**Problem Statement Worksheet (Hypothesis Formation)**

**<What is the business problem you are investigating? (Use SMART principles)>**

**What strategies can Nordic Sensor Company implement in order to reduce the InSense sensor manufacturing failure rate below 5% through identifying its own manufacturing factory or outside parts supplier?**

1. Context

**<Why are you working on this problem?>**

Nordic Sensor Company (NSC), a top-five player in the IoT sensor space focusing on energy consumption and production has seen a spike in manufacturing failure for its InSense energy tracking sensor. In early-stage development testing, about 1-2% failure rate was normal for manufacturing the InSense sensor. The current sensor failure rate is 15% . There was a sharp increase in failures during sensor testing for InSense that showed up in the March summaries during pre-ship testing.

Management wants to understand whether the issue lies within the source of the parts of the manufacturing process in order lower the failure rates under 5%.

1. Criteria for Success

**<What are the key criteria that will deem this work successful?>**

Keep InSense sensor manufacturing failure rate below 5%.

1. Scope of Solution Space

<**What is the focus of this business initiative? I.e. What are your specific items will you focus on exclusively?>**

Failure rate reduction will be done in four factories in Asia refocused solely on InSense sensors.

1. Constraints within solution Space

<**What is the focus of this business initiative? I.e. What are your specific items will you focus on exclusively?>**

There are three key OEM partner accounts where a significant amount of advance orders are expected.

Chi-squares testing by the supervisor hasn’t provided any clue on whether the failure rate is caused by specific parts or from a specific manufacturing source.

The cause of increased failures could be due to a combination of faulty parts and poor manufacturing, or it could be specific to one factory.

1. Stakeholders to provide key insight

<**What is the focus of this business initiative? I.e. What are your specific items will you focus on exclusively?>**

**Executive and Senior Leadership Teams:**

James Hansk – CEO

Otto Evans – InSense President

Tony Abraham – InSense VP

Bernard Ong – CTO

Vince Maccano – Head of Data Science

Karen Chu – LithBat – President

Anna Landis – LithBat - VP

Shane Buchholz – Head Engineer

Gary Neumont – Head of Manufacturing

Jessica Jones – QA/QC Engineer

1. Key data sources

**<What are the key pieces of data you need to answer the questions related to the problem you are trying to solve?>**

**Singapore Supplied Data** – Contains vendor codes as column labels of 26 suppliers for seven InSense sensor parts.

**Manufacturing Cert Data** – Includes 20k rows of data with a column titled “STATUS” indicating failing drives. It also has manufacturing dates from two quarters ago with dated results for testing.