# SERVCOOP LLC
# Business Case Insight #1
## Multi attribute investment analysis and selection with MS Power BI
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Introduction

An example of analytics applications and Power BI arises, when an investor in real state wants to analyze different commercial alternatives and decide among those the one that will yield the highest success in the long run for the investment made, according with certain attributes. In this business case insight, we will be applying a MIA (Multi attribute Investment Analysis) technique and Power BI from Microsoft.

Situation:

Let us assume that an investor on real state wants to decide among 3 different commercial alternatives according to the following attributes, each one with its respective valuation methodology which will not discussed in this insight.

Proximity: Refers to how close the commercial location is to residential areas, work offices and other potential facilities. It is evaluated from 0.5 to 9 where 9 is the most proximal (best ubication grade)

Commercial credit: Refers to the presence in consumers mind and the mercantile accreditation of the property. Evaluated from 1 to 10 were 10 is the best accredited alternative

Accessibility: How accessible is the premise by car or public transport, and if it provides aids to any person, independent of their physical condition, to buy in the premises.

Quality of infrastructure: Refers to how well maintained are the premises and the facilities where the commercial property will be located, evaluated from 1 to 10, where 10 is the best.

Profit (NPV): Refers on how profitable, at present value, will the investment be in the commercial premise in 5 years, evaluated USD 0$ to $100 in thousands.

The different Attributes and their respective evaluation limits appear in table 1. It is assumed that each attribute has the same priority (same angle of 72 degrees)

| Attribute | Description | Rank(kj) | LowerLimit | UpperLimit |
|---|---|---|---|---|
| Att1 | Proximity | 1 | 0.5 | 9 |
| Att2 | CommCredit | 2 | 0 | 10 |
| Att3 | Accesibility | 3 | 1 | 10 |
| Att4 | Quality | 4 | 0 | 10 |
| Att5 | Profit | 5 | 0 | 100 |

Table 1. Attribute evaluation limits



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Data was obtained for 3 different alternatives according to the 5 attributes mentioned later.[1]

| Attributes/ Alternatives | A | B | C |
|---|---|---|---|
| Att1 | 5.5 | 3 | 7 |
| Att2 | 6 | 8 | 7 |
| Att3 | 8 | 5 | 5 |
| Att4 | 7 | 9 | 6 |
| Att5 | 60 | 30 | 88 |

Table 2. Results from field research

Action:

Analysis was conducted with Power BI in a radar Plot, where the alternative with the highest area percentage is the one that covers the most "success area". Given that data comes from different dimensions, it is required to standardize the data in "success units" within a radial plot with radius of 10 success units. The results in Power BI are visualized as follows:

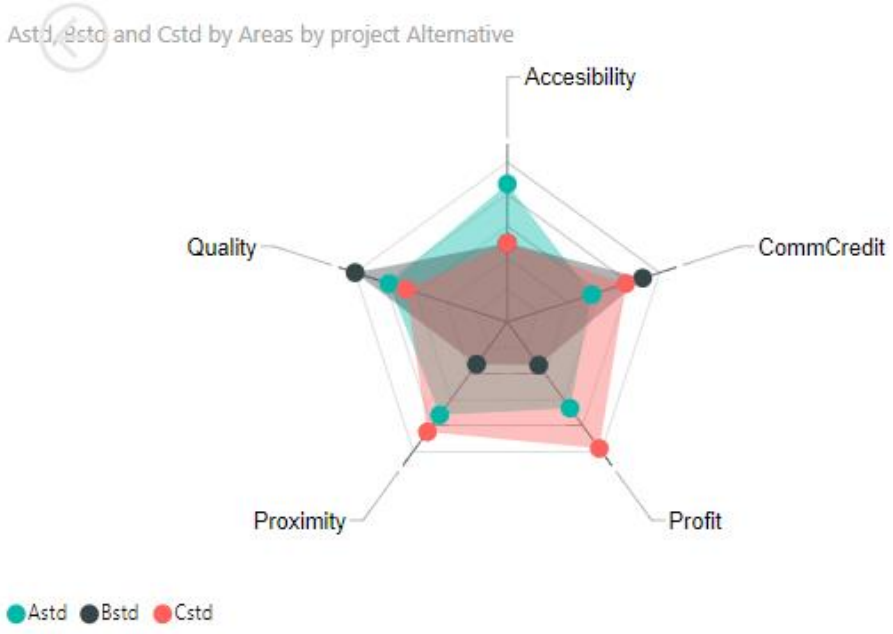


Figure 1. Radar Plot from Power BI showing the distribution of each alternative in the success area

[1] Data for illustration purposes only



 

