

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%.

2. Criteria for Success

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

Keep InSense sensor manufacturing failure rate below 5%.

3. 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.

4. 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.

5. 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

6. 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.