Nordic Sensing Problem Statement Worksheet (Hypothesis Formation)

What data mining strategy should Nordic Sensing adopt in order to identify and shut down the manufacturing line and/or supplier shop responsible for spike in failure rate of its InSense energy tracking sensor in order to bring down the failure rate to 5%?

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1 Context

Nordic Sensing's newest offering – InSense energy tracking sensor has seen a rise in failure rate to 15% and with 4 out of 5 factories in Asia manufacturing a new sensor every 30 minutes and identification of cause and source of this spike not available, company executives are pretty upset and looking for a resolution and solution immediately to bring back the failure rate down to 5% in order to prevent any further damage that can be caused to current and backlog clients impacted by these orders

2 Criteria for success

A quick and efficient data oriented solution needs to be devised to identify the specific part(s) and source(s) (Specific manufacturer/OEM) causing the failure rate to spike. That data analysis will help determine what manufacturers need to shutdown OR part supplier shops to stop buying orders from in order to get the failure rate back to below 5%, keeping in mind that a new sensor is manufactured every 30 minutes and there are advance orders placed by company's key accounts

3 Scope of solution space

There are 26 suppliers for seven InSense sensor parts manufactured across 4 of the company's 5 factories in Asia responsible for manufacture of InSense energy tracking sensor. Manufacturing data of all these entities consolidated within an excel file spanning across 2 months needs to be analyzed for calculating failure rate of each entity

4 Constraints within solution space

- Identifying which manufacturing line(s) needs to shut down and/or which supplier shop(s) needs to be blacklisted for purchase orders within a short time frame to prevent further failure escalation
- Communication of technical details to a non technically inclined Executive team

5 Stakeholders to provide key insight

James Hansk – CEO
Vince Maccano – Head of Data Science
Otto Evans – InSense President
Tony Abraham – InSense VP
Shane Buccholz – Head Engineer
Gary Neuomont – Head of Manufacturing
Jessica Jones – QA/ QC Engineer

6 Key data sources

Cert – Manufacturing data of Insense Sensor in excel format spanning across 2 months (20K rows)

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