

# *Internal Audit in 3D*

Using analytics in a world  
of **Digital, Data and Devices**



# A world of digital, data and devices

In the last five years, the technology revolution has changed the way we go about our business. It has, and continues to, provide new opportunities for businesses within both the public and private sectors to be more efficient and effective. With this in mind, we ask: *how will a 3D world affect your organisation?*

## New Digital Models



Traditional business models have evolved into a digital enterprise to keep up with changing customer and staff needs.



Disruption occurs when a new market entrant attacks brands, products or operational weakness in an existing market and attempts to attract its customer base. Digital facilitates **disruption** at a much greater speed.

## Mobile Devices



Mobile phones have overtaken PCs as the most common web access device worldwide.



Worldwide business on mobile devices is projected to grow.

2012 → 2016  
USD \$889 million → USD \$1.4 billion



28% of Australians have made purchases on smartphones.



94% of us have used our smartphones for research.

## Data Analytics



90% of the world's data has been created in the last two years.

As organisations use **Big Data** to store and analyse more and more information about customers and competition, activities such as shopping, will become increasingly personalised and marketing will become more targeted.

Figure 1: The digital mega-trend

# Internal Audit meets the 3D world

Internal Audit (IA) needs to deliver value as organisations evolve. Consider some of the reasons below:

- 1** The speed of changes in business models, the changing nature and location of transactions/controls, and the proliferation of data is creating an opportunity for IA to add valuable insights.
- 2** Stakeholders are expecting higher quality communication from IA to help them understand new risks and opportunities. They are open to new ways of consuming insights.
- 3** Internal auditors are looking to build their skills to work effectively in this 3D world and underwrite their future value to the organisation.

The use of analytics is key to IA grasping these opportunities.

In this paper we explore :

- the benefits of using analytics for IA
- how analytics can support planning and delivery, and revolutionise reporting
- analytical techniques in practice
- tips on getting started.

# Analytics meets Internal Audit

## Why should IA use analytics?

PwC's 2013 State of the Internal Audit Profession study<sup>1</sup> revealed that leveraging data and advanced analytics is one of the top 3 greatest opportunities for improvement identified by senior executives and heads of internal audit. This overwhelming consensus was based on over 1,700 online responses and 140 face-to-face interviews with Chief Audit Executives (CAEs), management teams and board members across the globe.

Figure 2 (extracted from the study) illustrates that organisations appear to recognise the importance of analytics to the internal audit function. The benefits of using data analytics for IA and the organisation include:

- the provision of greater insight
- enhanced IA relevance
- stretched thinking and fostering of creativity
- enhanced productivity
- support to deal with volume
- organisation of disorganised data
- expanded IA skills
- analysis that traverses systems and datasets
- the ability to simplify the complex
- clearer communication of insights.

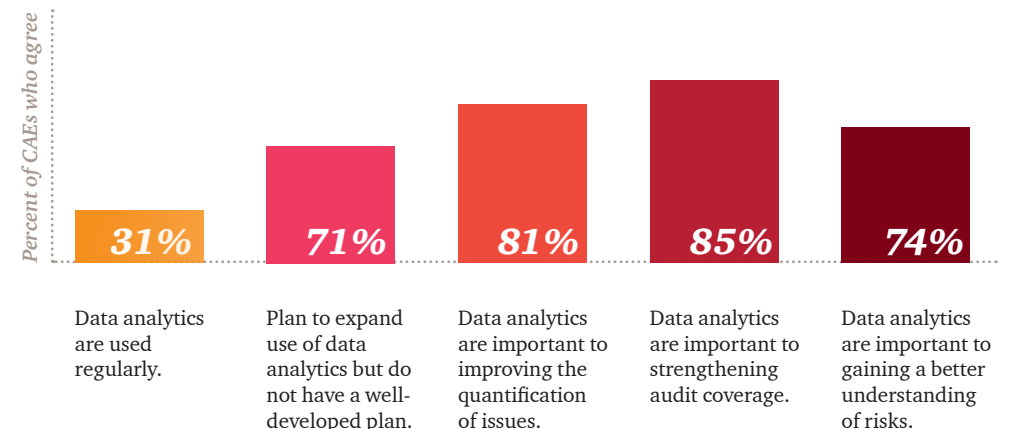


Figure 2: CAE thoughts on the use of analytics by IA

<sup>1</sup>[pwc.com.au/assurance/publications/internal-audit-profession.htm](http://pwc.com.au/assurance/publications/internal-audit-profession.htm)

## How can analytics support IA planning and delivery?

Using analytics can help you target risk areas and deliver greater insight.

The continued evolution of data analytics provides auditors with the opportunity to look at trends or patterns in the business and highlight unseen risks, areas of control effectiveness and/or possible areas of control weakness. Analytics help auditors align their internal audit effort with riskier business areas, whilst also providing efficiency in testing through automation. When properly implemented, analytics can provide deep and persuasive intelligence on business issues.

Below are some examples of how analytics can be used in the planning and delivery phase of the internal audit.

