Actuaries Summit

Think Differently

Actuaries Institute

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Experience Investigations: more than a regulatory box-ticker

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Thinking about Experience Investigations

- Have you been involved in an experience investigation or assumption review?
  No; Yes

- How large is the experience investigation team?
  1-3; 4+

- Was the experience investigation used to a purpose other than assumption setting?
  Assumption setting only; Other purposes too

Challenge statement

How might we, as actuaries, evolve experience investigations to fully utilise actuarial insights?

Communicating Insights	Collaborating and sharing expertise
Influence business decision making	Optimising time and effort

Journey overview
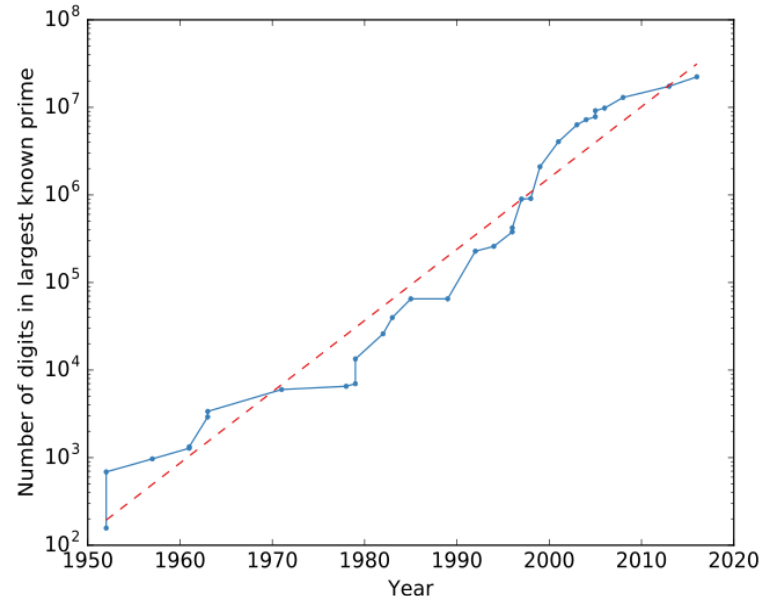
Beginning with traditional EI

Introducing "Deep Dives"

Enabling "Deep Dives"

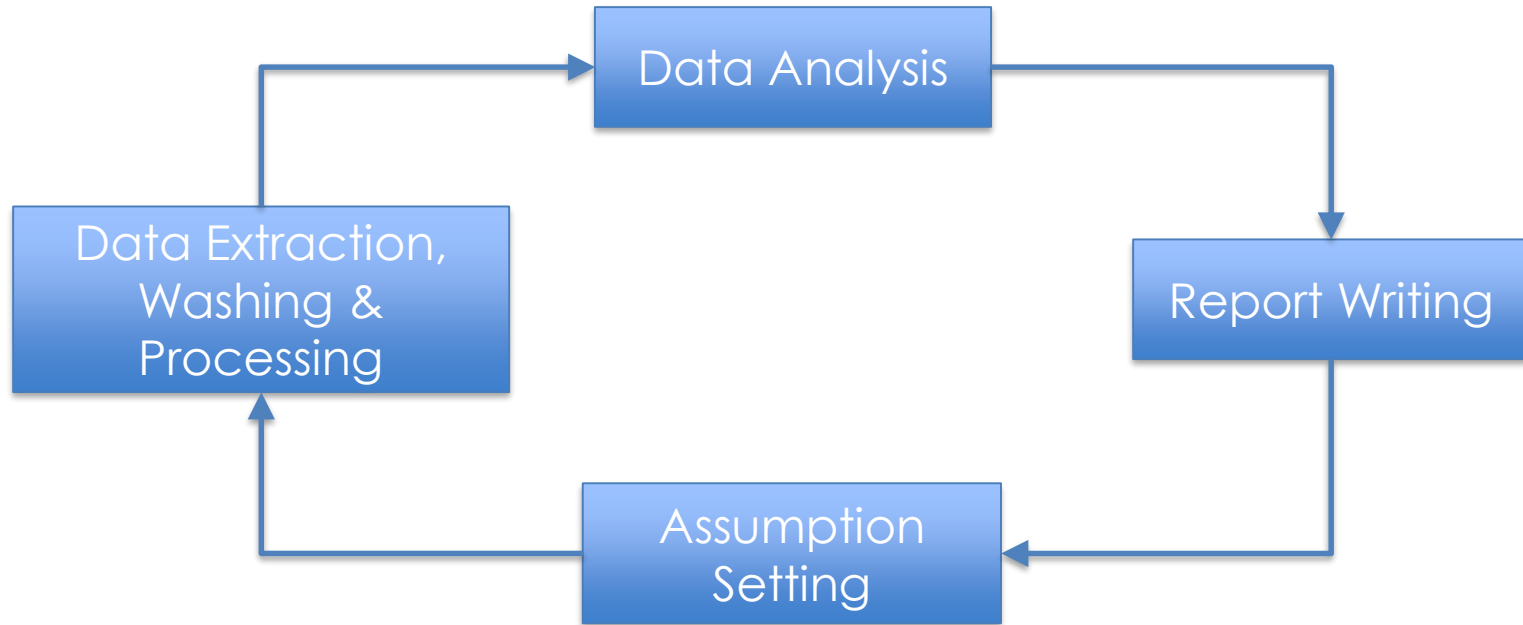# How has the "traditional" EI changed over time?

