

Predictive Analysis Technique: Turning data into actionable information.

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Copa Air

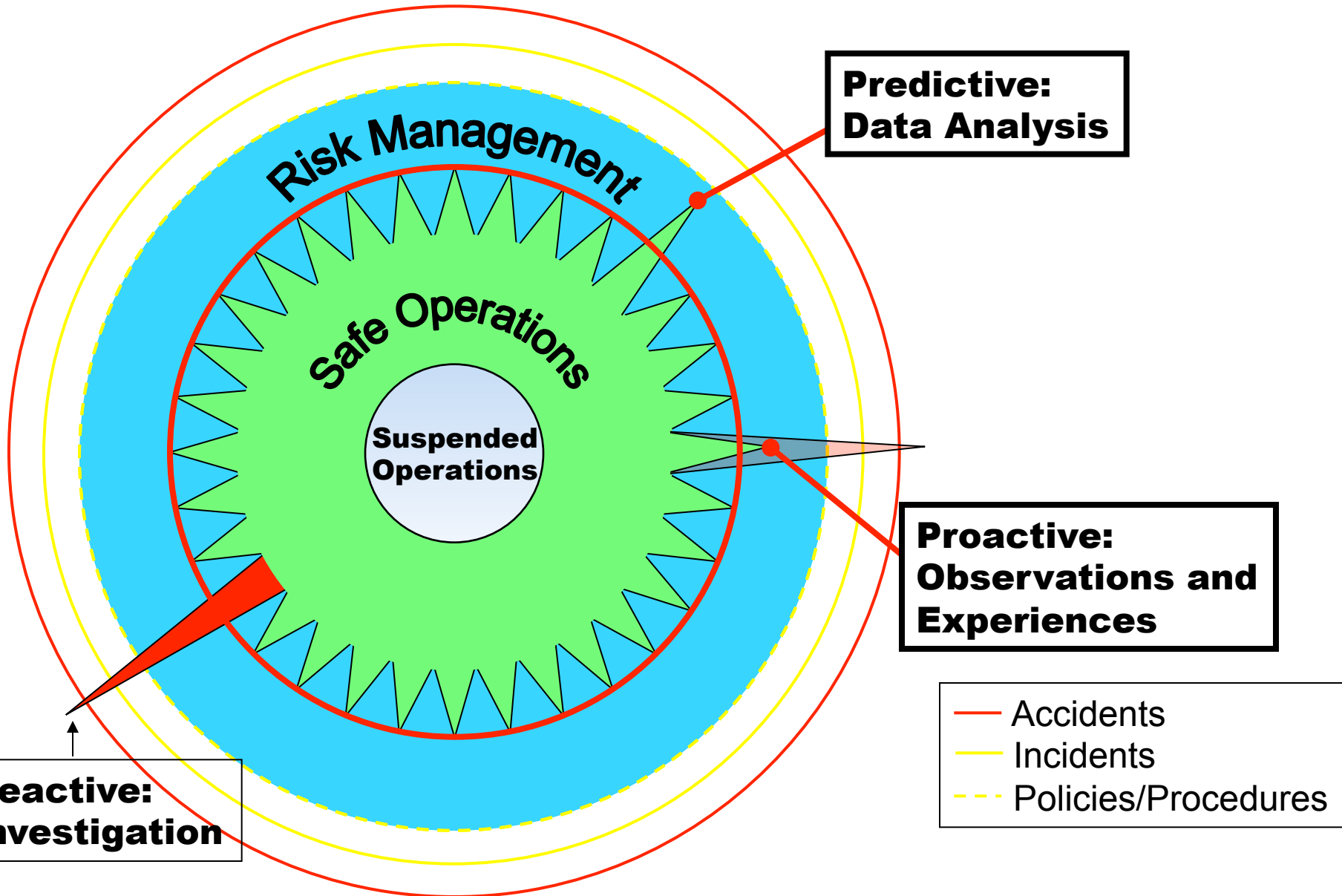
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Outline

- **Theoretical Model:** “Safety Star.”
- **Analytical Technique:** Statistical Process Control (SPC) Charts with examples (using fictitious data).
- **Gaining Insight:** Data visualization and allowing the end-users to explore their data.

