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Co-Founder

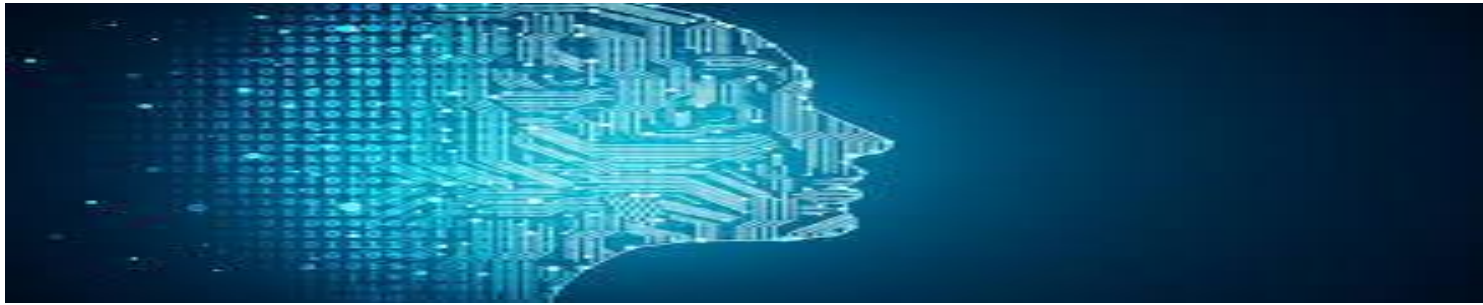
From big data to insights: Solving  
pressing issues & Capturing  
market opportunities



# Our objectives – what I want to talk about

- Understand the changing landscape of data
  - Big data, Analytics and AI
- The possibilities that come with data
  - Reach new customers
  - Serve customers better
  - Reduce fraud
- The impact on financial services generally
- Insurance & Big data: Where we stand and where we are going
- Our paralysis and What we can do



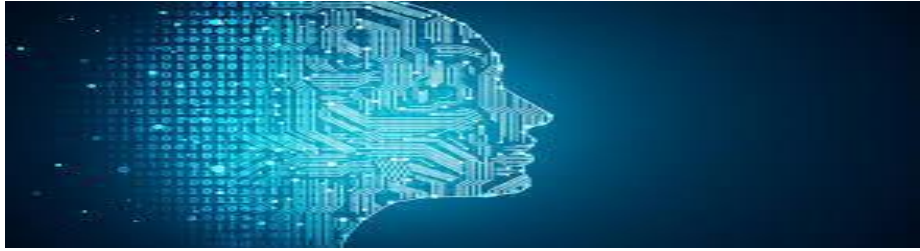


# Meet Sophia the robot

- She:
  - has met Presidents, PMs
  - Can Hold eye contact
  - Recognise faces
  - Understand human speech
- She became Saudi Arabian recently – a first for a robot
- What's behind her?
  - Massive data – Big Data
  - Incredible computing power
  - Leading to realtime Data Analytics
  - Its artificial intelligence at work
  - Its very early stages of AI – the future is unimaginable right now!







# Ever tried to google yourself or your friend?

- Please take a minute and google yourself or someone you know or even me – James Wambugu
- In just a few minutes ... even seconds
  - You will decide its worth listening to me or not
  - To do business with me or not
- Facebook can predict personality type better than psychometrics
- Tala in Kenya calculates your credit rating if you give them access to your phone for only 5 minutes then lends you money instantly. All you do is
  - Give them access to your phone
  - They have a 28 point algorithm that does this
  - They sweep through your phone data and social media and know who you are & your credit worthiness
- Ever heard of the Cloud Kitchen?
  - As online food delivery grows they now know what people want at what time of day and from which neighbourhoods – can then plan proactively
  - Soon only people looking for ambience will come to restaurants
  - How do they know? Massive data harvested from people orders
- It's the power of data ... organized data otherwise called information



# The Power of data

- On its own data is useless
- Converted into usable insights, information, it is a potent weapon
- Wars are won by data (intelligence) – Numbers 13 records the spies Moses sent to spy the land of Canaan before invasion
- Businesses win big by using data better than competitors
  - Imagine you knew every time someone wants to buy insurance?
  - Imagine you knew their financial information – income levels, spending habits, what they own, where they live etc.
  - Imagine if you knew whether they like phone calls, emails or text messages
  - The truth is today YOU CAN KNOW
- Data itself is business – it's the new factor of production – economics has been turned upside down
  - Would you not buy the above data? Whoever has it, it is tons of money!