- EI in 1950's v 2017

- Improving technology: Commutation functions v Computers

- Changing insurance businesses: Complex product features, increased transparency and greater regulation

Number of digits in largest known prime number over time

Source: Great Internet Mersenne Prime Search (https://www.mersenne.org/). Graph from https://en.wikipedia.org/wiki/Largest_known_prime_number

What does a traditional EI look like today?

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              ┌──────────────────┐
         ┌───▶│  Data Analysis   │────┐
         │    └──────────────────┘    │
         │                            ▼
┌──────────────────┐          ┌──────────────────┐
│ Data Extraction, │          │  Report Writing  │
│   Washing &      │          └──────────────────┘
│   Processing     │                    │
└──────────────────┘                    ▼
         ▲    ┌──────────────────┐
         └────│   Assumption     │◀───┘
              │    Setting       │
              └──────────────────┘
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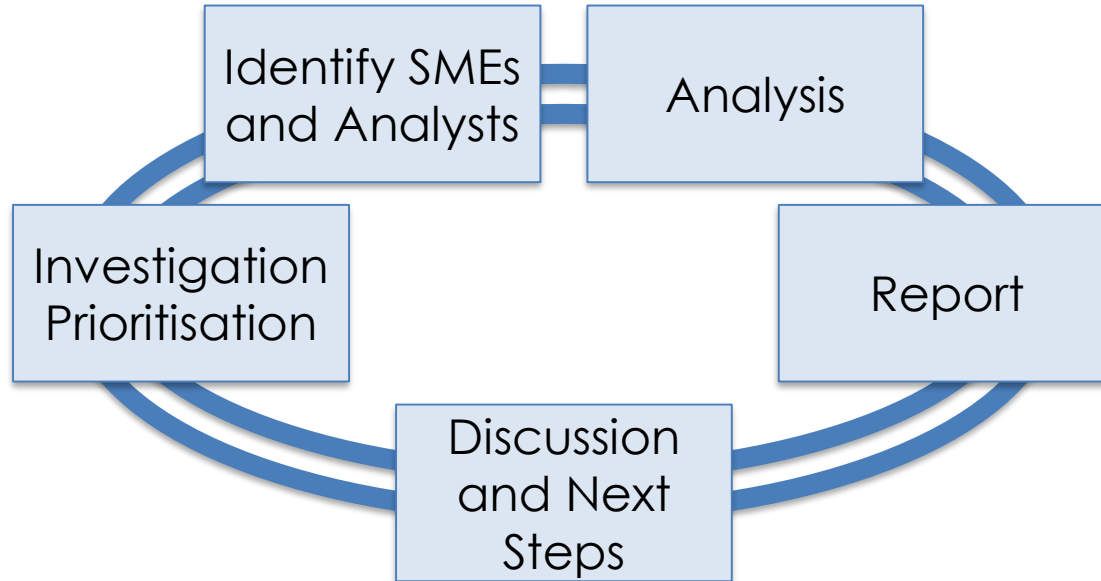
Why might traditional EI not be enough?

- Detailed report tailored to be read by actuaries, not others

- More focus on checking assumptions; Less focus on finding insights

- Data driven approach is focused on the past, while the business needs to make decisions about the future

- Significant time and effort investment for potentially no assumption change

What is a Deep Dive?

- Group of cross-functional SMEs

- Co-ordinates, prioritises and commissions investigations into emerging insights, issues, trends, risks and opportunities.

- Recommends management actions where appropriate.

Example Hypotheses

Shift of labour force from manual tradespeople to intellectual workers – means insurance definitions should have changed but they haven't

There are changing demographics and incidence of mental health claims

Medical improvements are leading to greater survival of an initial medical event but increasing the average time of disability.

