**Faculty of Science, Engineering and Built Environment**



**MIS770 – Foundation Skills in Data Analytics**

Assignment 2

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To: Ballarat City Council

From: Nick Black

Subject: Analysis results of Business confidence and expectations.

Greeting of the day,

I have studied and analyzed the survey taken by the Ballarat city council. Also, please find the attached detailed analysis excel sheet named as “219248489.excel”.

1. In the Ballarat region, there are 4505 employees is working in 150 companies. Manufacturing, transportation, and storage industry have the highest number of employees which is accounted for 308 whereas various companies have only one employee. It can also be analyzed that an average of 30 employees works for a business.
2. I am 95% confident that 107 organizations have successfully opted for a growth strategy that lies between 64.10% and 78.57%.

1. Regarding the figure suggested 76% by the Creswick/Clunes Chamber of Commerce.
   1. You should not need to worry about the reduction in Ballarat region revenue as it is highly likely that the proportion of your local business that does have a growth strategy could not be less than 76%.
   2. Moreover, also I estimated that according to your requirement that it turns out that the actual average number of employees with a growth strategy might be between 23.65% and 45.83% whereas the exact average number of employees in a business without a growth strategy might between 5.80% and 30.80. It is noticeable that a significant difference between two types of business is detected, demonstrating that the actual average number of staff in the industry with growth strategy is significantly more than that in organizations without growth strategy and please also note that there is 5% chance that this estimation might be wrong.
2. The data suggest that it is highly unlikely that the average age of local business managers is less than 50% and more likely to be more than 50%.
3. Based on the observed value of 10 business opening each year
   1. The probability of more than 15 business opening next year is 4.87 %.
   2. The possibility of 5 or less business opening next year is 6.71 %.
4. Lastly, when you conduct this survey next year, I suggest you would need a sample size
   1. 697 cases can able to estimate the average number of people that local business employs to within four employees.
   2. 1964 cases to be able to predict the percentage of business with a growth strategy to within 2%.

As well as just a sample of 1964 records might work to estimate both indicators simultaneously.

Sincerely,

Nick Black