**Planning.** Adding a range of analytic techniques to the traditional IA planning approach supports rapid hypothesis testing and allows exploratory analysis and predictive insights to deliver a clearer picture of where risks may lie. This allows greater focus of effort.

**Delivery.** Employing analytics in execution enables the review of high volumes of data across disparate systems, the use of external data sources, and provides an enhanced ability to generate new insights. The integration of sophisticated techniques can allow IA to get more from its skilled workforce.

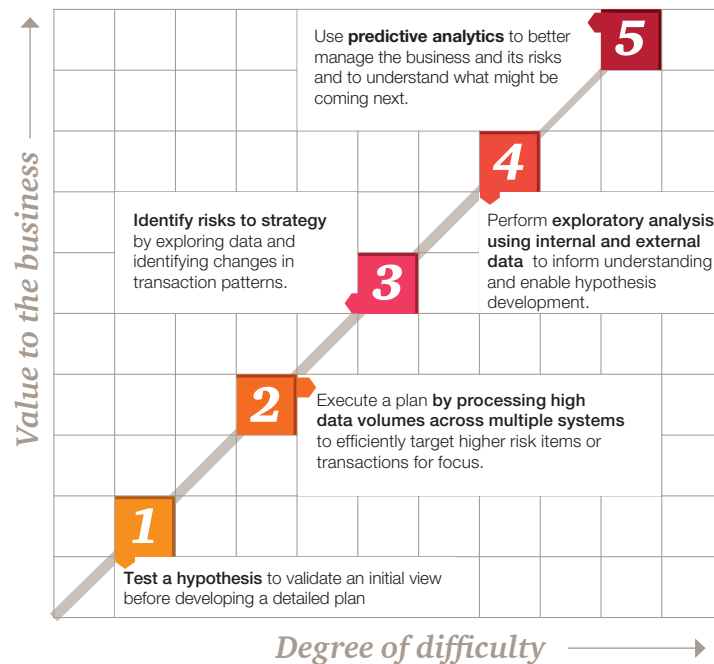


Figure 3: Use of analytics in IA – stages of maturity

## How can analytics revolutionise IA reporting?

Data visualisation techniques can enhance the effectiveness of Internal Audit communication.

The effectiveness of the presentation of IA findings is key to the function's impact. Decision makers require engaging information that is quickly understood and focuses on important matters. Data visualisation techniques can help you achieve this, by conveying complex concepts more simply and allowing a reduced amount of text to have more impact.

A focus on visualisation in reporting is not about making reports attractive – it is about enabling insight. By applying visualisation principles in reporting, IA has the capacity to better engage its stakeholders and extend its impact throughout the organisation.

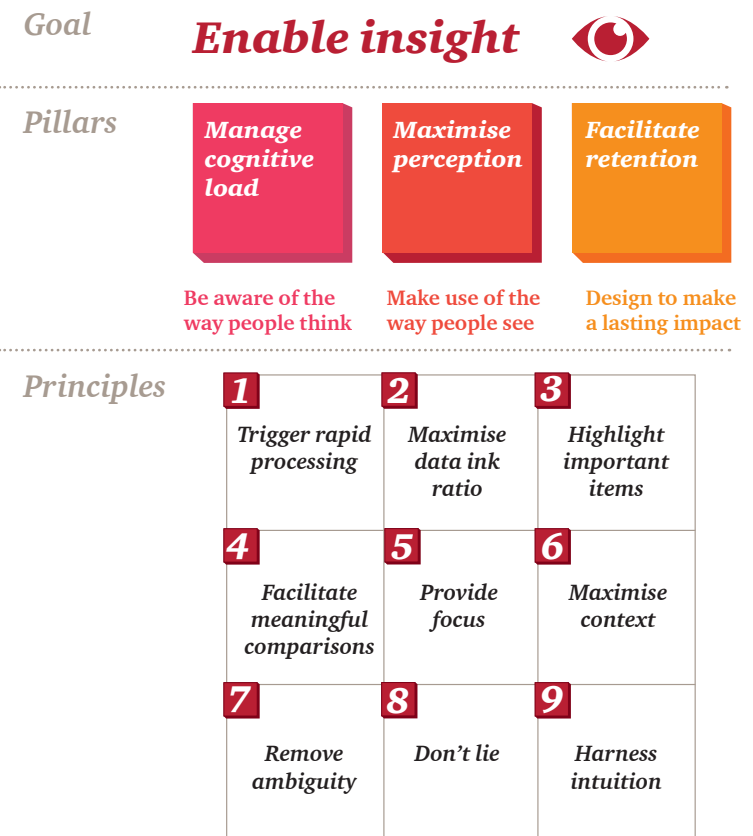
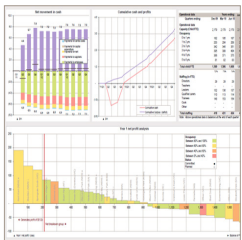
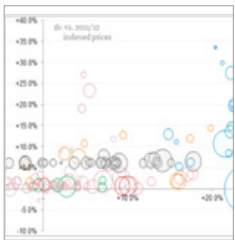

