The Future of Auditing.

The Future of Auditing

- Audits are different now then they were 20 years ago… or 40 years ago

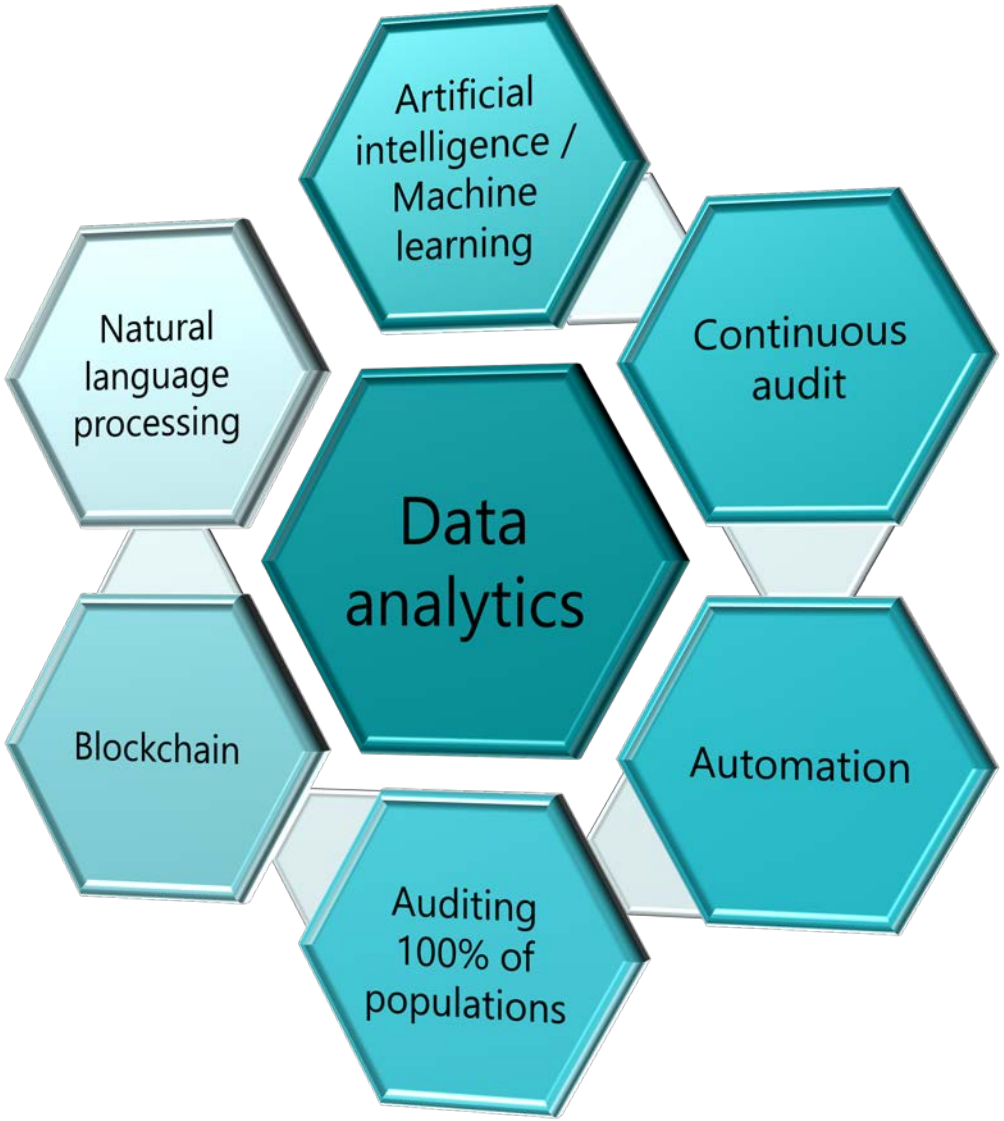
- Technology and environment are always changing – so what's different now?