Case Study
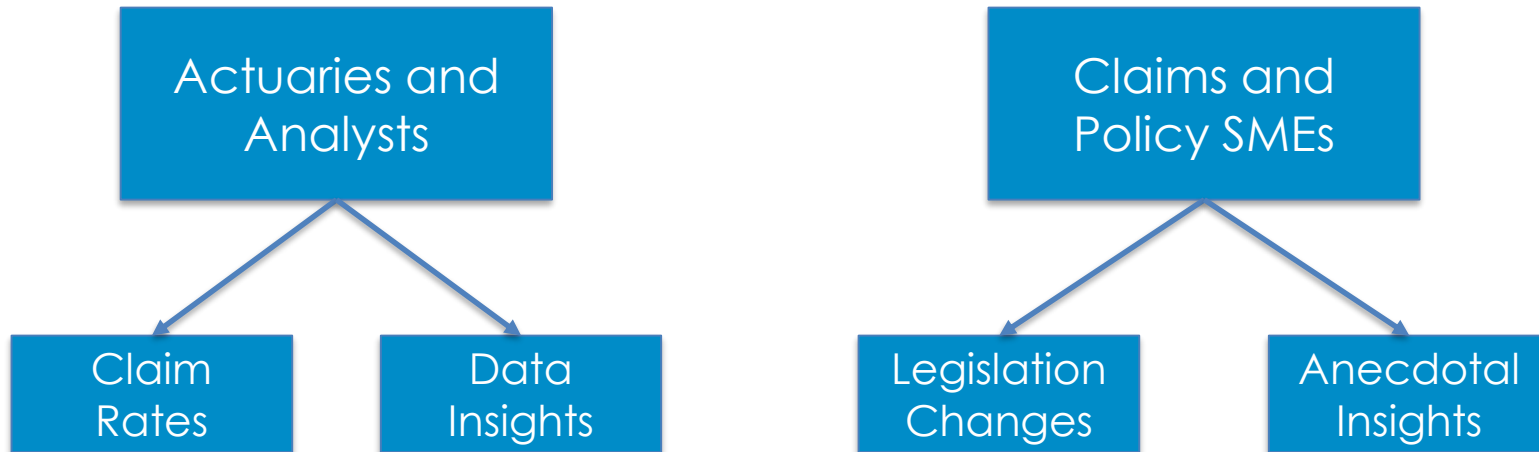# NSW Workers Compensation Legislation Changes

Legislation changes included:

- Restricted benefit periods,

- Reduction of benefit amount to claim duration;

- Work capacity testing; and
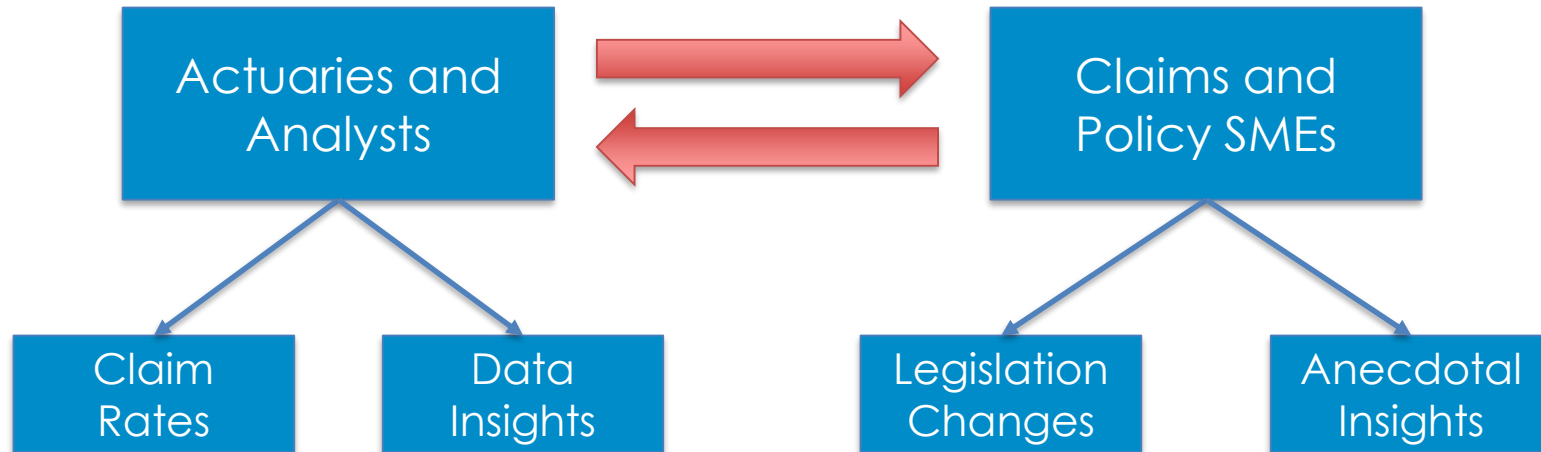
- Removal of paid legal assistance to claimants.

Changes were first made in 2012 with some changes rolled back in 2014 and again in 2015.

