MIS781 Business Intelligence and Database

Module 8: BI Trends & Ethics

Quiz
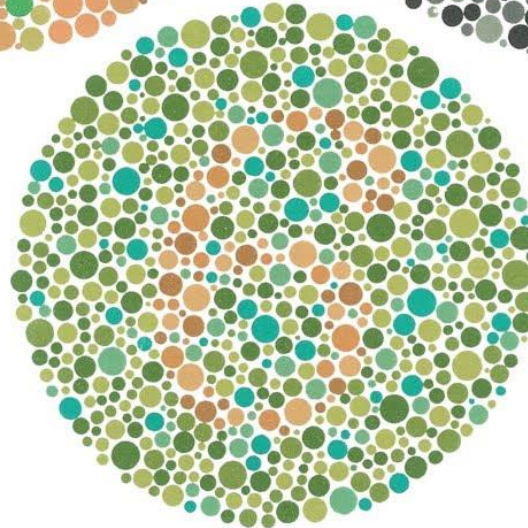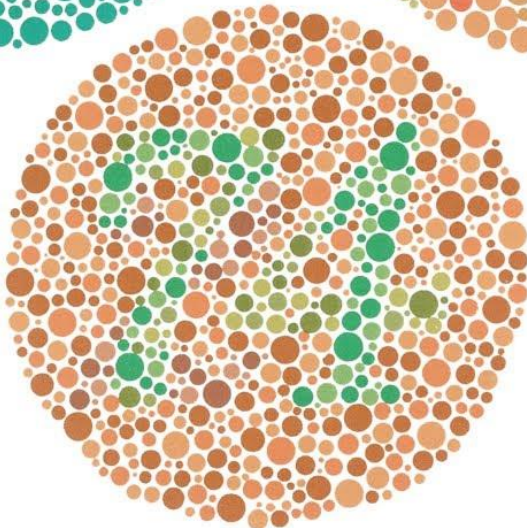
About Colour Blindness
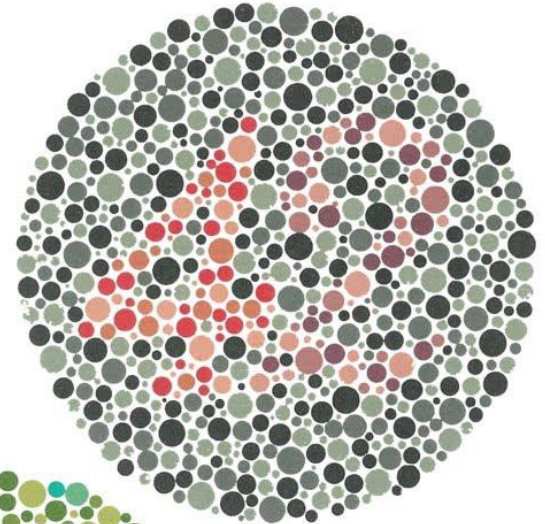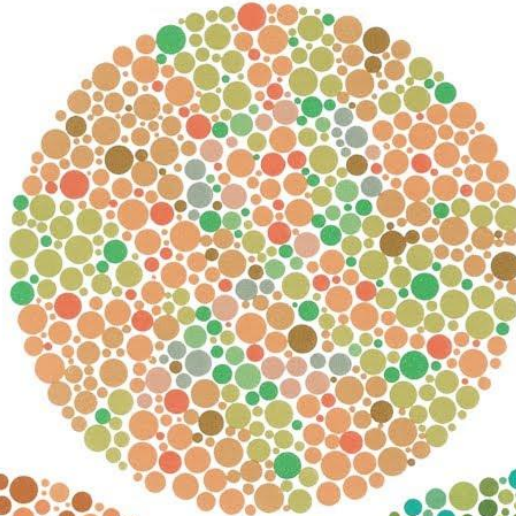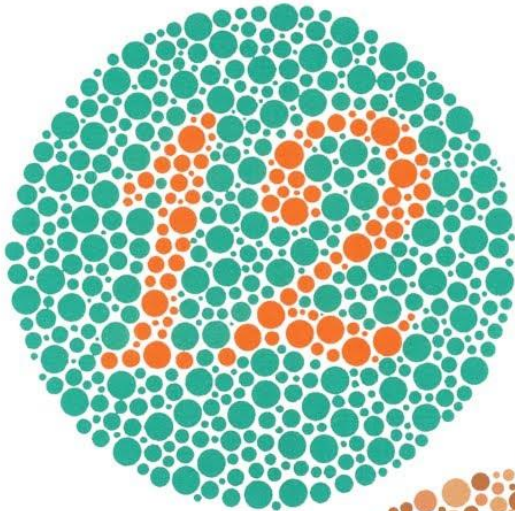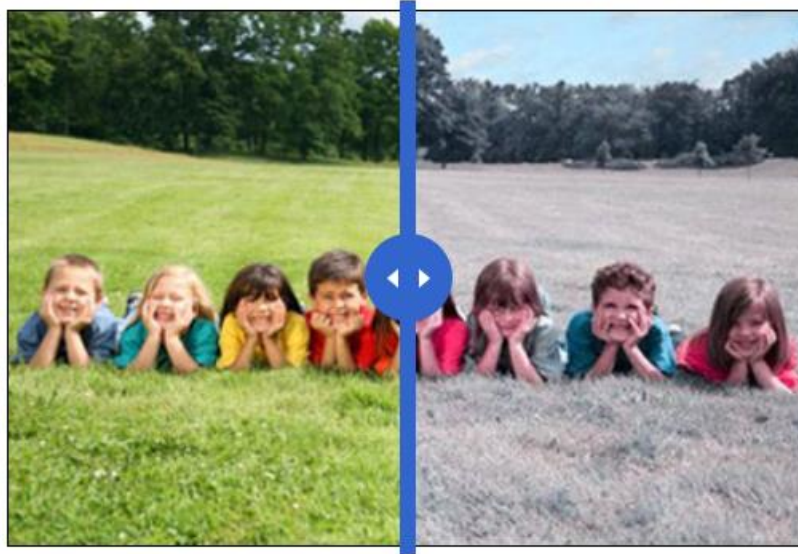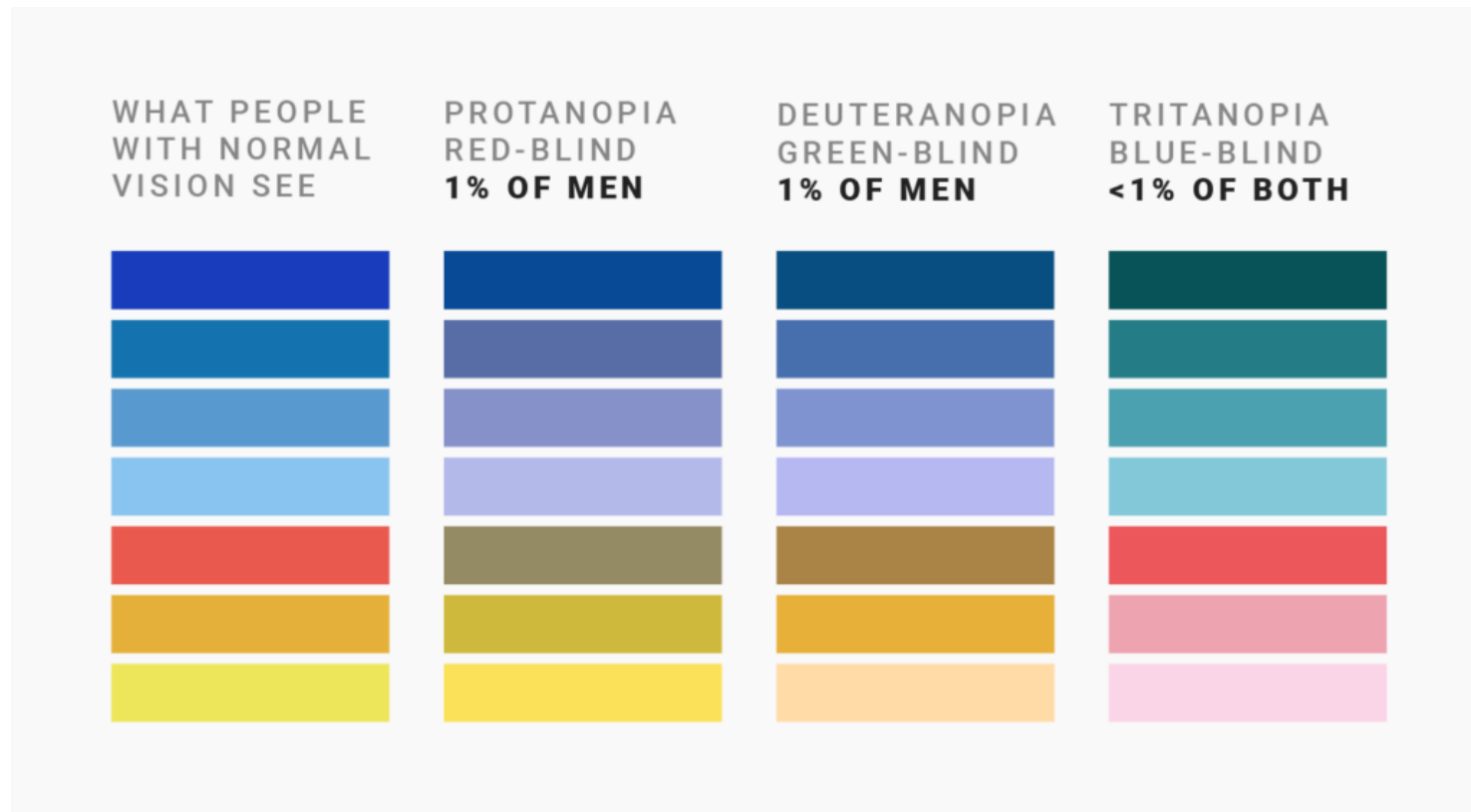
Home » About Colour Blindness