BIG data

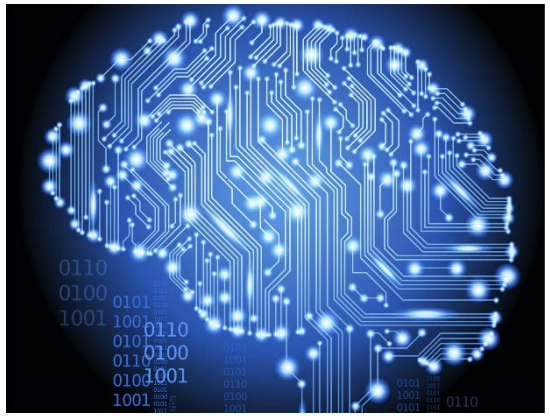
The Future of Auditing

- AICPA White Paper (November 2012): "Evolution of Auditing: From the Traditional Approach to the Future Audit"
- AICPA Publication (2015): "Audit Analytics and Continuous Audit"
- AICPA RADAR Initiative started (December 2015)
- Pending release of Guide to Audit Data Analytics (by end of 2017?)

What is the Audit of the Future?



Artificial Intelligence (AI)



Vision	Speech	Language	Knowledge
Computer Vision	Custom Recognition	Linguistic Analysis	Academic Knowledge
Emotion	Speaker Recognition	Language Understanding	Entity Linking
Face	Speech	Text Analytics	Knowledge Exploration
Video	Translator	WebLM	Recommendations

What is it?	What does it do for us?	
• Technology driven services that mimic human capabilities such as vision, speech, and thinking • Allows us to leverage data to conduct machine learning. Instead of writing rules based software, applications can "learn" and "predict" by continually making connections between data much like the brain does.	• Enhances capabilities of existing technology • Enables new technology solutions	• Interface with staff to enhance our services • Scales beyond human ability to process data

Data Analytics

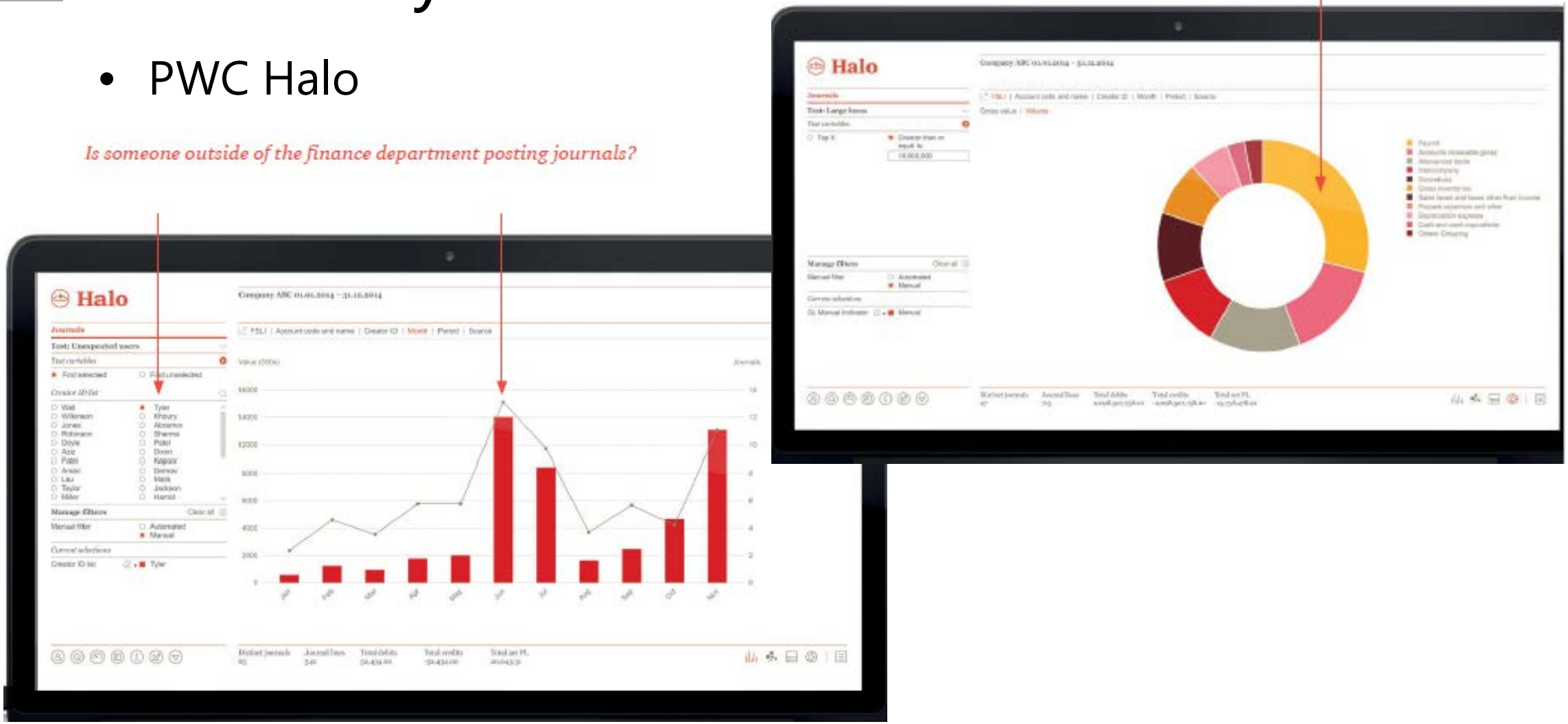
- Descriptive analytics = Provides insight based on past information
- Predictive analytics = Assists in understanding the future and provides foresight by identifying patterns in historical data.