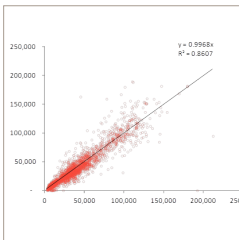
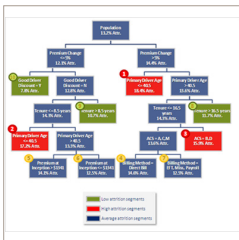
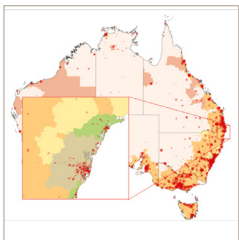


Figure 4: Revolutionising IA reporting

# Techniques in practice

A range of analytical techniques are already being used in organisations to derive and communicate insight. Consider the examples below:

Analytical technique	Reporting visualisation	Exploratory data visualisation	Data fusing	Regression analysis	Decision tree modelling	Geospatial modelling
What it is	Applying design principles to analytical results to improve insight and engagement.	Quickly displaying data in a range of visualisations so that patterns, relationships, and data quality issues can be identified.	Connecting an external data set (eg demographic, climatic, geographic data) to an organisation's existing data at a detailed level, to provide the opportunity for additional insight.	A mathematical technique that provides an equation as a model of the interaction between the <i>response</i> variable and other <i>independent</i> variables.	Combining mathematical and computational power to develop advanced models to classify data and predict future outcomes.	Applying statistical and other analytical techniques to data with a geographical aspect, focussing on relationships of distance, time and place.
When to use it	To communicate a complex and important idea or finding in a clear way.	To rapidly identify outliers, trends and patterns in data and to learn new things from a data set.	To supplement organisational knowledge or to enable further analysis using previously untested relationships.	To risk-score transactions, develop expectations of future outcomes, or continuously monitor for outlying events.	To reveal and understand complex relationships or identify items/groups that behave differently.	To identify geographic patterns and variations in data, and the geographic drivers of revenues, costs and assets employed.
Examples						

# Helping you get started

Regardless of what stage you're at along the analytics journey, the maturity of your organisation can be enhanced by considering the following questions:

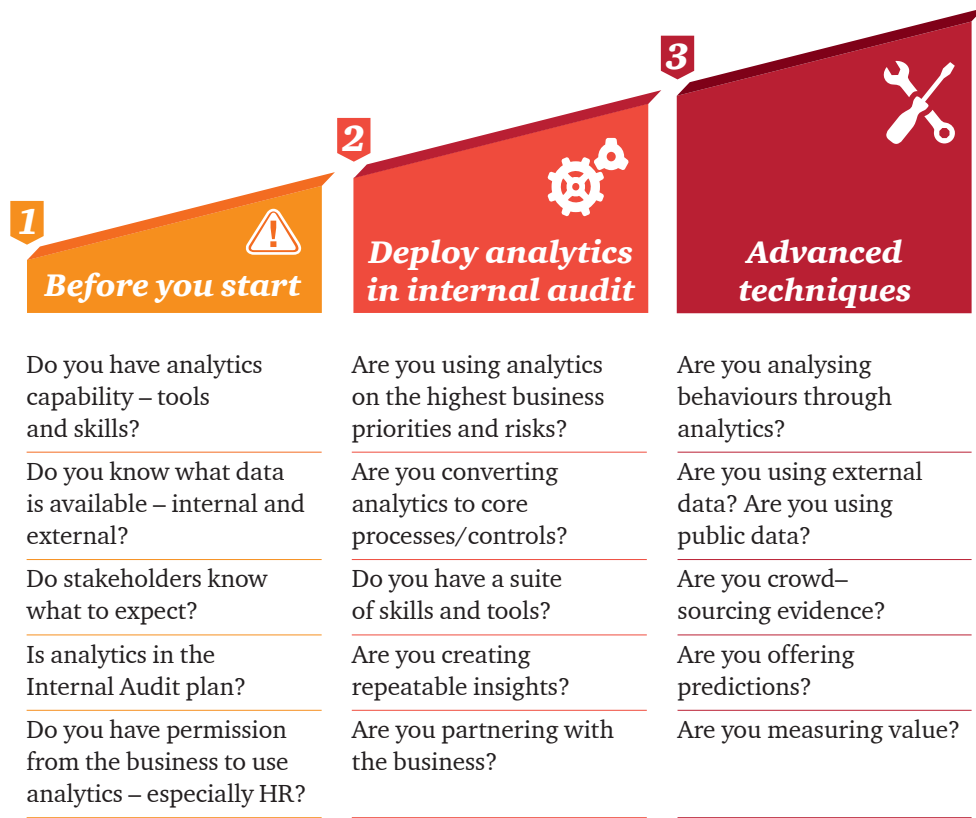


Figure 5: Maturity of data analytics in IA

# [www.pwc.com.au/internalaudit](http://www.pwc.com.au/internalaudit)

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