What is colour blindness?

Colour (color) blindness (colour vision deficiency, or CVD) affects approximately 1 in 12 men (8%) and 1 in 200 women. In the UK there are approximately 3 million colour blind people (about 4.5% of the entire population), most of whom are male. Worldwide, there are estimated to be about 300 million people with colour blindness, almost the same number of people as the entire population of the USA!

Source: https://www.colourblindawareness.org/colour-blindness/#:~:text=What%20is%20colour%20blindness%3F,and%201%20in%20200%20women.

Visualizing data for colorblind

Source: https://blog.datawrapper.de/colorblindness-part2/
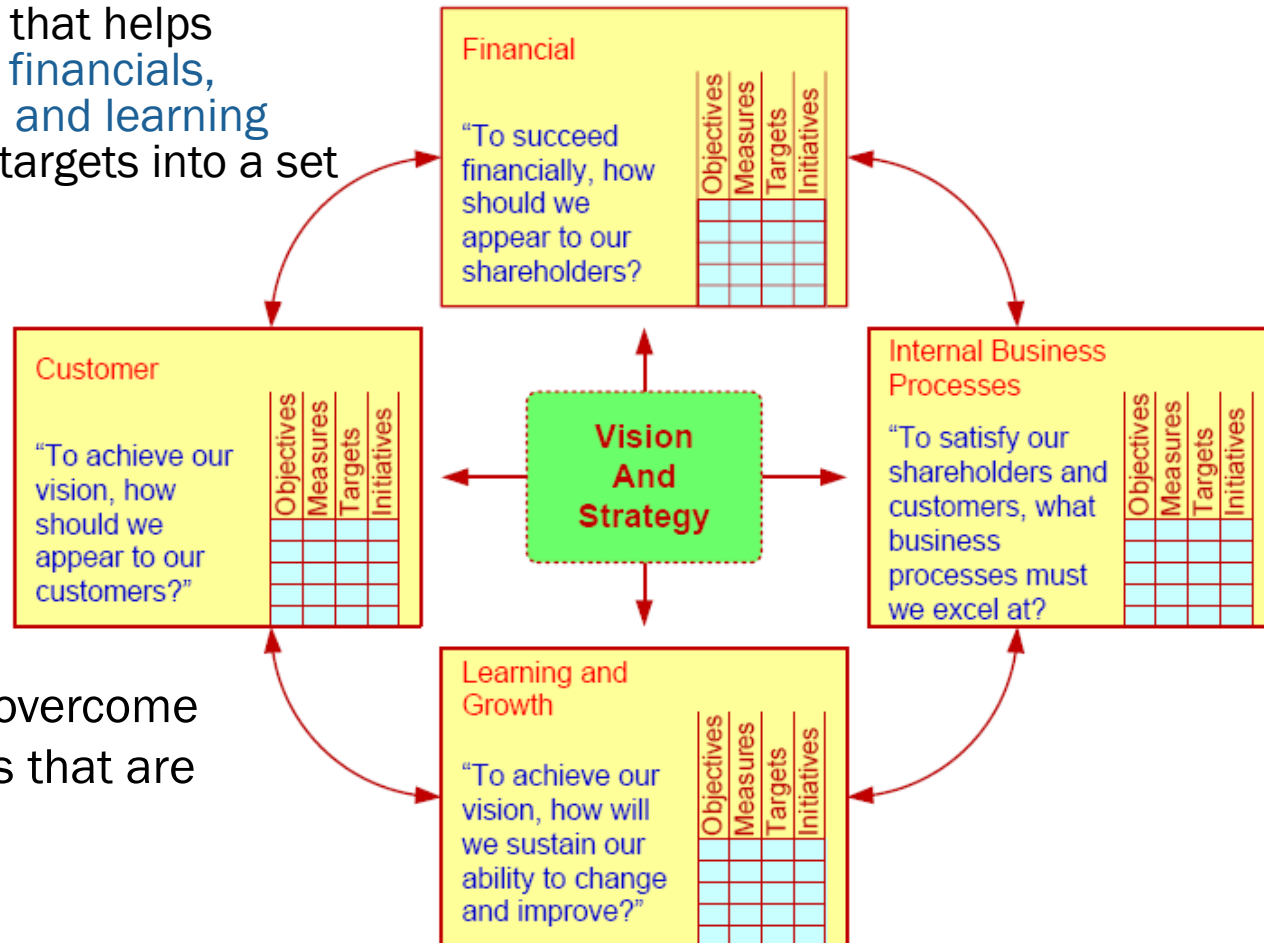See also: https://public.tableau.com/en-us/s/blog/2013/10/choosing-colors-accessibility

Balanced ScoreCard (BSC)

- **Balanced scorecard (BSC)**

  A performance measurement and management **methodology** that helps translate an organisation's financials, customer, internal process, and learning and growth objectives and targets into a set of actionable initiatives

> ➢ BSC is designed to overcome the limitations of systems that are financially focused.