Data Analytics

- PWC Halo

Is someone outside of the finance department posting journals?

Why are there unexpected journals posted to key accounts?



Data Analytics

- Inflo

Data Analytics

- Predictive based on multiple factors
- Machine learning – correlations are detected
- Result = the computer tells us when something is wrong

When these factors are present:	Expected relationship:	Results outside of normal range:
Industry sub-category = Food/beverage manufacturing Compounded sales growth over the past 4 years = 5-10% Average price per item = Less than $500 Raw material % of total cost = 20-30% xxx… (more factors…)	Inventory should be 35-40% of sales	Inventory is 60% of sales

Natural Language Processing

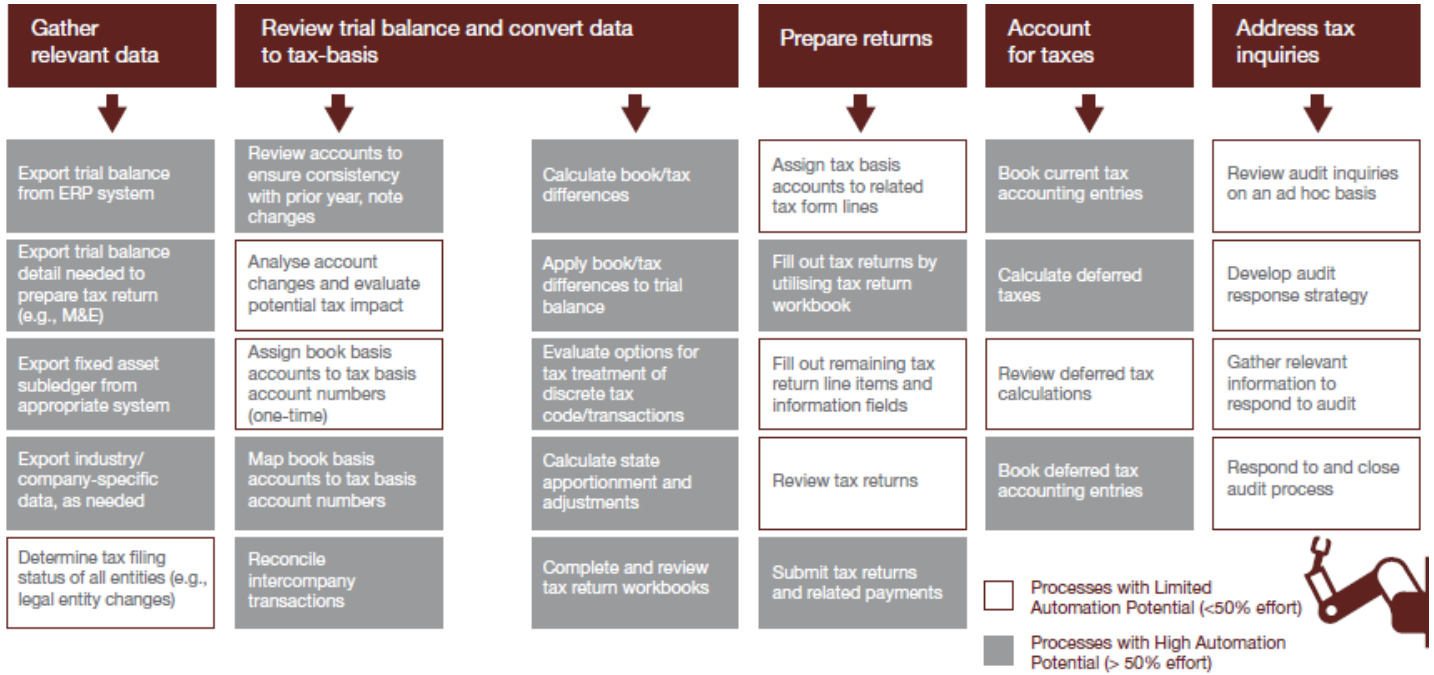
- Turn unstructured data into structured data
- Read and excerpt large volumes of written (unstructured) data
- Natural language generation – turn structured data into words

