Optimizing networks using Data Analytics and Visualisation

Visualisations:
The visualisations were created using data visualisation software. It was a completely new piece of software for the team and competence was acquired over time. We created a toolbox of dashboards that were able to summarise a variety of data from the data warehouse. This was used to enable the planning team to make better decisions; preliminary tests using the toolbox were very well received by the team.

The example above is populated with fake data, but is an example of what we were able to create for the NAB Data Analytics team.

Challenges:
There were many challenging aspects to the MITI project, each providing its own kind of opportunity. Working at NAB was very different to university life and provided us with great insight into working life. Not all of us had had a full-time job before, and adapting to this sort of work was a challenge. Furthermore, integrating ourselves into the culture of the bank took some time due to the fact that NAB is such a large organisation. It allowed us to assess how such large corporations work while tackling a real-world business problem, and allowed us to gain skills in client-facing roles, where we had to meet diverse stakeholders expectations.

There were also numerous technical and analytical challenges. Most of the team was new to SQL databases and none of us had used the visualisation software before. This provided a great opportunity to learn new skills. We were faced with a real business problem without an obvious solution. Coming up with a solution required ingenuity and a diverse range of skills. We also had to deal with the reality of unclean real-world data, instead of being given a contrived situation like in a university assignment.

Learnings:
- How to work in a team consisting of people from different backgrounds, with different skills and mentalities
- What it is like working in a large organization with sophisticated structure and procedures, and adapting to a corporate work culture with large teams
- How different it is to develop a decision support system than to develop a transaction processing system
- How to use some of the technologies related to business intelligence and data warehouse
- How to derive analytical insights from data and the corresponding visualisations

Scope:
The project aim was to deliver a data-driven tool to enable the planning team at NAB to make better decisions about the network. Our goal was to help them create a toolbox that would allow them to summarize various relevant sources of data and make data-driven decisions for the benefit of the network.

The Data Analytics team (that we were part of) were asked to create a toolbox using data visualisations to help revamp this decision-making process and enable them to make informed decisions.

This project was to be presented to executive management within three months. The NAB team’s goal was to bring this prototype to production so that it could be used on a wider level within the Bank. It was only created as a prototype due to the limited amount of time.

Data Warehouse:
A major aspect of our project was bringing all the relevant data together in one place to be used as a ‘single source of truth’. This required us to design a data warehouse to store all this data, and have it link together correctly. This took up a considerable amount of our time as there was a significant amount of work that was required to extract the data into the right form.

Data was collected both internally and externally. The internal data comprised of discrete sources of data from different teams at NAB. We also acquired and integrated external data from various sources into our data warehouse such as demographic data from the Australian Bureau of Statistics.

Outcomes:
We delivered a result well above the NAB’s original expectations. We developed a prototype that could be used to help solve one of the main problems facing NAB’s planning team – how to optimize the entire network. The tool brought together numerous data sources internal to NAB and also included new data sources that the MITI team managed to generate for NAB. It leveraged cutting edge visualizations that allowed new insights about the network to be discovered from the data.

In addition to producing a functioning tool, we communicated our results to stakeholders through a number of presentations. This included an hour long presentation to senior managers in NAB’s Digital & Direct Banking Leadership Team.

This presentation generated significant interest within NAB about our work and resulted in several requests to our business unit to produce similar tools for other application areas.