Small & Big Data - Risks & Opportunities
Lloyd’s Data & Intelligence Day, 15 October 2014
Nick Beecroft, Markus Gesmann
Agenda

► Emerging risk & opportunities – Nick Beecroft
► Practical perspective – Markus Gesmann
What is an ‘Emerging Risk’?

Lloyd’s defines an emerging risk as: *an issue that is perceived to be potentially significant but which may not be fully understood or allowed for in insurance terms and conditions, pricing, reserving or capital setting.*

► In practical terms, the defining feature of an emerging risk is **uncertainty**

- Its essential features are novel (cyber risk, synthetic biology)
- It exhibits emergence – i.e changes to one or more components which generate important new characteristics (flooding and climate change)

► This means that the traditional risk assessment metric of ‘likelihood’ is of limited value
Systemic shock: Thailand floods, 2011

► No recent history of severe flooding in Thailand → not covered by catastrophe models. Business parks developed on flat, affordable land: flood plain!

► Cascade effects throughout global supply chains generated economic loss of $45.7bn and loss in the Lloyd’s market of $2.2bn.

► The challenge for risk transfer: “we and insurers can’t actually formulate the potential scope of liability and how to calculate loss… the biggest issue is that insurers want complete information, whilst we as a buyer want cover for the unknown” (Airmic review of the supply chain insurance market, 2012).
Emerging technologies

► Risk transfer is a key enabler of technology innovation
  - Lloyd’s marine underwriters provided the first motor car insurance policy in 1904, written as a “ship navigating on land”
► Risk must be quantified
  - In the absence of historical data, scientific research is applied to assess hazard, vulnerability and exposure
► Early in a technology’s development, risk transfer appetite will be limited
“While we have lots of numbers, we don’t necessarily have lots of information.”

Patrick Burns
Source: http://www.portfolioprobe.com/2012/09/03/a-look-at-bayesian-statistics/
Evolution of business functions
Evolution of business functions

- Insurance
  - Underwriters
- Business/Accounting
  - Analysts
  - Accountants
- Modelling
  - Statisticians/Scientists
  - Data Scientists
- IT Developers
  - Technology
Evolution of business functions

Lloyd’s 20 years ago

Insurance

Underwriters

Analysts

Business/Accounting

Accountants

Actuaries

Statisticians/Scientists

Modelling

Business Analysts

Data Scientists

IT Developers

Technology
Evolution of business functions

Lloyd’s 10 years ago

Insurance

Underwriters

Analysts

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Accountants

Statisticians/Scientists

Modelling

Business Analysts

Data Scientists

IT Developers

Technology
Evolution of business functions

Lloyd’s today

Business/Accounting

Insurance

Underwriters

Analysts

Actuaries

Statisticians/Scientists

Modelling

Business Analysts

Data Scientists

IT Developers

Technology
Evolution of business functions

Lloyd’s in 10 years

Business/Accounting

Insurance

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Data Scientists

Business Analysts

Accountants

IT Developers

Technology
Small data
Connecting small data sets …
Big data
Data is the new raw material

Today: Business Centric

Data in silos
Data is collected and managed for specific business processes

Future: Data Centric

Data flows
Data is a curated central resource, with pipelines to business functions
Challenges

▶ Stronger governance on small data required
  – Particular the slowly changing reference data
    – They are the linchpins!
How to overcome those challenges?

► Need
► Capabilities
► Culture

Idea taken from Ian Branagan: All Models Are Wrong, But Some Are Useful
http://player.vimeo.com/video/62424578?autoplay=1
"Information isn’t what’s scarce; it’s the willingness to do something with it."

Tyler Cowen
http://theweek.com/article/index/253902/which-job-skills-will-be-most-important-in-the-future
Never stop thinking, even when you have lots of data

Source: http://www.tylervigen.com/view_correlation?id=7
Thank you

Questions