sure

Proportion of Responses

- Large
- Medium
- Small
Obstacles that may hinder automation adoption

1. Lack of awareness of the technologies/benefits/possibilities available
2. Archaic systems / Push back from IT department
3. Inertia
4. Too costly to develop and implement
5. Not enough potential benefits from automation
6. Lack of catalyst from top management
7. No incentive to make changes to the status quo
8. Everyone is too busy in their current role to make any changes to the status quo
WHAT DOES THIS MEAN FOR ME AND MY ORGANISATION?
The Deloitte Millennial Survey 2017 shows that:

- **40 percent** see automation posing a threat to their jobs.
- **44 percent** believe there will be less demand for their skills.
- **51 percent** believe they will have to retrain.
- **53 percent** see the workplace becoming more impersonal and less human.
How do you feel about impact of automation/robotics on your job?

- **Strongly Negative / I feel my job is threatened**
- **Negative**
- **Neutral**
- **Positive**
- **Highly Optimistic: automation will remove the repetitive tasks in my role and make my job more interesting**
Automation in your career

Doctors
- IBM’s Watson is being trained to diagnose and treat cancer

Lawyers
- Robot lawyers can help unrepresented people tell their story in criminal cases

Actuaries
- Historically the focus of automation has been on the calculation engines, but more focus is being paid to the other ends of the process.
Automation in the Actuarial profession

1. Hypothesising
2. Modelling and results collation
3. Decisions and actions

Proportion of time spent

Today

Future


Today

Future

1. Hypothesising
2. Modelling and results collation
3. Decisions and actions


Today

Future

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Future

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How can we prepare for more widespread automation/robotics?

- Embrace the change and don’t be afraid
- Focus on value adding activities
- Understand the possibilities
- Upskill to capitalise on opportunities
- Develop judgement and soft skills
Discussion
Skills robots can bring to insurance processes

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<td>Gather and Collate</td>
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<tr>
<td>• Data search and retrieval (internal and external secure site access)</td>
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<tr>
<td>• Data collation and aggregation/ consolidation</td>
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<td>• Unstructured data collation and analysis</td>
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Legend:
- **Small**
- **Medium**
- **Large**
Effectiveness of current automation

Very effective 4
Effective 3
Somewhat effective 2
Not effective at all 1

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