Case Study

Example hypotheses

- These changes would have had the following impacts on Life insurance:

  – An increase in claims lodged from late 2012-2013, followed by a decline after changes rolled back.

  – Different patterns of claim trends by state.

  – An increase in lawyer initiated claims.

Example Reporting

Hypothesis: Workers Compensation Changes have driven an increase in claims lodged from late 2012-2013, followed by a decline after changes rolled back.

Work undertaken

- Analysis of retail and group claim rates in NSW from 2010 to 2016.
- Discussions with claims operations teams to assess anecdotal impact.

Conclusions
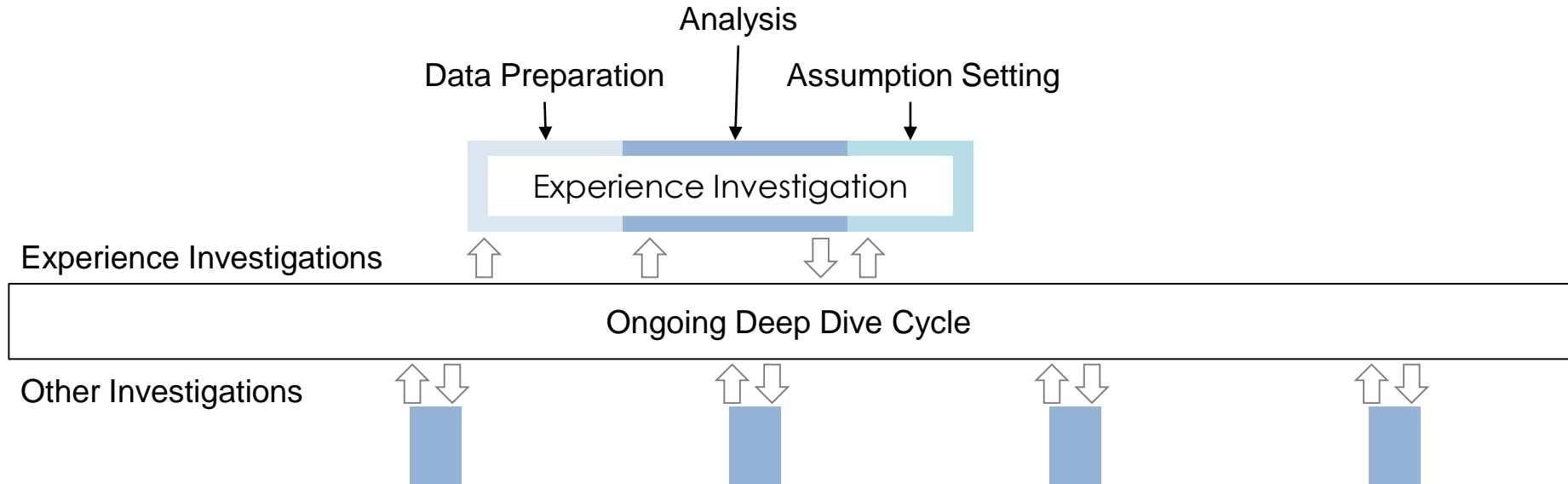
- Confirmation (or otherwise) of hypothesis.

Any additional insights

- Data analysis also highlighted a trend in [X] area of experience.

Recommendations for next steps

- Further investigation into [X] to follow up [Y] insight.
- Management action [Z].

How do Deep Dives interact with Experience Investigations and Assumption Setting?

Analysis

Data Preparation

Assumption Setting

Experience Investigation

Experience Investigations

Ongoing Deep Dive Cycle

Other Investigations

Assumption setting becomes part of the overall investigation process – not the sole focus

What are markers of a successful Deep Dive?

- Clear ownership

- An openness to share insights and work between teams

- Relatively short investigation cycles – 4 weeks or less

- Pre-read, simple investigation reports

- Responsiveness – to changing environments both internal and external

Why do we need to be responsive to change?

Case Study
Data preparation and use of technology

Before

- Manual data cleaning, processing and checks
- Difficult to determine the cause of errors

After

- Created a data "washing machine"
  - Automated data cleaning and fixing of the data
  - Checks were summarised and easily interpreted
  - Identified errors requiring manual intervention

Case Study
Report

Before

- Single report that contained detailed data methodology, validation and analysis
- Difficult to navigate due to amount of technical documentation

After

- Two reports – data validation and assumption setting
- Data validation allowed sign-off for data to be used in Deep Dives
- Assumption setting report was more intuitive and focused on analysis + insights

What are the benefits of Deep Dives?

- Insightful analysis

- Improved relationships across the business

- Analysis commissioning is more efficient and effective

- Personal development opportunities

- Better base of information when recommending assumptions!

Conclusions

How might we, as actuaries, evolve ~~experience investigations~~ to fully utilise ~~actuarial~~ insights in our business?