BSC Strategy Map

Strategy map

A visual display that delineates the relationships among the key organisational objectives for all four BSC perspectives

	Strategy Map: Linked Objectives	Balanced Scorecard: Measures and Targets		Strategic Initiatives: Action Plans
Financial	Increase Net Income	Net income growth	Increase 25%	
Customer	Increase Customer Retention	Maintenance retention rate	Increase 15%	Change licensing and maintenance contracts
Process	Improve Call Center Performance	Issue turnaround time	Improve 30%	Standardized call center processes
Learning and Growth	Reduce Employee Turnover	Voluntary turnover rate	Reduce 25%	Salary and bonus upgrade

BI with Balanced Scorecard Example
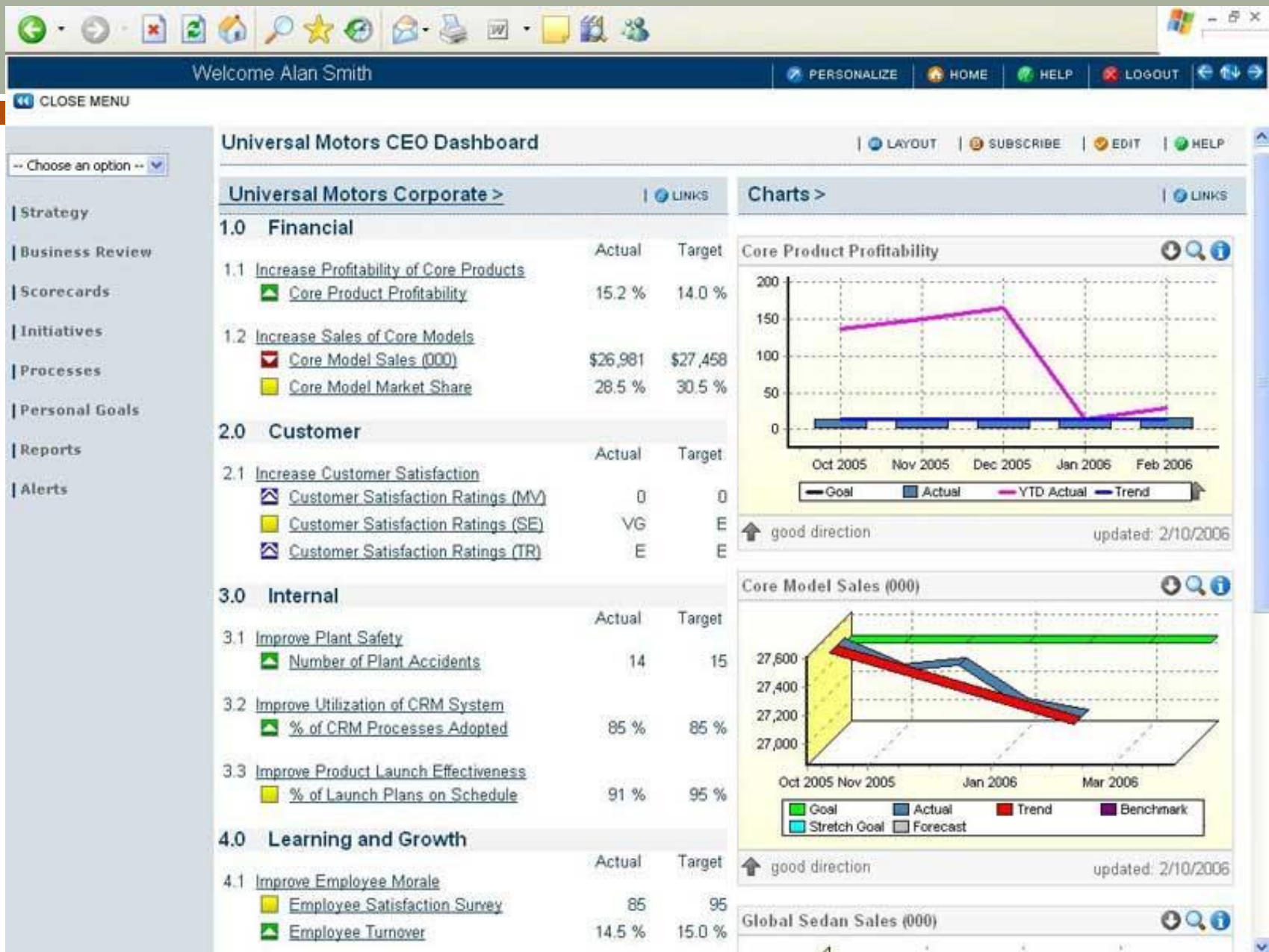
Mobile Balanced Scorecard Example

Balanced Scorecard

| | Overview | Measures | Strategy Map | Detail |

Measures	Trend	Current	Variance	Category
EBITDA Monthly Financial Statement		$1.3M	41%	Financial
Gross Revenue Monthly Financial Statement		$19.3M	-27%	Financial
Profit Monthly Financial Statement		5.9%	-41%	Financial
Customer Rating (%) Quarterly Survey Responses		89.3%	3%	Customer
Average Customer Size Monthly Customer Reports		$88.2k	-4%	Customer
Customer Retention Monthly Customer Reports		91.2%	1%	Customer
On-Time Delivery Monthly Operational Data		$1.3M	-4%	Internal
Admin Exp / Total Revenue Monthly Financial Statement		8.3%	17%	Internal
Turnover Rate Monthly HRIS Reports		1.3%	87%	Learning/Growth
Average Training Hours Monthly Learning System Reports		5.6	62%	Learning/Growth

