**Polaris HQ – Attrition Risk Model Results**

At Polaris HQ, we wanted to answer a simple but important question:

***“Can we predict which employees are at risk of leaving the company before it happens?”***

To explore this, we built an **Attrition Risk Model** using real workforce data. The goal was not only to test whether prediction is possible, but also to uncover the key **drivers of attrition** – the workplace conditions, roles, and patterns most strongly linked to whether people stay or leave.

**What we did**

* We developed a predictive model (Logistic Regression) and trained it on employee history, roles, and work patterns.
* We then tested the model’s ability to correctly flag employees who were likely to leave.
* Finally, we analysed the model to identify the strongest signals of attrition – the factors that matter most.

**Model performance**

At the default decision threshold (50%), the model reached:

* **Accuracy:** 78%
* **Precision (Leave):** 40%
* **Recall (Leave):** 76%
* **F1 Score (Leave):** 52%

***What this means:*** the model is effective at **capturing 76% of the people at risk of leaving** (high recall), but sometimes also predicts attrition for people who end up staying (lower precision). This balance is valuable because in attrition prevention, it’s often better to cast a slightly wider net than to miss key resignations.

**Key drivers of attrition**

The model revealed the **top factors linked to attrition risk**:

* **Overtime:** Employees working frequent overtime are more likely to leave.
* **Business Travel:** Frequent travellers show higher attrition risk, while non-travellers are more stable.
* **Role Tenure:** Employees in the 9–11 year band are less likely to leave, suggesting a period of stability.
* **Manager Tenure:** Employees with very new managers (0–2 years) are more stable, while mid-tenure managers (6–10 years) show mixed results.
* **Job Role:** Sales Representatives and Laboratory Technicians are at higher risk; Research Directors and Managers are less so.
* **Commute Distance:** Those with medium commutes (12–17 km) are more at risk than those with very short commutes (0–5 km).
* **Department & Organisation Income Buckets:** Below-average department income correlates with higher attrition, while strong organisational earnings reduce risk.

These findings help us understand **where attrition is most likely to happen and why** – giving leaders clear starting points for action.

**Next step – an interactive tool**

To make this insight practical, we built an **interactive app** where stakeholders can explore predictions and drivers directly.