



# Is it the way future audits will be conducted?

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# Digital reasoning-The company

- Software company that tracks terrorists across the world
- Established in 2000
- It's software is in the area of 'Cognitive computing'
- With this a computer can mark a seemingly benign statement like "Baby is in the carriage" as suspicious.
- The Company has turned Cognitive computing into high-powered analytic tools for the Intelligence community



# The software, data and the output

- Software:
  - Synthesys
- Data:
  - Large volumes of disparate, disorganised, and seemingly unrelated information
- Output:
  - Intelligible connections between people, places and events
- Delivered to the likes of:
  - US Department of defense
  - US Army's National Ground intelligence centre
  - CIA



## The brute speed of Synthesys

- 233 million documents were processed for a test study "Big data and natural language: Extracting insight from text" done with Oracle in Oct 2012
- The tests found Synthesys on Oracle Big Data Appliance capable of reading and **analyzing in a few hours** the same number of documents that a team of **300 people could analyze in a year.**



## Moving from Defense to Financial services

- Can the same advanced analytic tools used by Defense, be used by Financial services industry to detect frauds?
  - Yes
- They now analyse every shred of digital traffic coursing through the networks to hunt down and expose potential rogue traders, market manipulations, and SEC rule violations



## How is 'Proactive compliance' done?

- Synthesys Smart software maintains constant vigil over
  - Every small email
  - Instant message
  - Media report
  - Memo etc
- To pinpoint **intentions** to engage in prohibited or illegal activity before they develop into infractions
- The crux is moving from evidence to **intention**



# Why is proactive compliance needed?

- Current machine based fraud detection systems use algorithms to scan trading logs and other structured data to look for suspicious patterns
- But this is an issue as:
  - 70% plus data is unstructured
    - and more importantly
  - It is a slow process- by the time analysts detect potential evidence, the horse has bolted out the door



# How is proactive compliance done?

- Synthesys is the Digital Reasoning's system which
  - Weighs each piece of correspondence against the next to determine probable context
  - It matches recent news headlines with data
  - Takes note of personal relationships and flags abnormalities
    - For instance if some employee suddenly starts emailing some other employee in another part of organisation with alarming frequency
  - System refines its results based on previous successes to better look for tell tale signs of collusion, unreasonable trades or information leaks from within.
  - Policy analytics done along with data analytics





## How is KYC (know your customer) monitored?

- Automate the process of building a public profile of new customers and corporate entities by scrubbing publicly available sources of information for risk related data



## How is AML (Anti money laundering) checked?

- Analyse narratives within Suspicious activity reports (SARs) and publicly available information for hidden relationships , concealed networks and previously unknown behaviors.



## How is Unauthorised trading located?

- Discover hidden relationships and trade related activity that have been intentionally obfuscated within email, instant messaging, and dealer chat.



## How are control room violations detected?

- Uncover unauthorised internal or external communication resulting in sensitive information leakage or restricted securities trading



## How is forex rate manipulation traced?

- Expose forex rate manipulation , collusion and front running by automatically identifying associated communications within email, instant messaging and dealer chat.



## How is conduct risk exposed?

- Reveal employees who have become ethically exposed, involved in bribery and fraudulent activities by analysing communication traffic.



# How Synthesys uses human like reasoning

## Step-1 –Read

- Synthesys reads through all your data and highlights the important people, places, organizations, events and facts being discussed.
- Example: The Procter & Gamble Company today announced the appointment of Rajat Gupta, managing director of McKinsey & Company, to its board of directors.
  - Organization: Procter & Gamble Company
  - Verb: announced
  - Person: Rajat Gupta
  - Title: managing director
  - Organization: McKinsey & Company
  - Date: today
  - Position: board of directors



# How Synthesys uses human like reasoning

## Step-2 Resolve

- Synthesys takes those highlighted points and determines what's important, connecting the dots together.
  - Example: The Rajat Gupta being discussed is the same Rajat Gupta who serves on the board of Goldman Sachs, was born in 1948 and graduated from Harvard





# How Synthesys uses human like reasoning

## Step-3 Reason

- Synthesys figures out what the final picture means to you by comparing it with the opportunities, risks and anomalies you're looking for.
- Example: Rajat Gupta now has non-public information about P&G. His former protege Anil Kumar is passing information to close friend Raj Rajaratnam, who is the founder of Galleon Group — which is selling shares of P&G.



## Synthesys summarised by Digital Reasoning

- “Our Machine Learning platform is able to read and understand human communication in context. It aggregates knowledge about the world, and keeps getting smarter.
- It also includes various features, including natural language processing, entity resolution, geo reasoning, temporal reasoning, link analysis, associative net, and open API for integration.”



## The result

- The system can demonstrate compliance rather than merely achieving it



## Synthesys also used to help in Child Trafficking

- Digital Reasoning has helped develop a tool for Ashton Kutcher's Charity that can comb through online postings and help law enforcement officials determine which ones may lead them to children in need of help.
- Just during limited field tests they rescued six minor victims!



# Exploding field of Business intelligence and analytics software

- 2013 world wide spending:
  - \$14.4 Billion



## Tomorrow's audits

- Tomorrow's audits will use
  - Cognitive computing
  - Proactive compliance and
  - Policy analytics etc.
    - To predict, prevent, detect frauds in real time!



## Sources

- Nothing to hide, everything to fear- Fortune Sep 1, 2014
- Website of Digital reasoning- <http://www.digitalreasoning.com/>
- Oracle-BDA-Digital-Reasoning-White-Paper-October-2012
- Nashville tech company partners with Ashton Kutcher's charity to fight child trafficking- Bizjournals.com