Intro to BSC: https://www.youtube.com/watch?v=M_IlOlywryw

Performance Dashboards

- Dashboards and scorecards both provide visual displays of important information that is consolidated and arranged on a single screen so that information can be digested at a single glance and easily explored
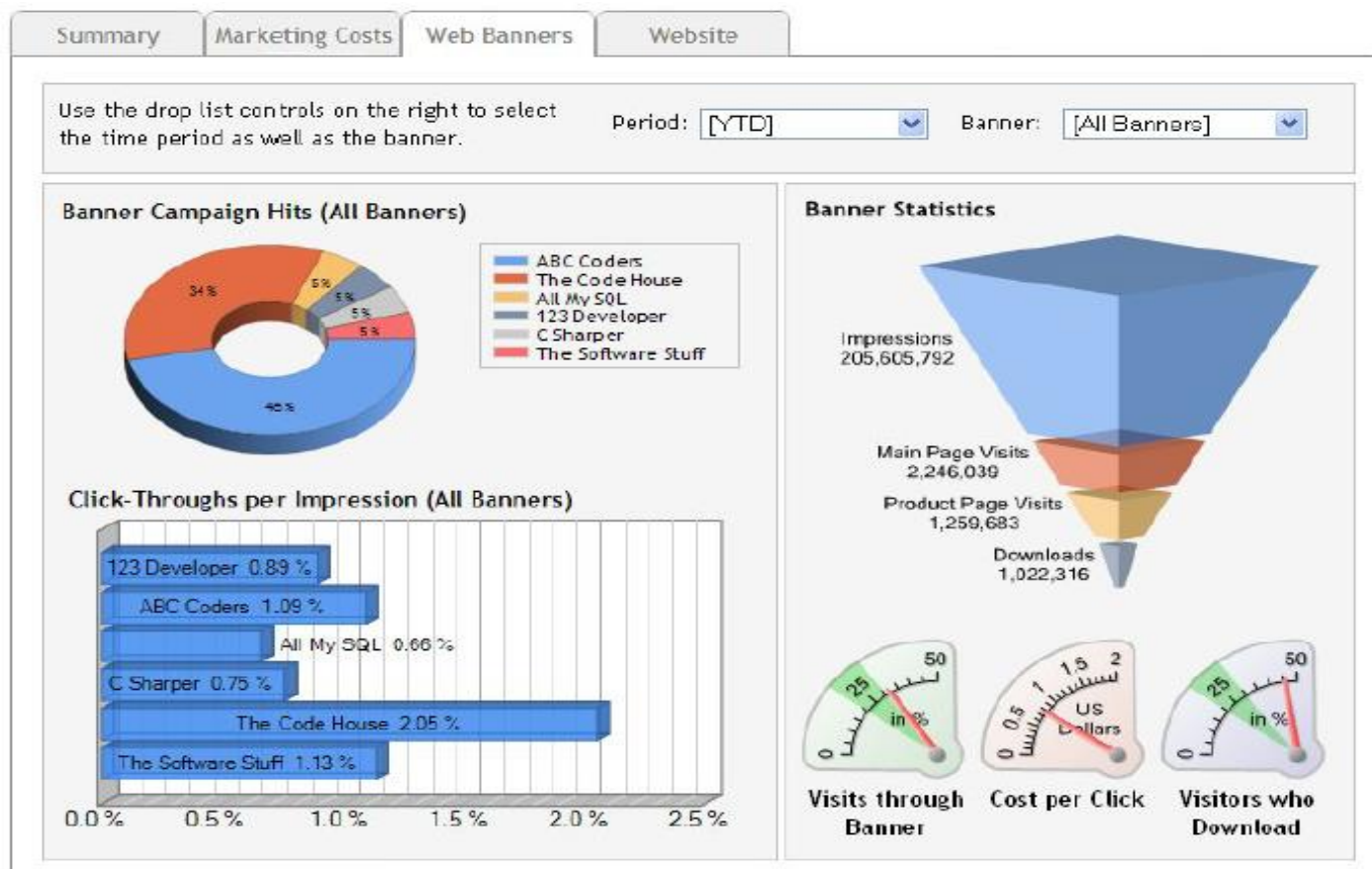
Performance Dashboards

- Dashboards versus scorecards

  - **Performance dashboards**

    Visual display used to monitor operational performance (**free form**)

    vs

  - **Performance scorecards**

    Visual display used to chart progress against strategic and tactical goals and targets (**predetermined measures**) eg. BSC

- Performance dashboard is a multilayered application built on a business intelligence and data integration infrastructure that enables organisations to measure, monitor, and manage business performance more effectively.
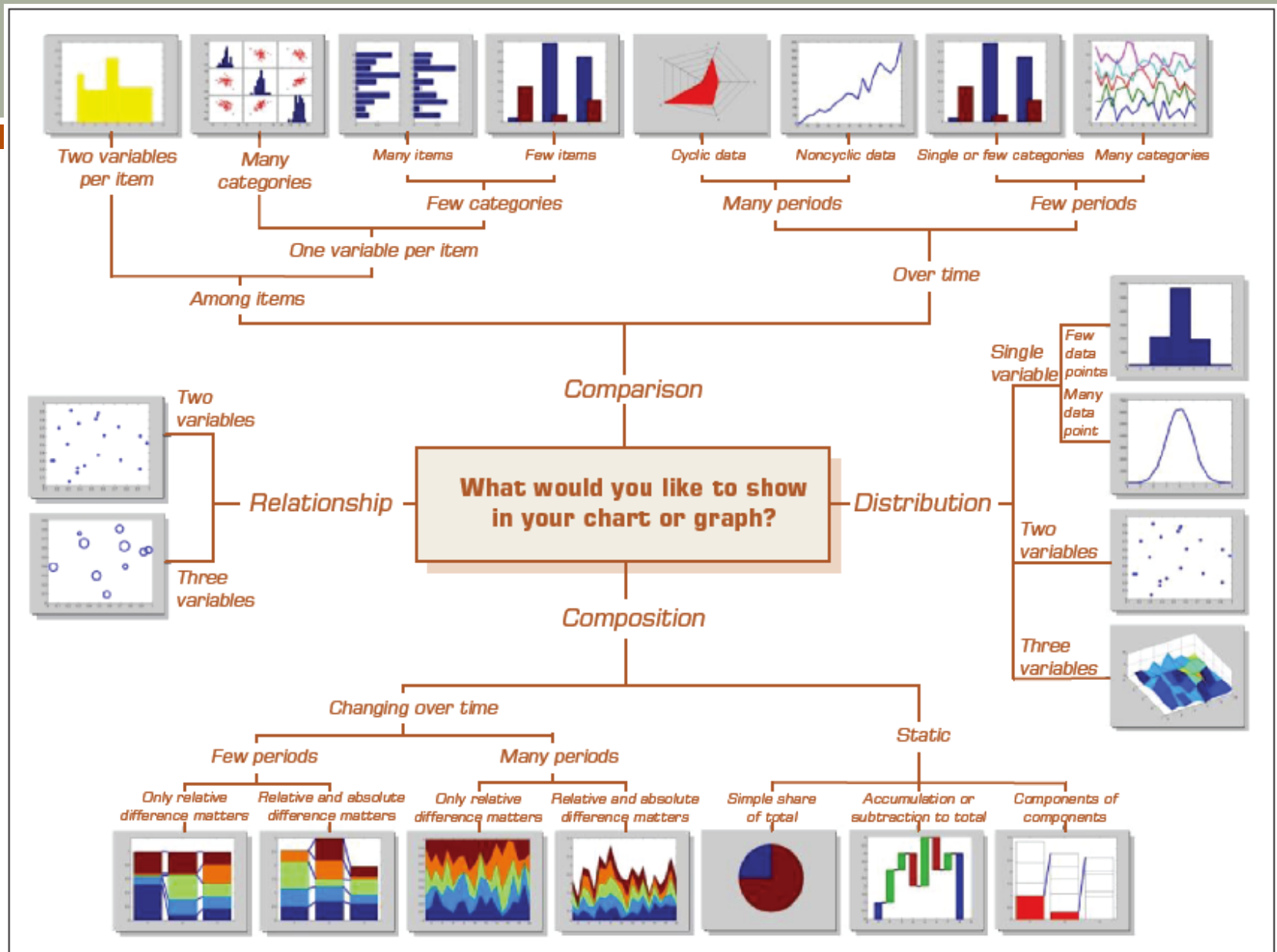
    Performance dashboards demo:

  - https://www.youtube.com/watch?v=VBK96jjfVMQ

Performance Dashboards

- What to look for in a dashboard

  1. Use of visual components (e.g., charts, performance bars, spark lines, gauges, meters, stoplights) to highlight, at a glance, the data and exceptions that require action

  2. Transparent to the user, meaning that it requires minimal training and is extremely easy to use

  3. Combines data from a variety of systems into a single, summarised, unified view of the business

  4. Enables drill-down or drill-through to underlying data sources or reports

  5. Presents a dynamic, real-world view with timely data updates

  6. Requires little, if any, customised coding to implement, deploy, and maintain

Two variables per item

Many categories

Many items — Few items

Few categories

Cyclic data — Noncyclic data

Single or few categories — Many categories

Many periods — Few periods

One variable per item

Over time

Among items

Two variables

Three variables

Relationship

Comparison

Distribution

What would you like to show in your chart or graph?

