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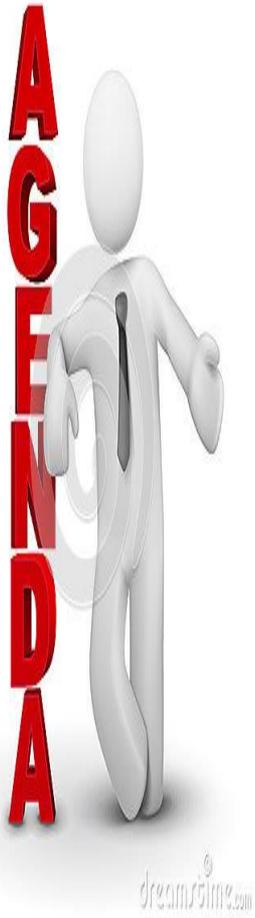
# Data analytics, een stille revolutie richting prachtige disruptie

**drs. Angelique J.M. Koopman RE RA**





# Inhoud



Data analytics

Eye of  
Disruption

Data driven  
mindset

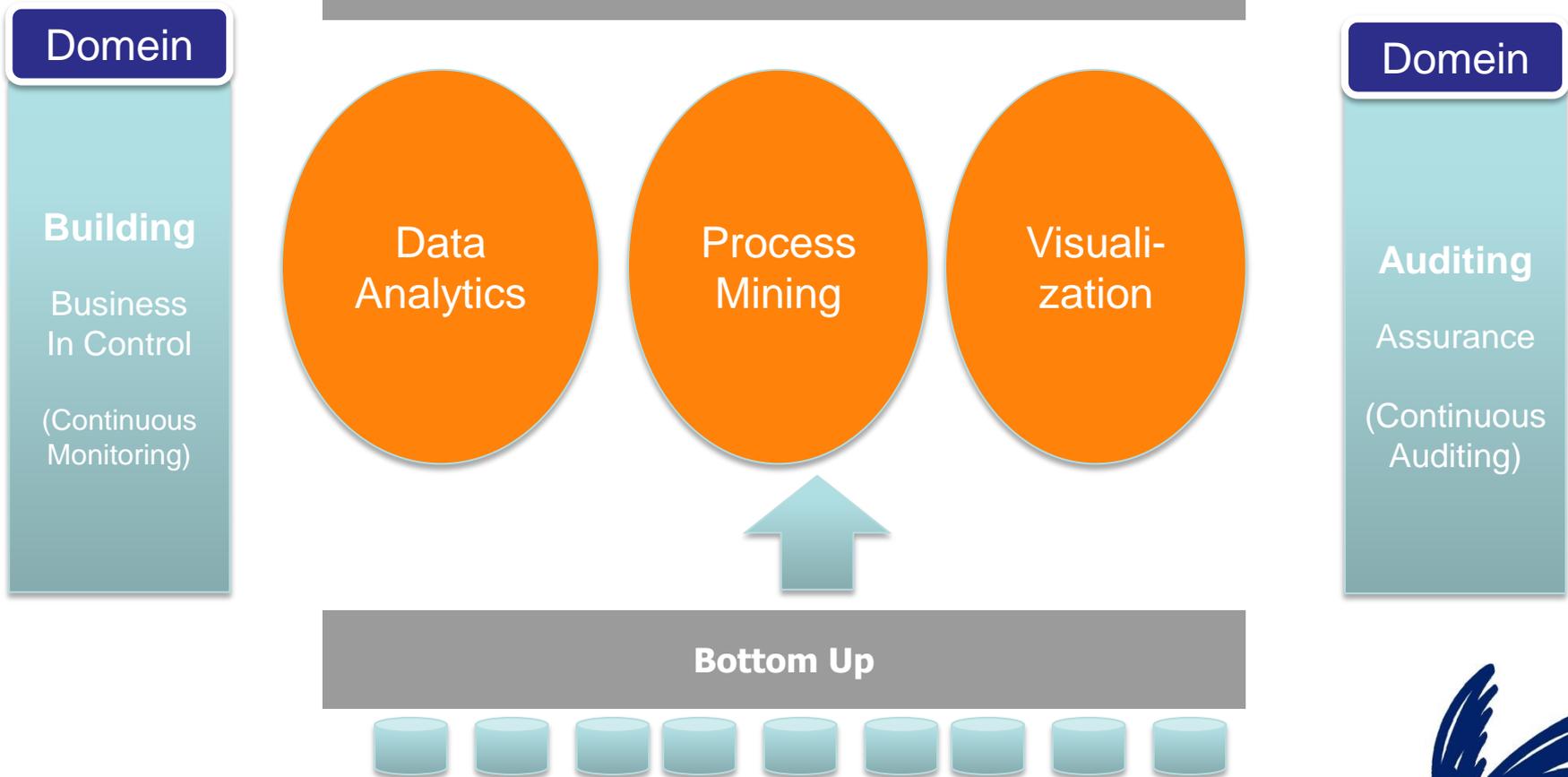
Continuous  
Monitoring/Auditing

Process  
Mining



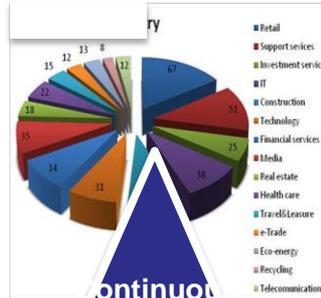


## Drie Coney Pijlers, Twee Hoofddomeinen: Data-driven Mindset



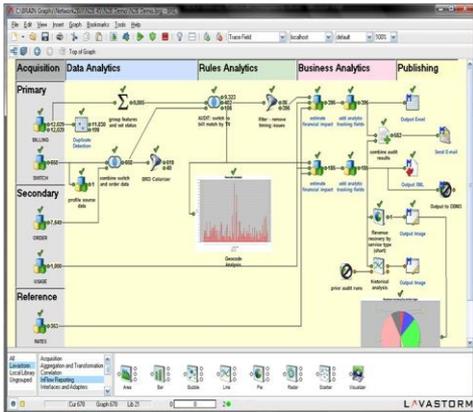


Visualization

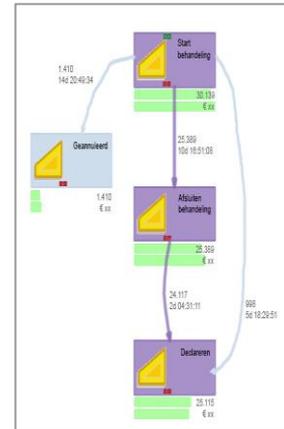


Continuous monitoring

Data-Analytics



Process Mining



Integrate controls

Building the in control foundation

IDENTIFY



Bottom Up

Continuous auditing (Accountants3.0)





# Een data-driven Mindset. Hoe ver weg is de stip aan de horizon?



**40 ZETTABYTES**  
 ( 43 TRILLION GIGABYTES )  
 of data will be created by 2020, an increase of 300 times from 2005



**Volume**  
 SCALE OF DATA

It's estimated that **2.5 QUINTILLION BYTES** ( 2.3 TRILLION GIGABYTES ) of data are created each day.



Most companies in the U.S. have at least **100 TERABYTES** ( 100,000 GIGABYTES ) of data stored.

**The FOUR V's of Big Data**

From traffic patterns and music downloads to web history and medical records, data is recorded, stored, and analyzed to enable the technology and services that the world relies on every day. But what exactly is big data, and how can these massive amounts of data be used?

As a leader in the sector, IBM data scientists break big data into four dimensions: **Volume, Velocity, Variety and Veracity**

Depending on the industry and organization, big data encompasses information from multiple internal and external sources such as transactions, social media, enterprise content, sensors and mobile devices. Companies can leverage data to adapt their products and services to better meet customer needs, optimize operations and infrastructure, and find new sources of revenue.

By 2015 **4.4 MILLION IT JOBS** will be created globally to support big data, with 1.9 million in the United States



As of 2011, the global size of data in healthcare was estimated to be **150 EXABYTES** ( 161 BILLION GIGABYTES )



**30 BILLION PIECES OF CONTENT** are shared on Facebook every month



By 2014, it's anticipated there will be **420 MILLION WEARABLE, WIRELESS HEALTH MONITORS**

**Variety**  
 DIFFERENT FORMS OF DATA

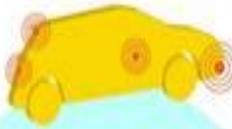
**4 BILLION+ HOURS OF VIDEO** are watched on YouTube each month



**400 MILLION TWEETS** are sent per day by about 200 million monthly active users



The New York Stock Exchange captures **1 TB OF TRADE INFORMATION** during each trading session



