Automation in the age of cognitive computing

Institute for Robotic Process Automation (IRPA) 7 December 2016

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Al has been around for awhile, but this time it's different



Automation in the age of cognitive computing

What does Artificial Intelligence mean to us?



But this



Automation system

- Interacts naturally, e.g., reads and writes documents like human, conversational
- Learns, i.e., becomes more ► effective through use and experience

►

- Fit to purpose
 - Image source: Techipedia

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If AI is an automation system, how does it differ from Robotic Process Automation (RPA)?

- Unstructured Input
 - Image, speech, text
 - Search to Word2Vec
- Inferential
 - Machine "learning" is statistical "estimation"
 - Probabilistic outcomes
- Rapidly evolving



Image source: Horses for Forces, July 2015



RPA is extremely disruptive...

... because of a combination of lean deployment with clear benefits

Every reason to expect that the value proposition is enduring

Market in RPA professional services



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Cognitive Automation is equally disruptive and equally compelling

- The tasks that can be automated are high value work, done by highly paid humans
 - "Artificial intelligence is now telling doctors how to treat you," - Wired, June 2014
 - "Artificial intelligence disrupting the business of law," - FT, October 2016
 - "The robots are coming to Wall Street," NYT, February 2016
- The information that can be ingested to drive the automation is vastly richer
- It can, and should, also be non-invasive to users

Market growth expected to follow a similar trajectory

Market professional services related to cognitive computing



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Ensemble solution



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Cognitive Automation: AI integrated in workflow automation





Is it RPA, or is it CA?

- ► The process uses standard technology, with a very well understood interface
- There are multiple paths to successful resolution of the process; but the rules for choosing a path are clear
- It is a pervasive and time-consuming manual process,



x.AI, The Robot Secretary | Living in the Future

Harry Wallop Feature Writer *Telegraph*

▶ ▶ 0:03 / 3:11

CC

HD

Convergence

- Traditional RPA will be deployed with AI technologies
- General purpose process automation tools will grow
- Special purpose AI systems will automate tasks and processes



Image source: Brown Bird Design; Photo: Kenji Aoki https://www.wired.com/2013/04/convergence/



Automation in the age of cognitive computing

The human element: A critical success factor

Technical capability often exceeds behavioral alignment

Behavioral alignment

(Analytics consumption)

- Culture and mental models
- Organization and process design
- Learning and development
- Incentives and rewards



(Analytics production)

- Data science
- Data quality
- Infrastructure and tools •

Lesson for cognitive automation

- Humans will train cognitive bots
 - Bulk training
 - **Reinforcement training**
- Many cognitive bots will augment work of humans

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SCORE # - EYG no: 00048-173GBL ED None

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