Single variable — Few data points / Many data point

Two variables

Three variables

Composition

Changing over time

Static

Few periods

Many periods

Only relative difference matters — Relative and absolute difference matters — Only relative difference matters — Relative and absolute difference matters — Simple share of total — Accumulation or subtraction to total — Components of components

Performance Dashboards

- Dashboard design: The fundamental challenge of dashboard design is to display all the required information on a single screen, clearly and without distraction, in a manner that can be assimilated quickly

Interactive Dashboard Samples:

http://www.dundas.com/gallery/sample-dashboards/

Visualisation: Management Cockpit
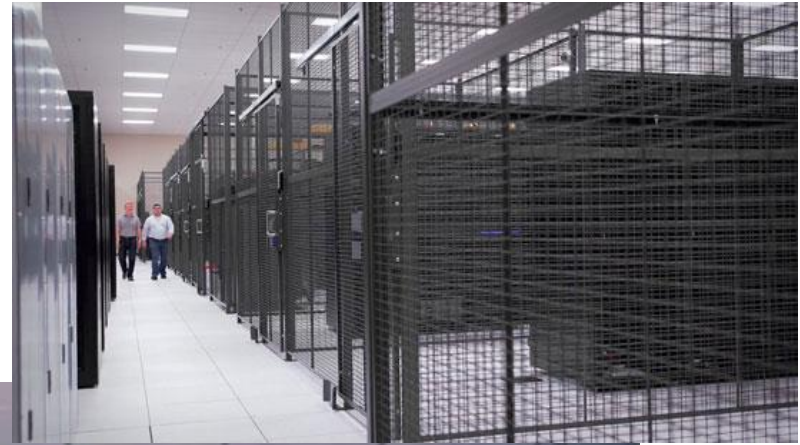
Web Intelligence and Web Analytics

- **Web analytics**

  The application of business analytics activities to Web-based processes, including e-commerce

- **Clickstream analysis**

  The analysis of data that occur in the Web environment.

- **Clickstream data**

  Data that provide a trail of the user's activities and show the user's browsing patterns (e.g., which sites are visited, which pages, how long) eg. statcounter.com

Web Analytics

Geographic Information Systems (GIS)

- **Geographical information system (GIS)**

  An information system that uses spatial data, such as digitized maps (e.g Water Utilities, Councils). A GIS is a combination of text, graphics, icons, and symbols on maps

- As GIS tools become increasingly sophisticated and affordable, they help more companies and governments understand:

  o Precisely where their trucks, workers, and resources are located

  o Where they need to go to service a customer

  o The best way to get from here to there

http://www.aucklandcouncil.govt.nz/EN/ratesbuildingproperty/propertyinformation/GIS_maps/Pages/Home.aspx
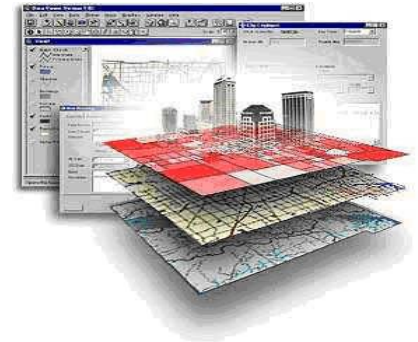
Geographic Information Systems (GIS)

- ## GIS and decision making

  - GIS applications are used to improve decision making in the public and private sectors including:

    - Dispatch of emergency vehicles
    - Transit management
    - Facility site selection
    - Drought risk management
    - Wildlife management

More info:
https://www.caliper.com/maptitude/gi
s_software/gis-software-australia.htm

Personal App Example

https://www.rapidsos.com/
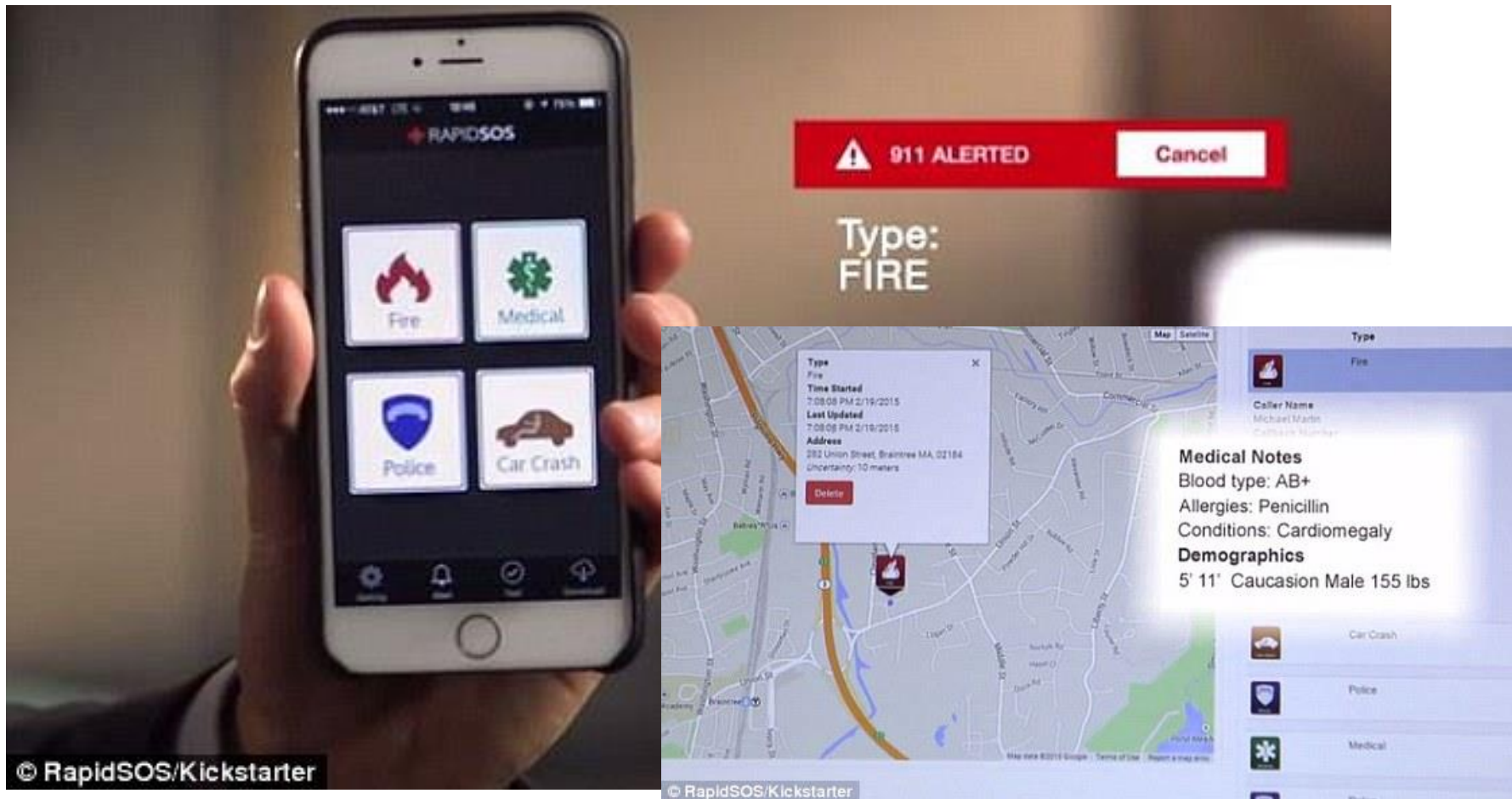
New Trend: Cloud Computing