The Safety Star:
Transitioning from Reactive to
Predictive Safety Management

Safety Star: Turning Safety Information into Action



Analysis Strategy: Focus on Quality

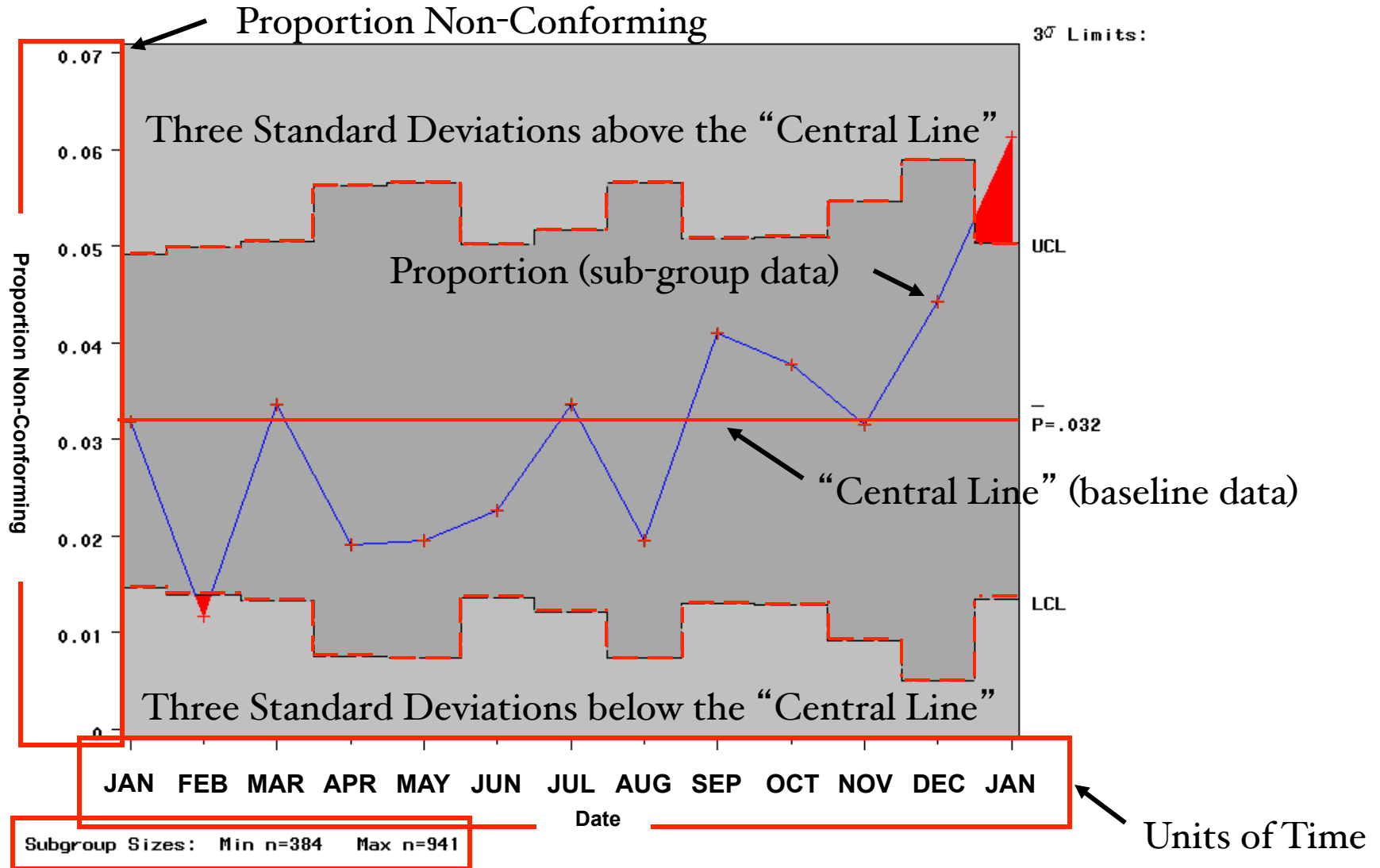
Six-Sigma Processes

- **Goal:** Boost safety by improving quality.
- **Quality:** Providing the “right features” while eliminating “defects.”
- **Continuous Improvement:** A management strategy based on measurement and **analysis of relevant data** that leads to positive change.