Modern cars have close to **100 SENSORS** that monitor items such as fuel level and tire pressure

**Velocity**  
 ANALYSIS OF STREAMING DATA

By 2016, it is projected there will be **18.9 BILLION NETWORK CONNECTIONS** - almost 2.5 connections per person on earth



**1 IN 3 BUSINESS LEADERS** don't trust the information they use to make decisions



Poor data quality costs the US economy around **\$3.1 TRILLION A YEAR**



**27% OF RESPONDENTS**

**Veracity**  
 UNCERTAINTY OF DATA

in one survey were unsure of how much of their data was inaccurate

# Onze wereld NU



# Data Driven! Bottom(s) Up!





## 3.0 Aanpak van



1. Understand the business
2. Review the processes
3. Build the Analytics
4. Perform audit and document scripting
5. Evaluate and Share our findings

Data-  
Analytics

Process  
Mining



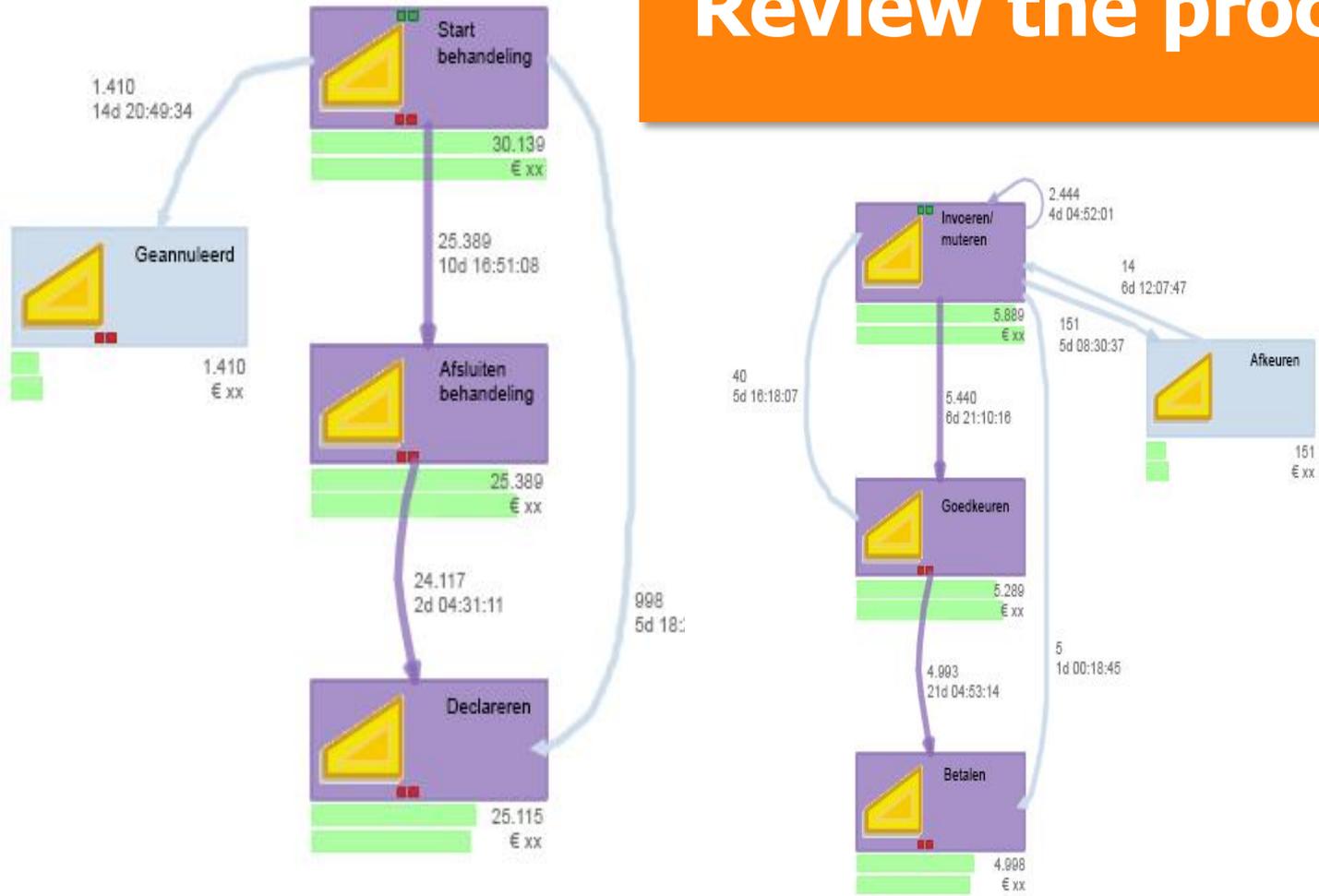


**TODAY**  
**Understanding**  
**the business**





# TODAY Review the processes





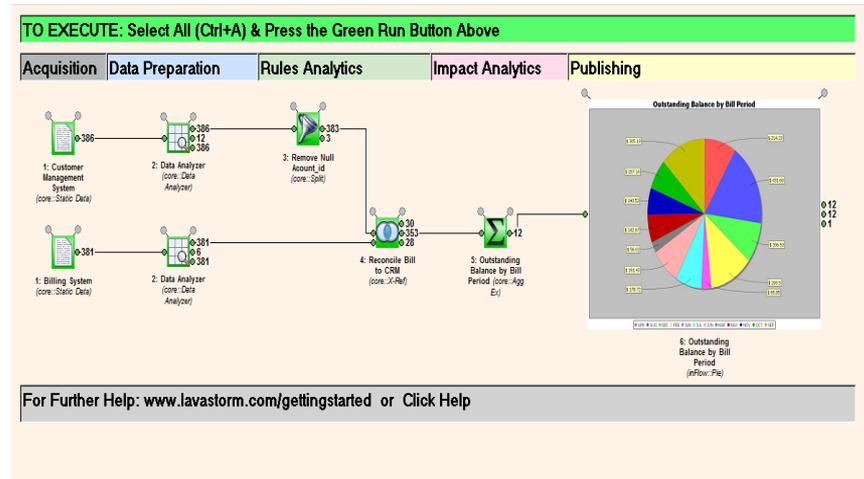
# TODAY Data Analytics

Business Trends & Developments reporting

Audit Alerts & Exceptions

Periodic 'Automated' audit procedures

Starreveld based auditing – ad hoc



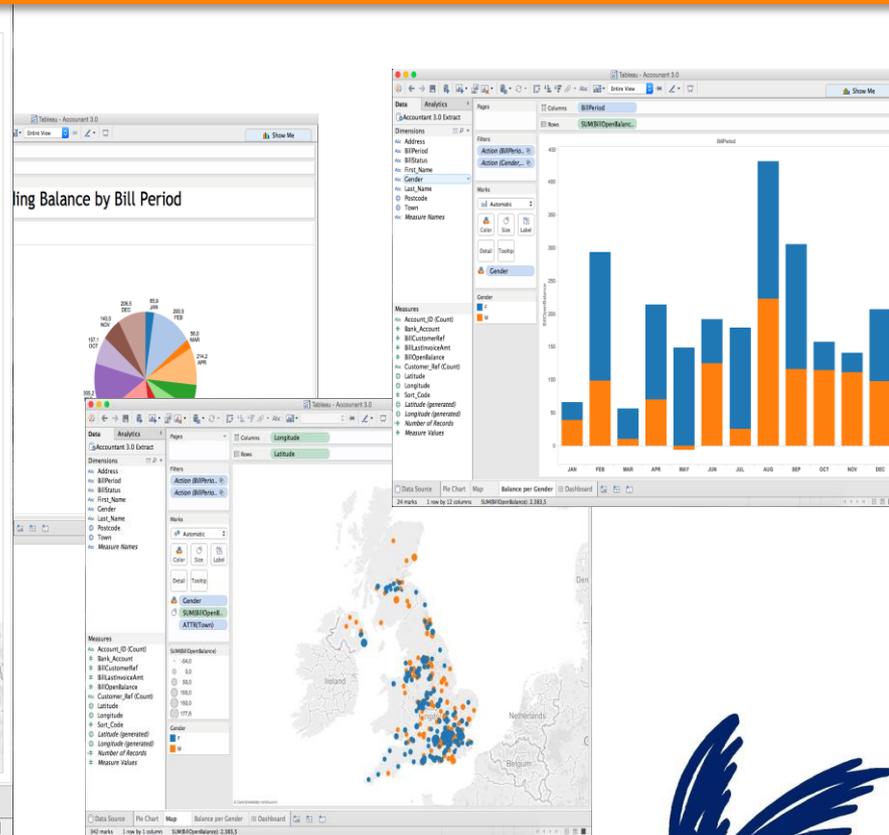
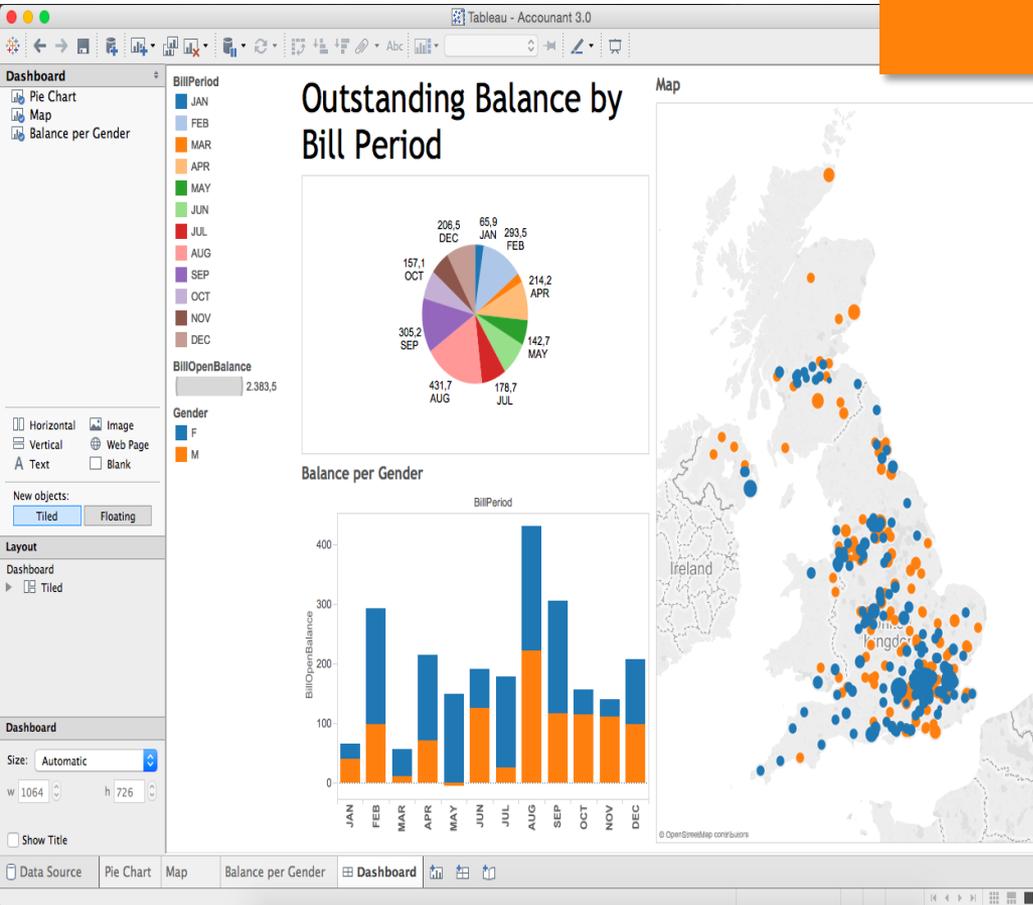