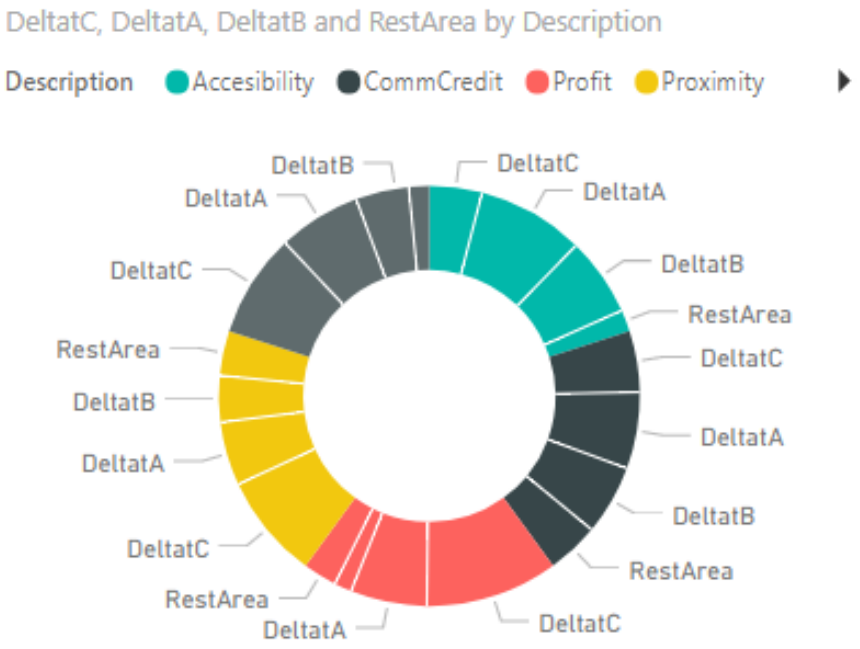


Figure 2. Area of each alternative covering the 72 degrees angle for each attribute

| AreaB | AreaA | AreaC |
|---|---|---|
| 20.42% | 31.26% | 35.03% |

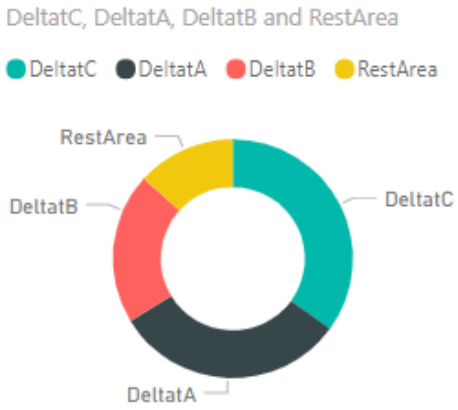


Figure 3. Total area of each alternative in the success area ($\pi r^2$)



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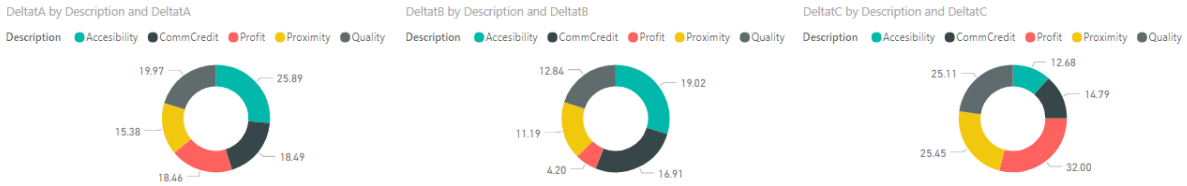


Figure 4. Visualization of each alternative individually.

Results:

As shown in the analysis the alternative with the biggest area is Alternative C, which performs better in terms of quality, profit and proximity, but underscoring in accessibility and commercial credit in comparison to alternatives A and B. Alternative C holds a total area of 35.03%

Finally, a better alternative fulfilling at least 50% of the success area, could be assessed with the methodology. The last with attributes like alternative C in terms of quality, profit and proximity, but improving in terms of accessibility and commercial credit.

Microsoft Power BI allows the decision maker to visualize data in a simple but powerful manner, providing insights for better decision making. Different priorities may be assigned to each attribute (different angles) which could change the decision taken.

Benefits for the Realtor: To help the Realtor's client find the best property, not only in terms of economic NPV, but also in maximizing the success of alternatives by selecting the one that accomplishes most of the criteria; in a visual and understandable way for the potential buyer.

If you want to see an image of the complete report, please visit www.servcoop.com/Analytics.htm

Learn more about our Microsoft Power BI workshops at www.servcoop.com/Training.htm



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