

# Nordic Sensing Co. Case Study (Hypothesis Formation)

**What is the main cause for the increased failure rate of InSense sensor (up to 15%) given the Cert data for failed drives dating back two quarters and what would be the best approach to reduce the failure rate below 5%?**

## 1 Context

As a top-five player in IoT sensor space focusing on energy consumption and production, Nordic Sensor Company's InSense sensor saw an increase in failure rate from 1-2% to 15% and needs to find the primary cause. In order to get back to a failure rate below 5%, immediate action must take place - with four factories focused on manufacturing a new sensor every 30 minutes and 26 suppliers for sensor parts, the company needs to know which manufacturer to shutdown or which suppliers to stop buying from.

## 2 Criteria for success

**A reduction of InSense energy tracking sensor failure rate below 5% ASAP.**

## 3 Scope of solution space

Based on the data from Singapore and the failed drives with dated results for testing, we can connect when and where and by how much failure rates started increasing. A spike of failure rate after purchases from the 26 suppliers will indicate a need to identify which supplier sells faulty parts. If failure rate spike occurred during increased manufacturing, we can then identify which manufacturer had the highest production of sensors and decide on a shutdown of manufacturing line. If the spike occurred at the same time frame for both scenarios, then it is a combined issue.

## 4 Constraints within solution space

The Cert database system limits export hence only shows 20k rows and yields manufacturing dates going back only two quarters.

## 5 Stakeholders to provide key insight

James Hansk - CEO  
Otto Evans - InSense President  
Tony Abraham - InSense VP  
Karen Chu - LithBat - President  
Anna Landis - LithBat - VP  
Shane Buchholz - Head Engineer  
Gary Neumont - Head of Manufacturing

Jessica Jones - QA/QC Engineer  
Bernard Ong - CTO  
Vince Maccano - Head of DS

## 6 Key data sources

**Cert database - Data with sensor manufacturing dates, testing results (fail or pass), supplier of device parts and specific manufacturer for the past two quarters.**