Cloud Impact

NEW ECONOMICS

- Pay for what you use
- Lower and predictable costs
- Shift from capex and opex
- Accelerate speed to value

REDUCED MANAGEMENT

- No patching, maintenance
- Faster deployment
- Robust multi-layered security
- Reliability and fault-tolerance

INCREASED OPPORTUNITIES

- Latest software for users
- Internet collaboration
- Anywhere access
- Instant self-provisioning

Benefits of Cloud-BI

- Ability to handle fluctuating demand

  o Flexible use of the BI technology pool
- Reduced investment/cost

  o Hardware (servers and peripherals)

  o Software (more features for less)

  o Maintenance (centralised timely updates)
- Better ROI

Traditional BI vs Cloud-BI

| BI Setup	Traditional BI	Cloud BI (Software as a Service)
Design and deployment time	Months	Days
Application design team	In-house IT and/or BI consultants	SaaS vendor
Deployment team	In-house IT and/or BI consultants	End-user
Special skills required for BI setup	DB, DW, ETL, OLAP, and reporting	None

Cloud BI benefits video

The Limitations of Cloud BI

- Integration of vendors' software with company's software may be difficult

- The vendor can go out of business, leaving the company without a service

- It is difficult or even impossible to modify hosted software for better fit with the users' needs

- You may relinquish strategic data to strangers (lack of **privacy/security** of corporate data)

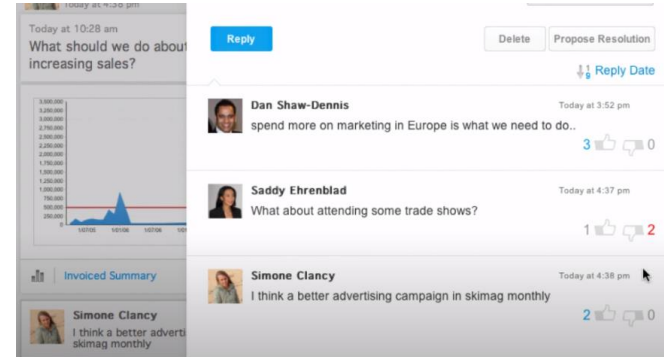# Large Number of BI Applications and Data Duplication

Drowning in data, starving for information!
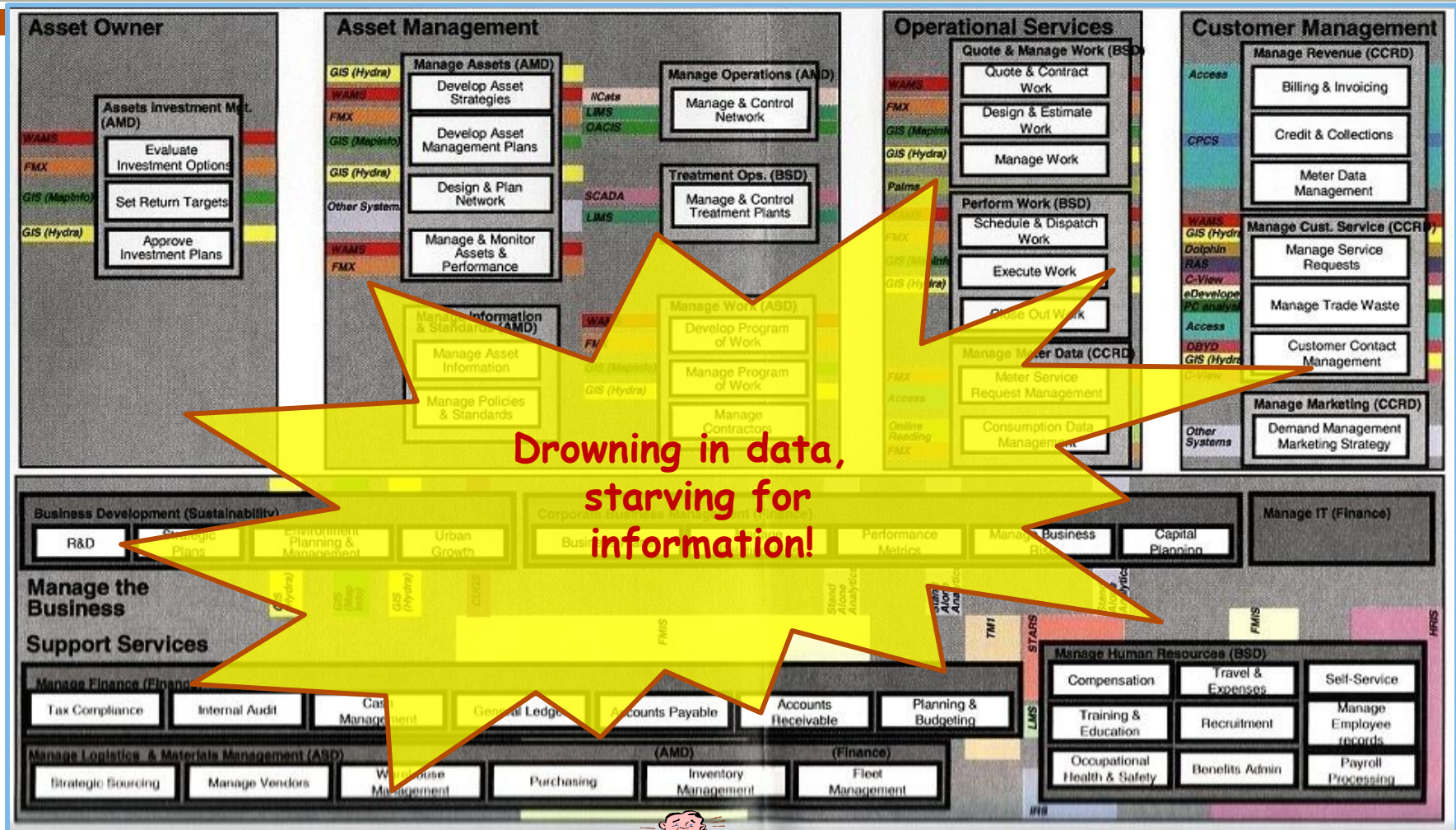
Benefits of BI and ERP Integration

- ERP platforms had only transaction processing capabilities; sophisticated reporting and analysis came BI system.