# TODAY Perform and Document





# TODAY Share our findings





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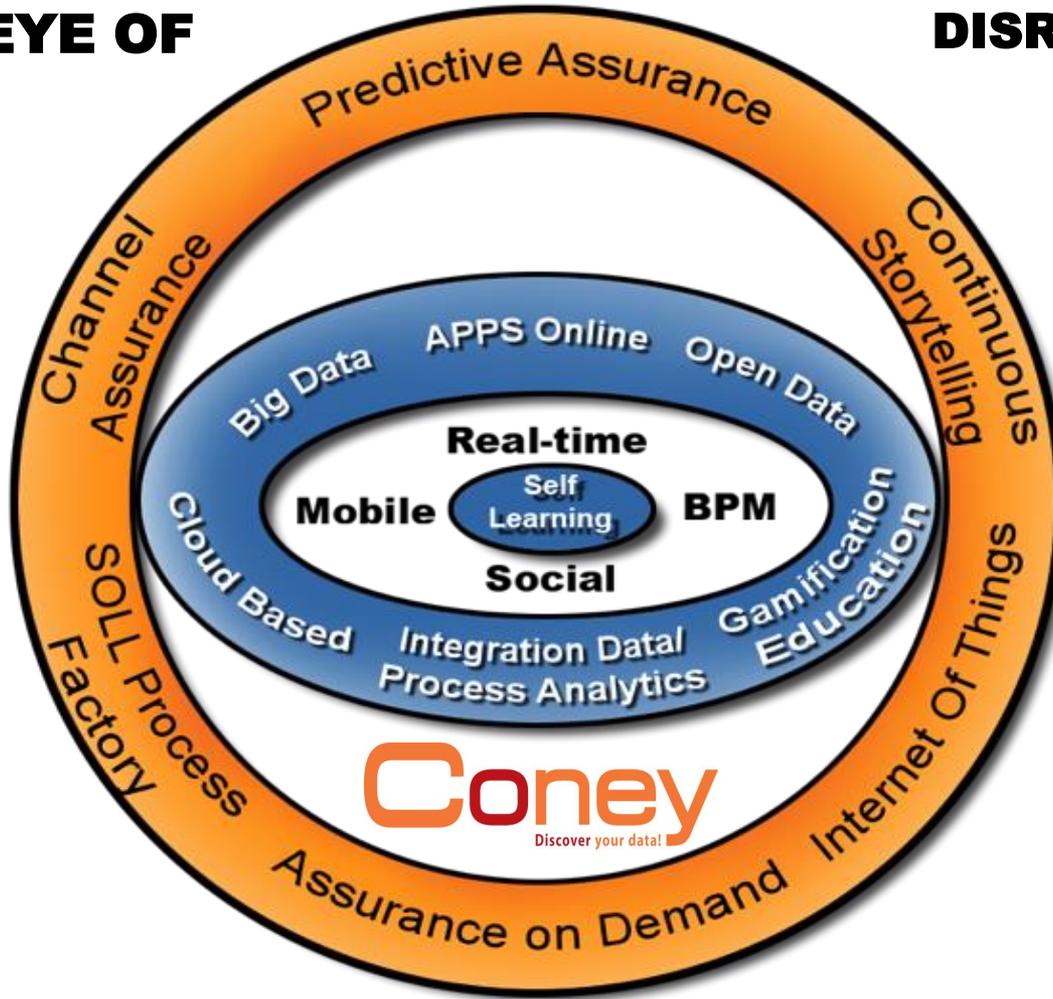
**NEXT 3 TO 5  
YEARS**





# THE EYE OF

# DISRUPTION



**NEXT 3 -5 YEARS**

**Past**

**Future**



# INTEGRATION PREDICTIVE ANALYTICS IN AUDITS

**NEXT 3 -5 YEARS**



# LOOKING AHEAD BEYOND 5 YEARS





# BEYOND 5 YEARS

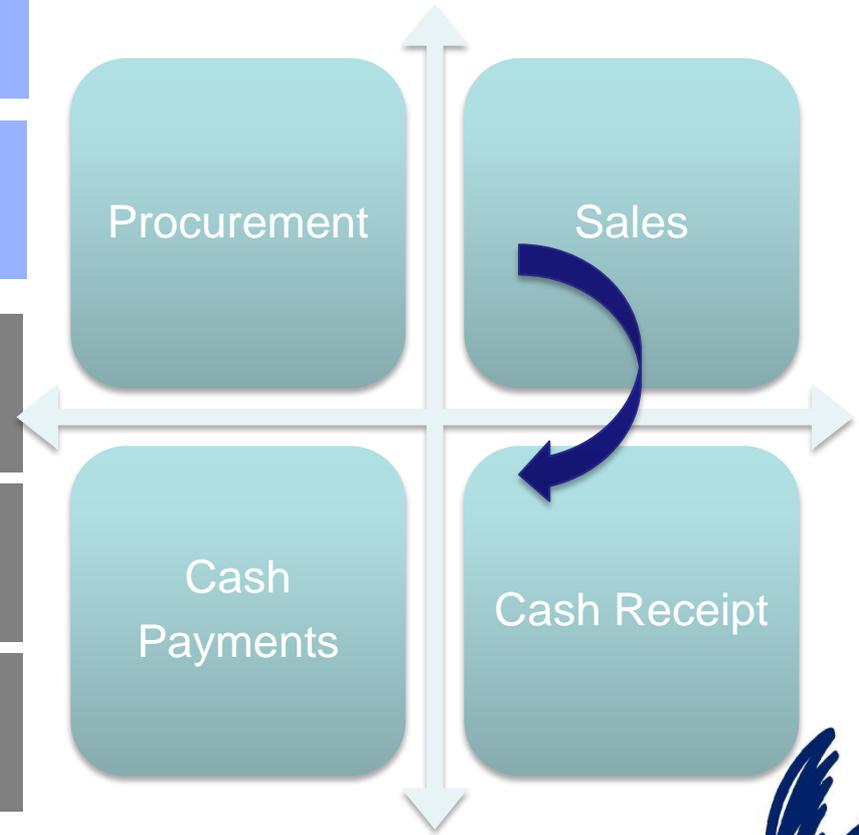
## Top Cycle Approach Examples:

**RETAIL**

**PRODUCTION**

**PROFESSIONAL SERVICE COMPANIES**

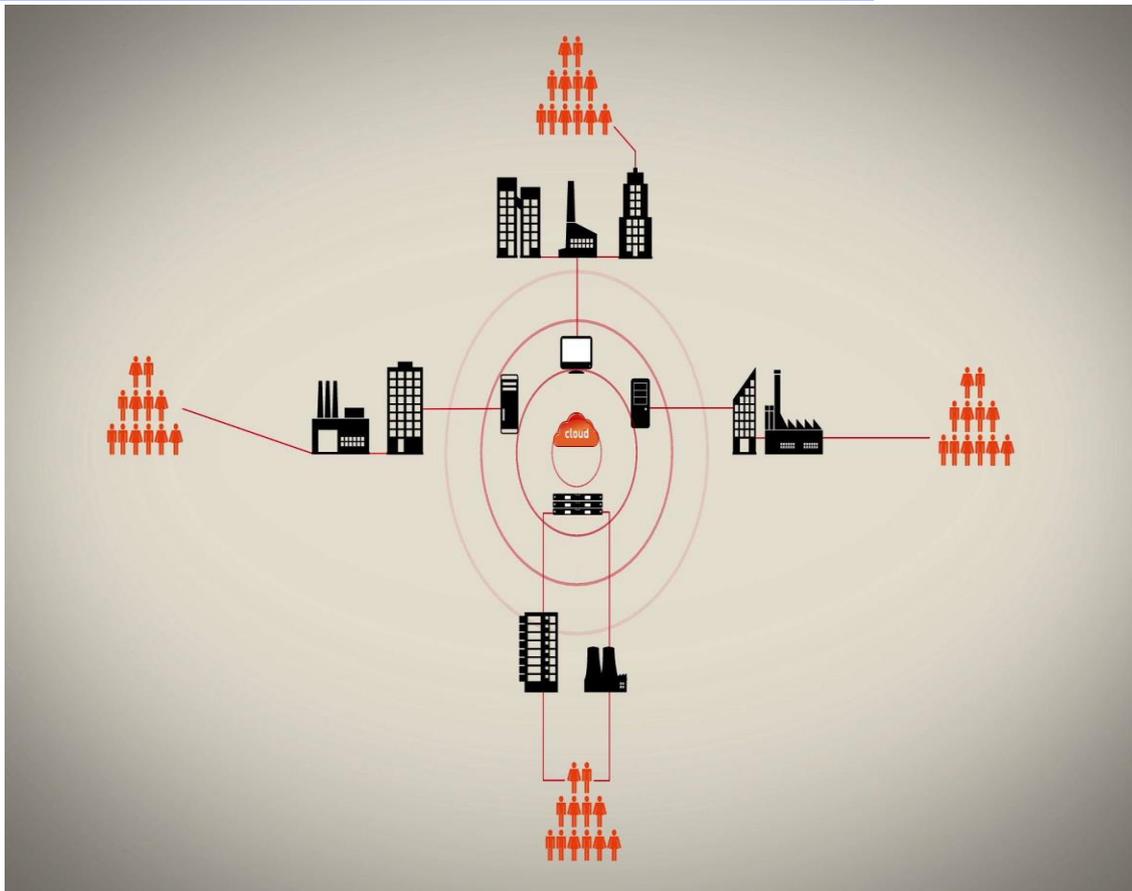
# PROCESS MODEL FACTORY





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# BEYOND 5 YEARS



We will see  
Channel  
Assurance  
FRANCHISE



# Will auditors still be human?