Natural Language Processing

Equity Purchase Agreement - 6.pdf

Date	1st day of March, 2014	2/45
Buyer and Seller	ABC India Holdings, Inc., a corporation organized under the laws of the State of Delaware, United States of America and having its principal place of business at Address ("Majority Buyer", which expression will include its affiliates, successors and permitted assigns, unless repugnant to the context or meaning); 2. ABC India Holdings, LLC, a limited liability company organized under the laws of the State of Delaware, United States of America and having its principal place of business at Address ("Minority Buyer", which expression will include its affiliates, successors and permitted assigns, unless repugnant to the context or meaning, and together with Majority Buyer referred to herein as "Buyer"); 3. Mr. Big Bird, residing at Address, United States of America ("BB", which expression will include his heirs and successors); 4. Ms. Cookie Monster, residing at Address, United States of America ("CM", which expression will include her heirs and successors); and 5. Oscar's Garage India Private Limited, a private limited company incorporated under the Companies Act, 1956 and having its registered office at Address ("Company", which expression will include its affiliates, successors and permitted assigns, unless repugnant to the context or meaning).	2/45
Title	SHARE PURCHASE AND SHAREHOLDERS AGREEMENT	1/45
Assignment of Agreements	All material contracts, agreements or arrangements, whether written or verbal, to which the Company is a party to as on the Signing Date, represent valid enforceable obligations of the Company. None of these agreements have been entered into in violation of Applicable Laws and the Company, and the other contracting parties have respected their obligations under those agreements	40/45
Closing Payment	"Closing Date Payment" is defined in Clause 5.2(a)(i);	4/45
	At Closing, the Buyer must: (i) pay an amount equivalent to the Base Purchase Consideration, less any adjustments specified under Clause 3.2(a) ("Closing Date Payment"), to the designated bank accounts of the Sellers (the details of which must be provided by the Sellers to the Buyer in advance);	16/45
Minimum Cash	If the Closing Cash, determined on the basis of the Sellers' Closing Accounts, is less than INR 6,000,000 ("Target Closing Cash")	9/45

Robotic Process Automation (RPA)



What is it?	What does it do for us?	
• Next generation workflows with increased automation • System independent, no integration needed by emulating a business user	• Eliminates redundant work • Reduces error rates • Enhances compliance • Rapid time to market	• 24/7 availability • Standardizes workflow • Lowers cost • Documented work

Robotic Process Automation (RPA)