- Companies have recognised that people execute processes better if they can perform an analysis or access BI in real time, in the context of the application they are working on. Therefore, ERP vendors have been building BI into their platforms.

- Result in a significant improvement in the quality of decision making. E.g. at the moment a salesman takes an order, BI provides all the information needed to decide if and how much credit to be offered to the customer.

Social Networks and BI: Collaborative Decision Making

- Collaborative decision making (CDM) – combines Social media and BI

  o for non-routine decisions that require iterative human interactions.

  o Ad hoc tagging regarding value, relevance, credibility, and decision context can substantially enrich both the decision process and the content that contributes to the decisions.

Collaborative BI from Yellowfin:
https://www.youtube.com/watch?v=QvhybLJDe-U

Search-Based BI

- Treat a BI query as a search (not a technical process)

Embedded BI/Analytics

- Analytics embedded into applications
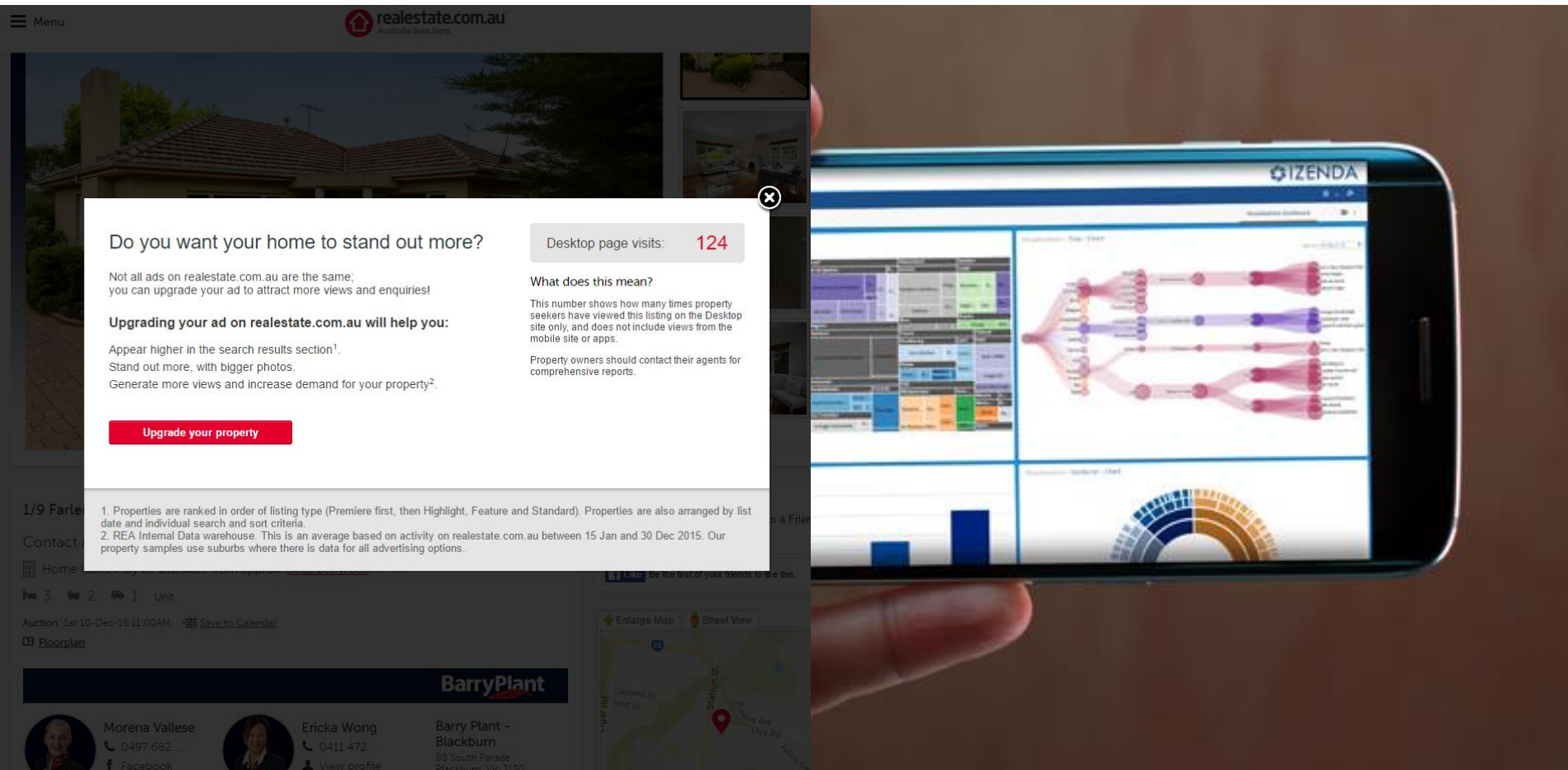
BI Ethics

Ethical Use of Information

theage.com.au
THE AGE

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[GO]

Police reveal database misuse

By Andrea Petrie
May 18, 2006 - 4:43PM

✉ 🖨 A A

A Victoria Police audit of access to the troubled police database has revealed 35 officers have abused the system for personal gain.

The State Opposition has called for the Police Minister to resign following the latest in a series of disciplinary breaches of the force's confidential database.

Victoria Chief Commissioner Christine Nixon has confirmed the officers used the LEAP (Law Enforcement Assistance Program) system to check their personal details and information about friends, relatives and celebrities.

A series of random checks of LEAP revealed 35 officers have misused the system, Ms Nixon said.

Five officers, all believed to be of junior rank, have already been fined for abusing the database while 30 others are awaiting action.

One officer is being investigated for allegedly using the confidential system to scan for information on an unnamed celebrity.

"Most of those involved have used the system to look up information about their partners, families or wives," Ms Nixon said.

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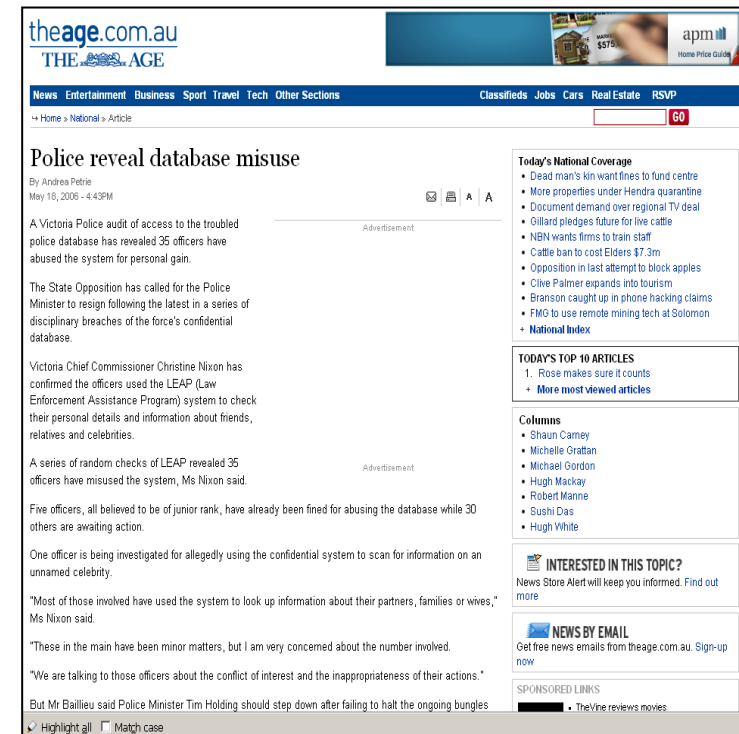
📧 **NEWS BY EMAIL**

Ethical Use of Information

The Victorian Police Law Enforcement

Assistance Program (LEAP) database:

- Some staff have been accessing family
and celebrity information on the database
for inappropriate reasons

- Is this ethical and/or legal use of their
access privileges by staff ?

