## MIS771 Descriptive Analytics and Visualisation



## Topic 1 Tutorial – Business Problem Solving

### Case Study – BLITZ Department Store

BLITZ is an Australian based department store operating since 1983. The very first BLITZ store was started in Melbourne and later the operation has been expanded to Sydney and Perth. Also BLITZ started a new online store in 2012 to serve all around Australia and overseas customers. Currently the BLITZ active customer base is approximately 50,000 local customers excluding those that shop online.

Moreover, BLITZ has a loyalty program started on their tenth anniversary. There are three different tiers of membership namely Blue tier, Silver tier and Platinum tier. BLITZ is continuously offering different promotions to existing members and new members and the marketing department always keeps track of the performance of each promotion. The loyalty program has grown over the years, but the growth has slowed in recent times. Many memberships are dormant and churn rates have been relatively low (but potentially increasing over the last six months).

BLITZ has generally had very successful growth over the years (above the sector medium); however, there has been a significant decrease in overall revenue over the last quarter. Senior Management are concerned about the situation and would like to investigate the reasons for the revenue drop. In fact, management would like to investigate whether the revenue drop is common across all four locations (including online) and for all product lines or whether it is related to a specific aspect of the business. In addition to the internal factors, BLITZ would like to know whether the revenue drop is the same for other similar businesses and whether any external factors have impacted the business.

The BLITZ online store has operated for 2 years, but it has not performed up to the management expectations. Some of their competitors who started online stores before BLITZ have been quite successful with strong revenue levels. The BLITZ Senior management team would like to potentially undertake a competitor analysis and in particular understand the reasons for the drop in in-store sales and whether improving the online store can potentially claw back some of the revenue lost.

At the same time BLITZ is planning to conduct market research to better understand their customers' needs and also to identify what could be improved in their loyalty program and product lines in general.

BLITZ has been tracking its revenue over the years however there is no method of forecasting incorporated into their operations. As the current revenue drop has impacted many areas of the business, BLITZ would like to eventually implement a revenue forecasting solution to the current analytical process.

# **Case Study Questions**

1.	Identify the situation presented in the case study (explain the symptoms, likely problems, decision statement, research objectives, research questions, research hypothesis).
2.	Explain possible research design that can be used based on the identified research objectives / hypothesis.
3.	Explain the sampling design that can be used to identify the target sample for proposed market research in the case study. State your reasoning behind the selection.
4.	What kind of data need to be gathered to address the identified research problems? Also classify identified data based on different data types.
5.	What data analysis techniques can be used to address the identified research problems?

#### **Sampling and Data Questions**

- 6. Which sampling technique has been used in the following situations? In each case, first decide if it is random or non-random sampling and then state the actual technique.
  - a) The Age newspaper conducts reader polls on their website. Every day a question is posted and readers select either 'yes' or 'no' depending on if they agree or disagree.
  - b) On the first Thursday of each month, a pizza delivery shop phones every customer who has ordered a pizza between 7pm and 9pm to ask them about the promptness of delivery and quality of the pizza.
  - c) Each quarter, a sales manager selects and interviews what in her opinion is a range of good, middle and poor performing sales staff to get employee feedback.
  - d) A factory producing car parts runs three continuous shifts. As part of the quality control program they randomly select 40 parts from each shift and check for any defect.
- 7. *Piano Design*: The width of piano keys became standardised 120 years ago, based on the needs of European male pianists. Some pianists are questioning the 'one size fits all' approach to the piano keyboard, which disadvantages many.
- 8. For each question on the hand-span survey write down whether the data collected is numerical or categorical and also the scale of measurement

Variable Name	Variable Type	Measuring Scale
Gender		
Age		
Height		
Weight		
Ethnic Background		
Learn to play Piano (Y/N)		
Hand-Span Measurement		