Audit Cycle	Items selected	Vouched to	Exceptions for follow up:
Cash	Cash accounts - bank balances from recs	Confirms	None
Cash	Outstanding checks	Subsequent bank stmt	None
AR/Revenue	Sales transactions in the last week of the year	Shipper	3 exceptions <click for details>
Inventory	Raw material items in ending inventory	Last purchase invoice	10 exceptions <click for details>
Xxx (etc.)	Xxx	Xxx	Xxx

DATA – The constant challenge

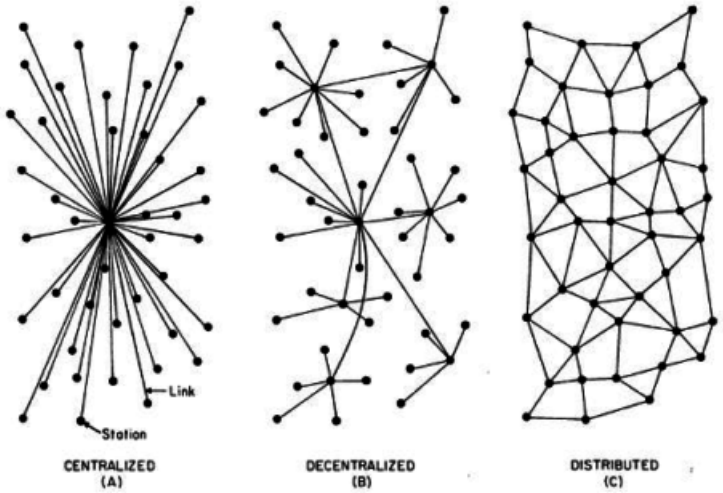
- Access
- Management
- Integrity
- Security
- **Readability**

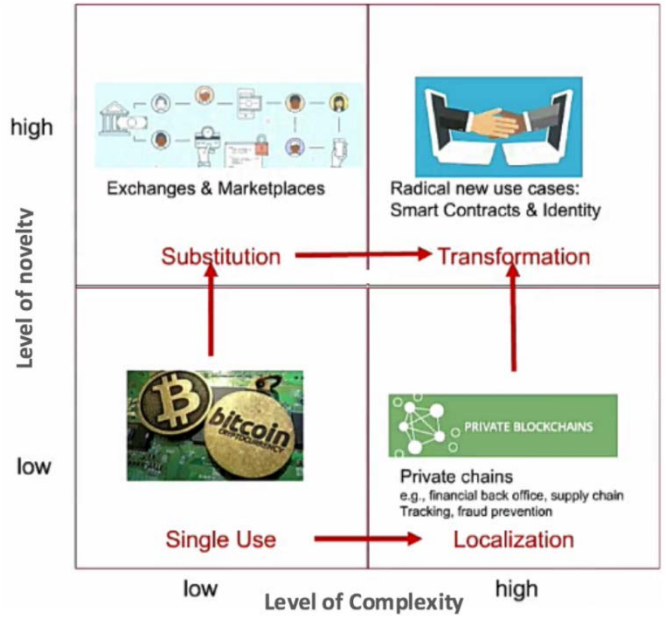
Data Ingestion

- Connectors
  - Build, but then have to maintain
  - “Smart” or “Universal” connector

- AICPA Audit Data Standards
  - Uniform standardization of data requested by auditors
  - Efficiency and effectiveness of audit process
  - Addresses technical design (files, tables, formats) and supplemental issues
    - Base Standard
    - General Ledger Standard
    - Sub ledger standards (inventory, order to cash, procure to pay)

Blockchain





What is it?	What does it do for us?
• Network of systems that follow a cryptographic protocol to validate updates to a shared transaction database	• Trust / Non-repudiation • Transparency • Decentralization • Scalability • No Intermediaries

The Future of Auditing

- CGMA Magazine "Big data, analytics, AI, and the finance professional"