Why Ethics?

- Ethics define actions that are morally acceptable.

- Ethics is the analysis, thought and reflection on principles that guide our decision making

- BI systems are designed to improve business decision making

- All decisions have some ethical aspect to them, to a greater or lesser extent.

- BI has a direct impact on ethics in business

- BI adds an extra dimension to ethics and technology

- Where is the locus of responsibility for decisions made based on the information provided by a BI tool?

- How do we ensure that a BI tool does less harm than good?

The similarity of medical practice to BI practice

- The medical setting involves:
  - Physician (Expert / Professional)
  - Patient (Someone with a problem)
  - Other stakeholders (family, friends, paramedicals)
  - Tools and equipment (medical machines, diagnosis equipment, etc.)
- Aim is to solve a (medical) problem through a decision making process – diagnosis, treatment and on-going monitoring / evaluation.

- The BI setting involves:
  - Developer (Expert / Professional)
  - Decision maker (Someone with a problem)
  - Other stakeholders (interest groups, employees, etc.)
  - Tools and equipment (query tools, reports, data warehouses, etc.)
- Aim is to solve a (business) problem through a decision making process – problem identification, development of a solution and on-going monitoring / evaluation.

- BI developers tend to **have a closer, more consultative relationship with the users** than other IT developers.

- The development process itself is an important part of solving the problem, independent of the final system. BI developers are therefore more like clinicians than other IT developers.

Codes of Ethics

Professional Associations

ACS: https://www.acs.org.au

ACM: https://www.acm.org

The ACM code of ethics:

- 1.1 Contribute to society and human well-being.
- 1.2 Avoid harm to others.
- 1.3 Be honest and trustworthy.
- 1.4 Be fair and take action not to discriminate.
- 1.5 Honour property rights including copyrights and patent.
- 1.6 Give proper credit for intellectual property.
- 1.7 Respect the privacy of others.
- 1.8 Honour confidentiality

Others?

Privacy

Privacy Laws

- ❑ Protect our data and information

- ❑ Privacy of collected information must be maintained.

- ❑ You must not track or monitor staff in inappropriate ways

- ❑ You must not track or monitor competitors in inappropriate ways

- ❑ You must not track or monitor anyone else in inappropriate ways (including family, friends or people you don't like)

Intellectual Property (IP)

❑   information created by your knowledge, and experience

❑   business proprietary knowledge

❑   protected by intellectual property laws

❑   can be a program

❑   can be a way of making something

❑   can be a circuit diagram

Ethics

- Ethics in relation to BI is important

- BI tools face ethical issues beyond those for other IT systems

- Bears some responsibility for the ethical aspects of decision made using the system, not just in ensuring the system itself is ethical

- Medical ethics provide a useful framework for understanding BI ethics

Have a look: https://www.pwc.com/rai

"Information is the oil of the 21st century, and analytics is the combustion engine."
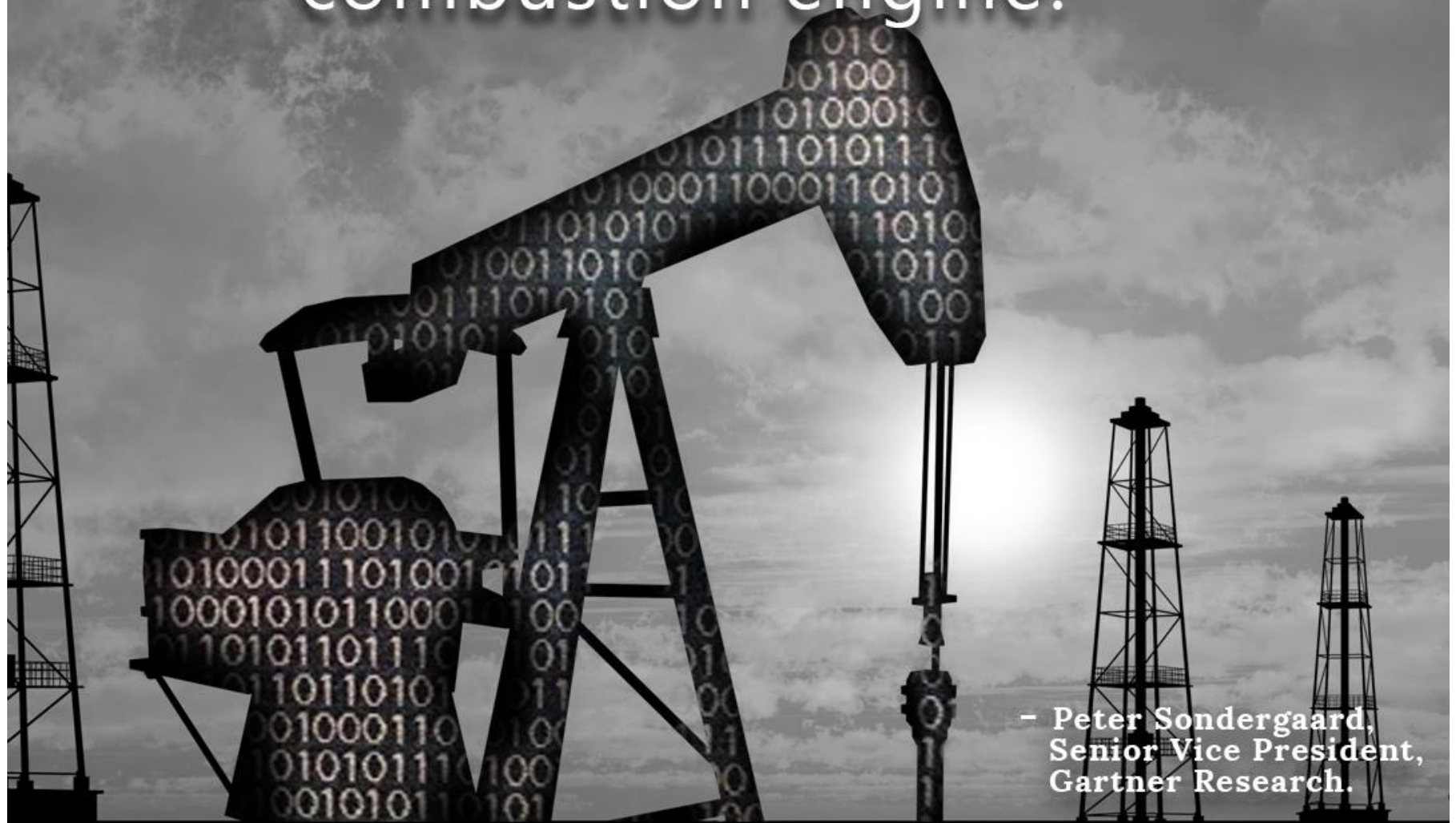
– Peter Sondergaard, Senior Vice President, Gartner Research.