# From data to value – analytics

## Data – insights – actions = value

- We always have data ... masses of data ... and now massive data
  - Every interaction with employees & customers & others results in data
  - Every transaction recorded, phone call made, every click, every search, every purchase
  - Every place you visit – hotel, hospital, neighborhood etc.
- Despite massive data with us ... we only use a limited amount of it
  - Not enough time to digest data
  - Insufficient skills to do this
  - The business landscape is changing too fast to keep pace





# From data to value – analytics

## Data – insights – actions = value

- First, we have to
  - Collect – the better word today is trap the data – its flowing out there every second
  - Organise the data
  - Mine it
  - Analyse it
  - Generate usable insights – get an aha moment
- Analytics to gain usable insights
  - Correlations
  - Exceptions
  - Clusters
  - Segments
  - Outliers
  - Predictions
- Then use the insights to generate Value
  - make better decisions
  - take actions

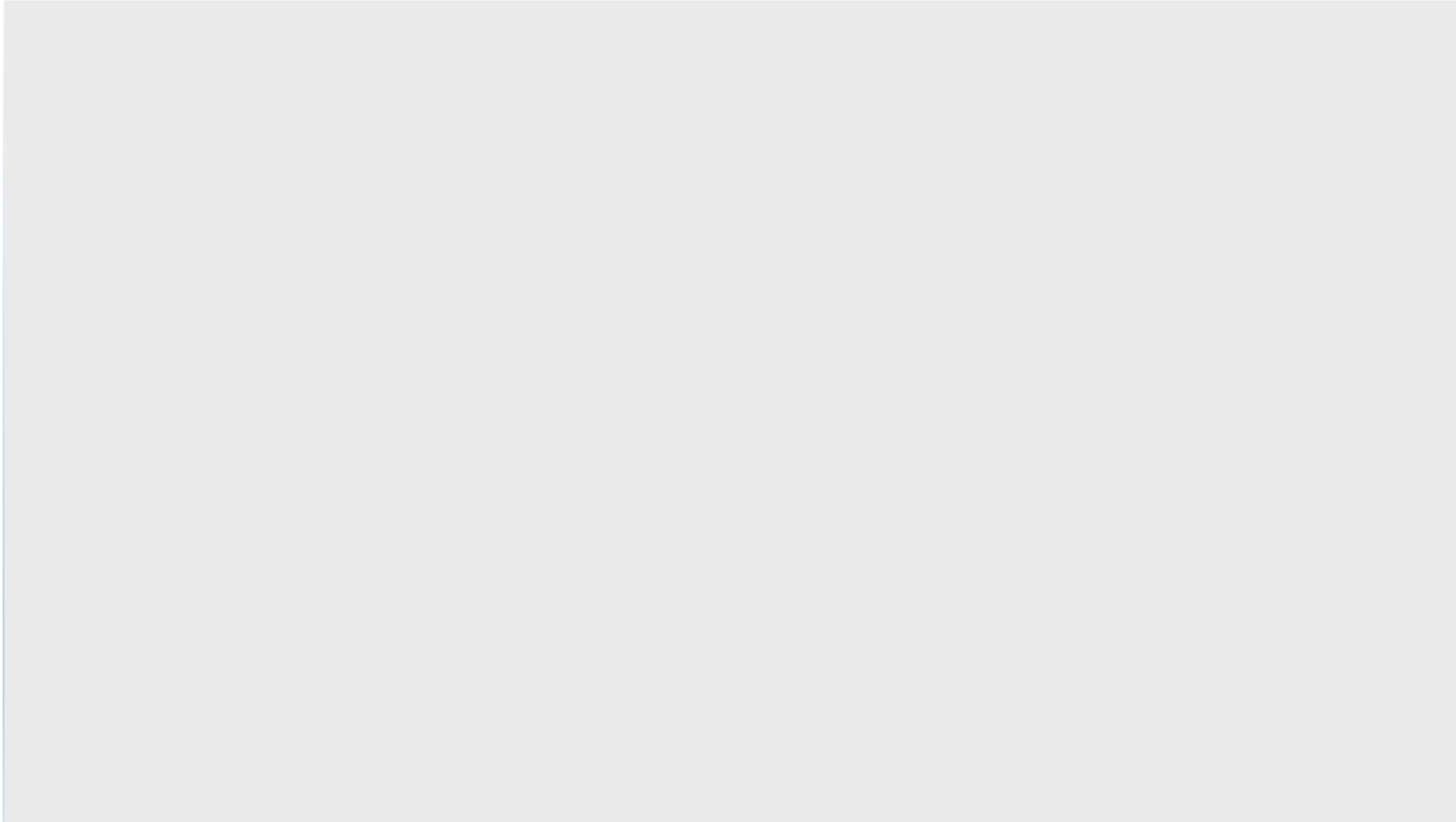


# Big Data & Analytics

- Advanced analytics involving complex applications going beyond BI to:
  - Predictive models
  - Statistical algorithms
  - What if analysis
- Analysis by
  - Data analysts, data scientists, predictive modelers, statisticians
  - But you have to define your aspirations – frame the questions – point of view
  - That's where it starts
- Beyond the BI and standard data analysis to semi and unstructured data like
  - Internet clickstream data
  - Web server logs
  - Social media content
  - Text from customer emails & survey responses
  - Mobile phone records
- Let's watch a video



Lets watch a video





# The Impact of AI in Financial services

From the World Economic Forum



# How Big data, Analytics & AI will change financial services

- From cost centre to profit centre
  - Offering AI enabled back office process improvements as a service to competitors – Ping An in China now offers
  - Then competition will move from back to front office
- Traditional differentiators will erode and new ones will emerge
  - From price, speed and access
  - To customization, capturing attention and developing ecosystems
- From people driven services & advice to Self driven service and advice
  - The role of advisor, agent, broker will diminish especially for personal products
  - The machine will 'know' and handle the client better than a real person
  - For corporate risks – the human intervention will have a new role