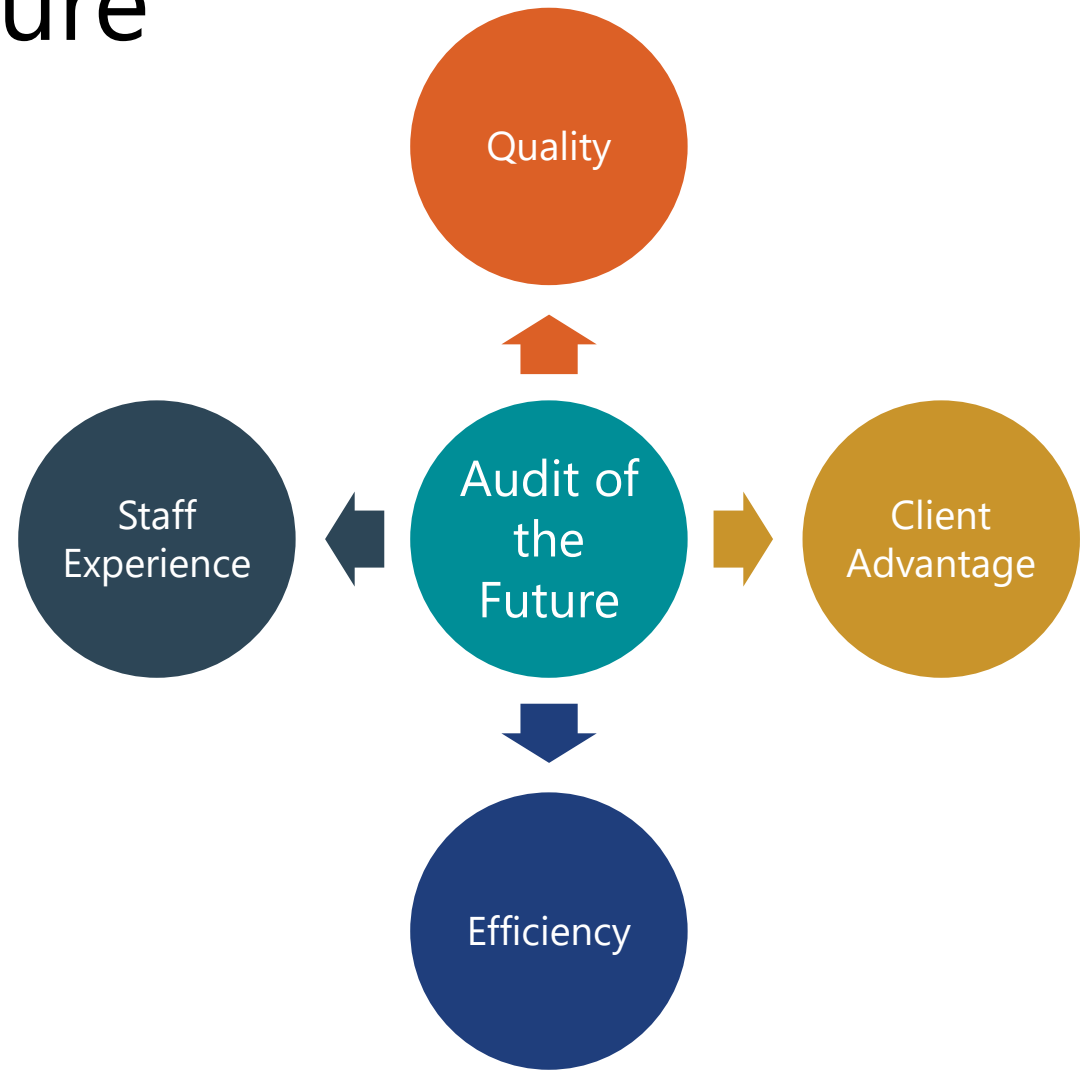
The traditional finance pyramid where less than 7% of the function is focused on organisational strategy

The transformed finance profile where a greater proportion of the function is focused on strategic decision support

The Future of the Profession

- Impact on staffing models, training and skills

- Add value to clients:
  - Insights
  - Continuous auditing

Audit of the Future

- Change in
  - Technology
  - Approach