# How Big data, Analytics & AI will change financial services

- Collaborative AI driven tools built collaboratively – results in a safer and more efficient system
  - Processes like fraud prevention are in silos each company doing its own thing
  - Cross institutional collaboration can deliver efficiencies and effectiveness
  - AI enabled collaboration in these areas will deliver solutions for shared pain points eg frauds
- Bifurcation of market structures – either large or agile innovators – mid-sized players days are numbered
  - Large players platforms will give cost advantage
  - Algorithms will create room for niche products
  - The middle grounders will neither have resources to build AI enabled innovations nor the scale to have a cost advantage



# How Big data, Analytics & AI will change financial services

- Uneasy data alliances – will lead to winners who collaborate or losers who can't or don't want to find AI partners
- The power of data regulators
- Finding the talent





# The Impact on Insurance

If the big guys do not take up the challenge the pretenders to the thrones will carry the market – Adapted from the WEF document



# So what can Big Data & Analytics gift insurance?

- More customers, new revenue opportunities
- Serve customers better
- Improved operational efficiency
- Prevent or reduce Fraud
- And therefore increase value
- Let's see how
- That's what I came to talk to you about!
- Through ideas tested or thought of, not truths – to trigger quest for answers not to answer



# Insurance is highly sensitive to AI transformation

## Trends

- Self driving cars, telematics changing risk
- Insurtech disruptors esp distribution
- Commoditisation of personal lines
- Distribution networks getting complex to fit in with customers' sophistication

## Issues facing Insurance

- Poor consumer perception of insurance
- Customers expect increased interactions
- Invasion by large technology players
- Growth occurring in non-traditional markets

# Predict Risk with more accuracy, customize products & deploy new products

## **Some changes to accelerate**

- Customers will get more for their money
- More connected, more real time & more accurate
- Distribution through devices & geography
- Brokers, underwriters and adjusters risk disruption

## **Some strategies to take**

- Streamline operations & win on price
- Differentiated claims experience
- Improve/expand distribution strategies
- Insure new types of risks in new ways
- Add on services that supplement insurance

# Improve underwriting efficiency & Risk monitoring

## Improve underwriting, pricing efficiency and accuracy

- Where not possible use technologies to deal with non-standardized cases and exceptions
  - Optical character recognition (OCR) can read, verify and standardize supporting documents, eliminating the need for manual review
- Cytora analyses unstructured datasets to find new patterns

## Increased capital efficiency through better modelling & realtime risk monitoring

- Non-static and complex decision trees can be built with machine learning by analysing past cases, allowing for automated underwriting and pricing of complex and irregular cases
- Fukoku Mutual Life increased payout calculation efficiency by 30% using AI, breaking even on the cost of its investment in automation in less than two years



# Evaluate claims, create workflows that are more accurate and responsive to customer needs

## **Triage and grade claims to increase adjudicator efficiency**

- Manual review of complex documents slows response time
- Rank claim severity using deep learning to read claims documents and score their urgency, severity and compliance to expedite triage
- Zurich Insurance is using AI to review paperwork (e.g. medical reports), speeding up processing times from hours to seconds

## **Process claims instantly**

- Wait time for claims adjudication results in a poor customer experience
- Use of new data to verify damage (e.g. photographs, IoT sensors, weather data) the moment a claim is filed allows institutions to extend initial funds that can immediately address customer needs, while reducing the chance of fraud
- Ping An's "Smart Fast Claim" uses image recognition and pricing algorithms to recognize automotive damage, improving claims efficiency by over 40%
- Solvit in Kenya – provide realtime claims information

## **Reduce fraud using new tools and new data Process**

- Fraud is a major avoidable cost for insurers
- Analytical models using external data (e.g. news reports, social media) can more accurately flag cases of fraud, reducing losses while increasing throughput
- Analysing large quantities of data efficiently using machine learning allows for in-depth review of every submitted claim for fraud
- Shift Technology uses AI to find patterns of fraud in deep claims datasets, which can then be applied to incoming claims in order to flag potential instances of fraud
- Solvit on preacceptance inspections/collect instant claims info

# Augmenting the capabilities of new and existing distribution channels, allowing insurers to expand their reach and scale

## **Increase the efficiency and capabilities of sales agents**

- Predicting lead quality using machine learning by analysing external data (e.g. sentiment analysis on social media) can improve sales efficiency
- Correlating sentiment and usage patterns with historic sales data can predict the likelihood of policy cancellations or renewals
- Allstate is using its personal lines agent network to sell commercial lines products. It has developed an internal chatbot that agents can use to provide accurate quotes and valuable advice for complex commercial clients<sup>19</sup>

## **Use mobile and experience-driven insurance delivery**

- Automated decision making can provide instant pricing and underwriting to quote, bind and issue personalized policies in real time
- Integrations with third-party apps and points of sale can seamlessly integrate insurance purchases into the asset purchase at the point of sale
- Marmalade in Kenya – full digital 4 products

## **Improve scale efficiencies to enter new markets**

- Non-traditional data can be used as a proxy in place of physical doctor check-ups, reducing the cost of verifying a life insurance application
- Advanced visual recognition can automatically validate official documents (e.g. medical forms and doctors' reports)
- Baidu has launched a joint venture with Chinese insurers to use data and AI capabilities to develop an AI-powered underwriting engine. This can expand digital originations at low cost



AI allows institutions to be more agile, enabling them to deploy new products in response to emerging risks

### **Use proxy data to insure new risk categories**

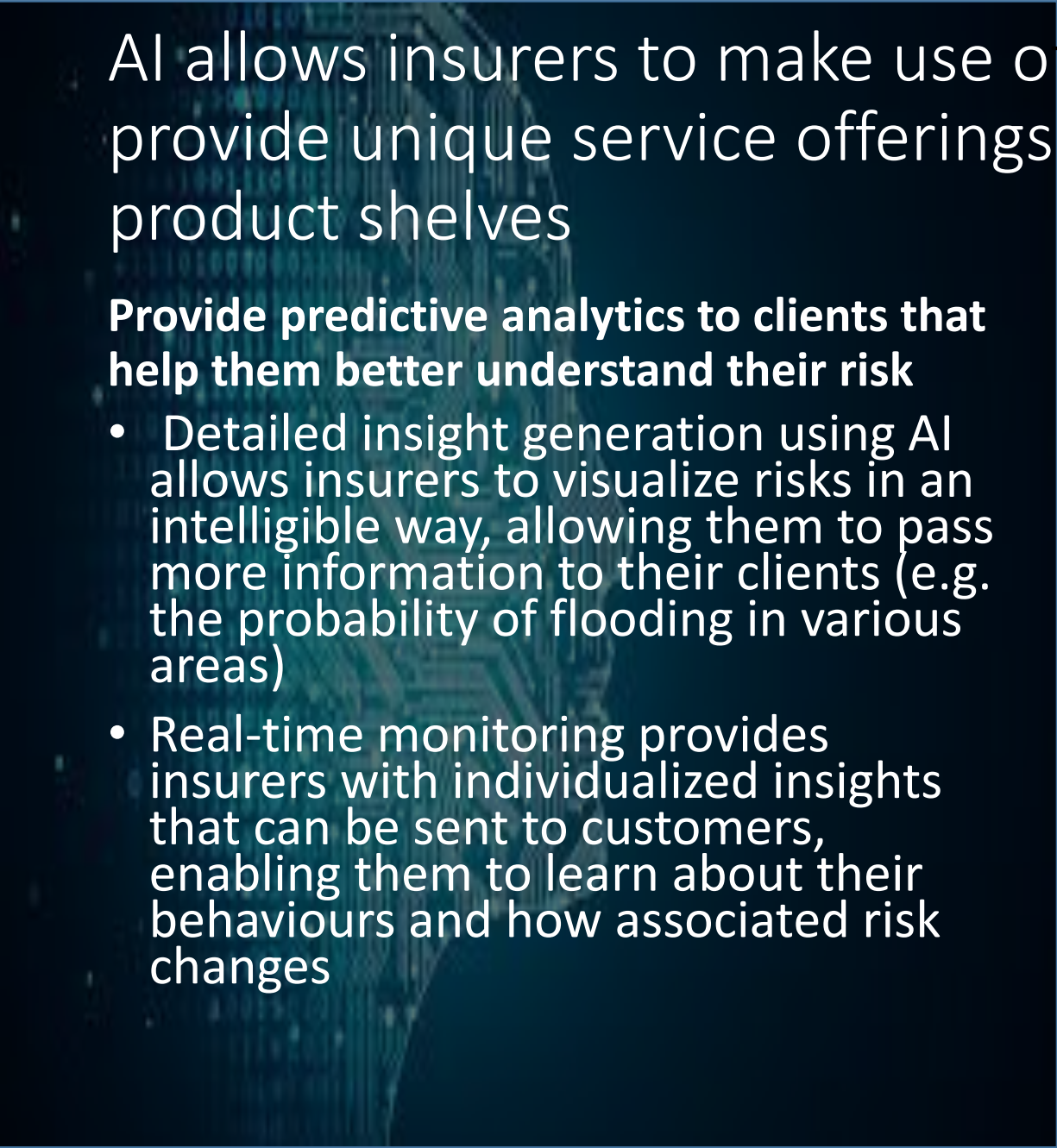
- Alternative data sources can be used as proxies for damage data (e.g. repair bills, sentiment analysis of news) in order to correlate risk with damage and build actuarial tables
- Examples – the weather index insurance for smallholder farmers – Kilimo Salama, Pula, Acre

### **Develop modularised policies/buffet policies**

- Dynamic pricing and underwriting models allow different components of a policy to be priced, bundled or sold separately (e.g. insurance on a per-use basis)
- Automated underwriting reduces the marginal cost of originating, allowing for dynamic underwriting at no additional cost (e.g. policies on an hourly basis)
- Example – using telematics to offer PayAsYouGo Motor policies

### **Introduce new pricing and payment models**

- Dynamic behavioural pricing methods can correlate risk and damage data to a variety of data feeds (e.g. time-series) in real time, in order to correctly price and underwrite Insurance policies whose prices and coverage vary by usage patterns and behavior
- Example – using telematics to monitor driver habits to determine pricing



AI allows insurers to make use of their internal data and provide unique service offerings that complement their product shelves

**Provide predictive analytics to clients that help them better understand their risk**

- Detailed insight generation using AI allows insurers to visualize risks in an intelligible way, allowing them to pass more information to their clients (e.g. the probability of flooding in various areas)
- Real-time monitoring provides insurers with individualized insights that can be sent to customers, enabling them to learn about their behaviours and how associated risk changes

**Advise clients on prevention strategies to lower their risk exposures**

- Ecosystem analytics allow insurers to combine data from their customers, from suppliers and from the market to deliver targeted advice to customers faster and more efficiently
- Personalization at scale allows insurers to tailor advice on how to reduce risk exposure, in very specific circumstances, that provides actionable, non-generic insights
- Zendrive measures driving behaviour and produces safety insights that coach drivers to improve behaviour



# Looking forward

- As insurance becomes more personalized, customers will enjoy better prices and coverage. However, this raises challenges for those who are priced out or excluded by more individualized models
- AI will push insurance to be more connected, more real-time and more accurate, but incumbents will start from a position of disadvantage on the data battlefield compared to large technology firms
- Current regulatory frameworks will need to adapt to enable the issuance of dynamic policies and coverage
- As AI reinvents processes across the insurance value chain, many roles will be displaced, necessitating a plan to transition those displaced into new functions
- Dynamic insurance policies and real-time claims processing will necessitate new approaches to mitigating the potential for increased fraud





UBER

World's largest  
taxi company

Owens NO

~~Taxis~~



World's largest  
Accommodation provider

Owens NO

~~Real  
estate~~



World's largest  
Phone companies

Owens NO

~~Telco  
infra~~



Alibaba Group

World's most  
Valuable retailer

Owens NO

~~Inventory~~

facebook.

Most popular  
Media owner

Owens NO

~~Content~~



World's fastest  
Growing bank

Owens NO

~~Actual  
money~~

NETFLIX

World's largest  
movie house

Owens NO

~~Cinemas~~



World's largest  
Software vendors

Owens NO

~~Apps~~

# Sounds exciting ... why don't we do it

## Data, operations, Talent, Regulation

- We are busy fighting our corner to notice the creeping new techniques, new entrants
- Execution - getting it right requires a discipline we are not accustomed to
  - Data optimization requires organization as well as painstaking processes
  - Data sits in different places
  - We have the wrong skills – many underwriters, few or no data analyst, data scientists
- We reckon we are just fine because we are making some money
  - Forgetting that today's value was created yesterday
  - Tomorrow's value is created today ... in a different way than yesterday
- The illusion of sunk cost – hanging on dead assets – systems, products
  - Yet some of the investments are even cheaper than keeping the old going
- The regulators will not allow us ... we don't even try. A few governments in Africa today challenge regulators to facilitate innovation
  - We are the ones letting down regulators

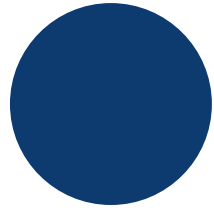
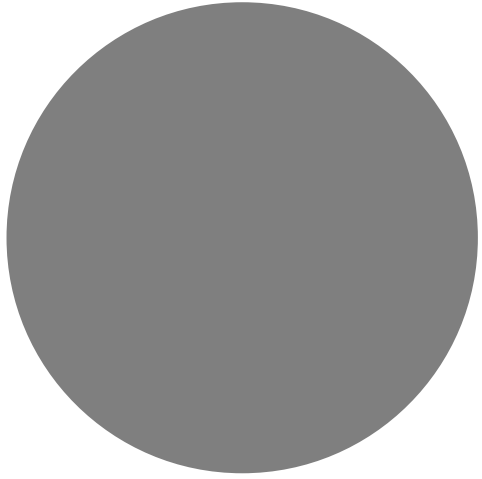




# The Skills we need ... and don't have

- CEOs, Boards and Senior Management that is willing to walk the talk
- Data analysts
- Data scientists
- Modellers
- Statisticians
- Actuaries
- Operations specialist
- If you find them .... Hang on to them





Questions?