Statistical Process Control Charts

- **Used to monitor processes for excessive variability.**
- **Important because:**
 - Prevention of negative change (i.e., departure from standards).
 - Maintains current levels of performance – **Predictability.**
 - Necessary prerequisite to improvement:
 - If not in control, it's impossible to know if the changes being made are responsible for the observed effect.

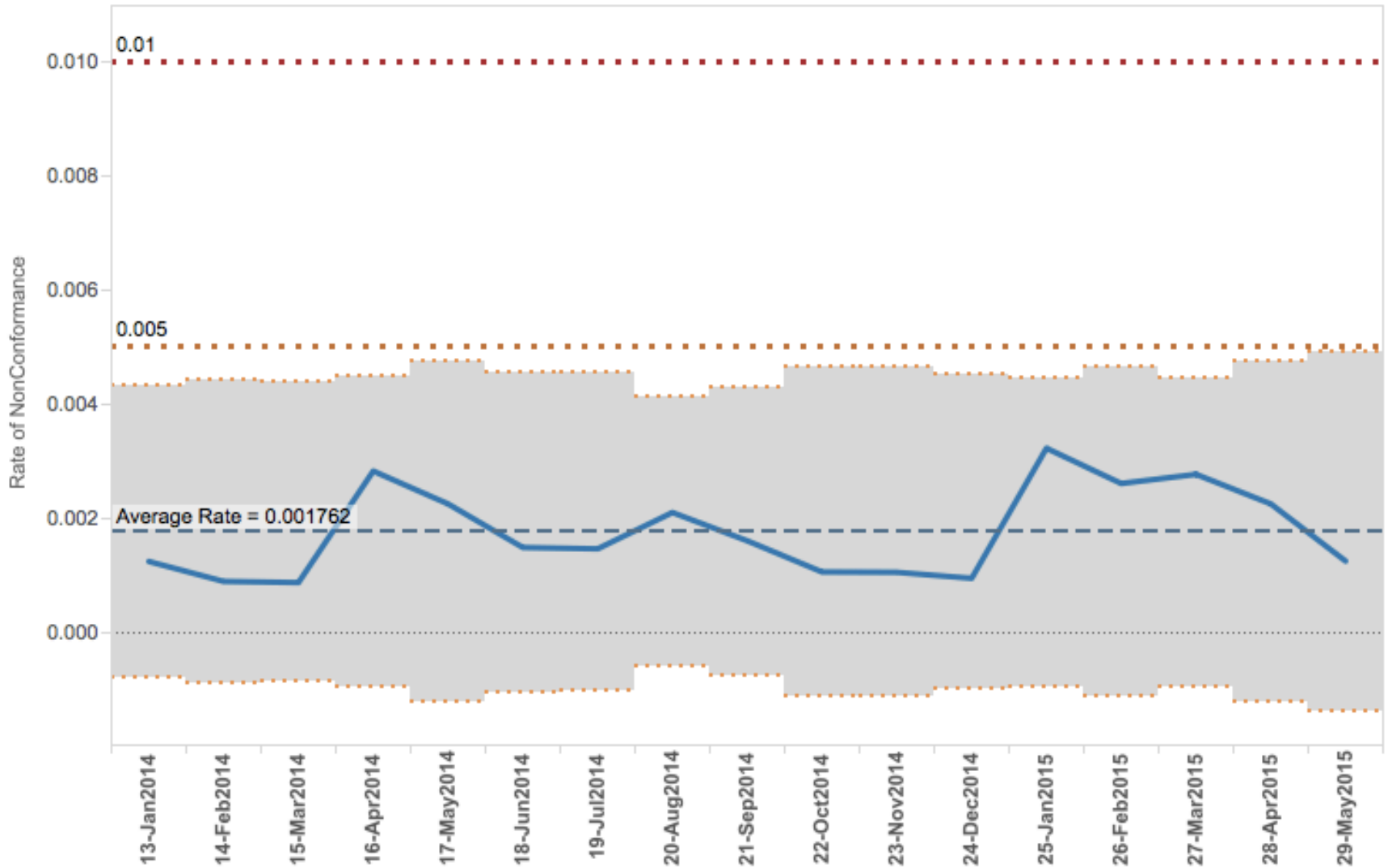
SPC: General Description



Examples of SPCs

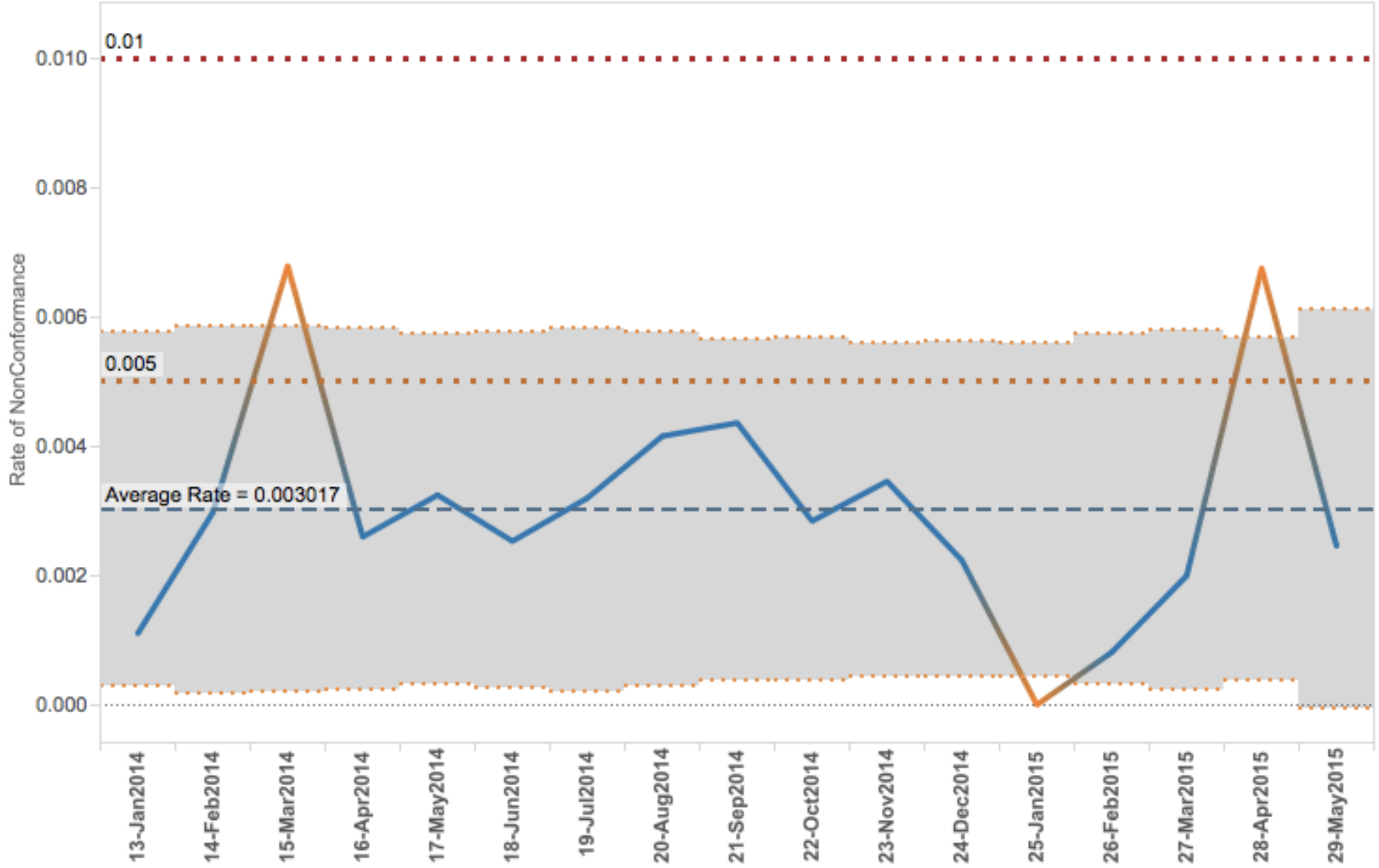
Example: “In Control” and Low Rate

(Note: This example is based on fictitious data.)



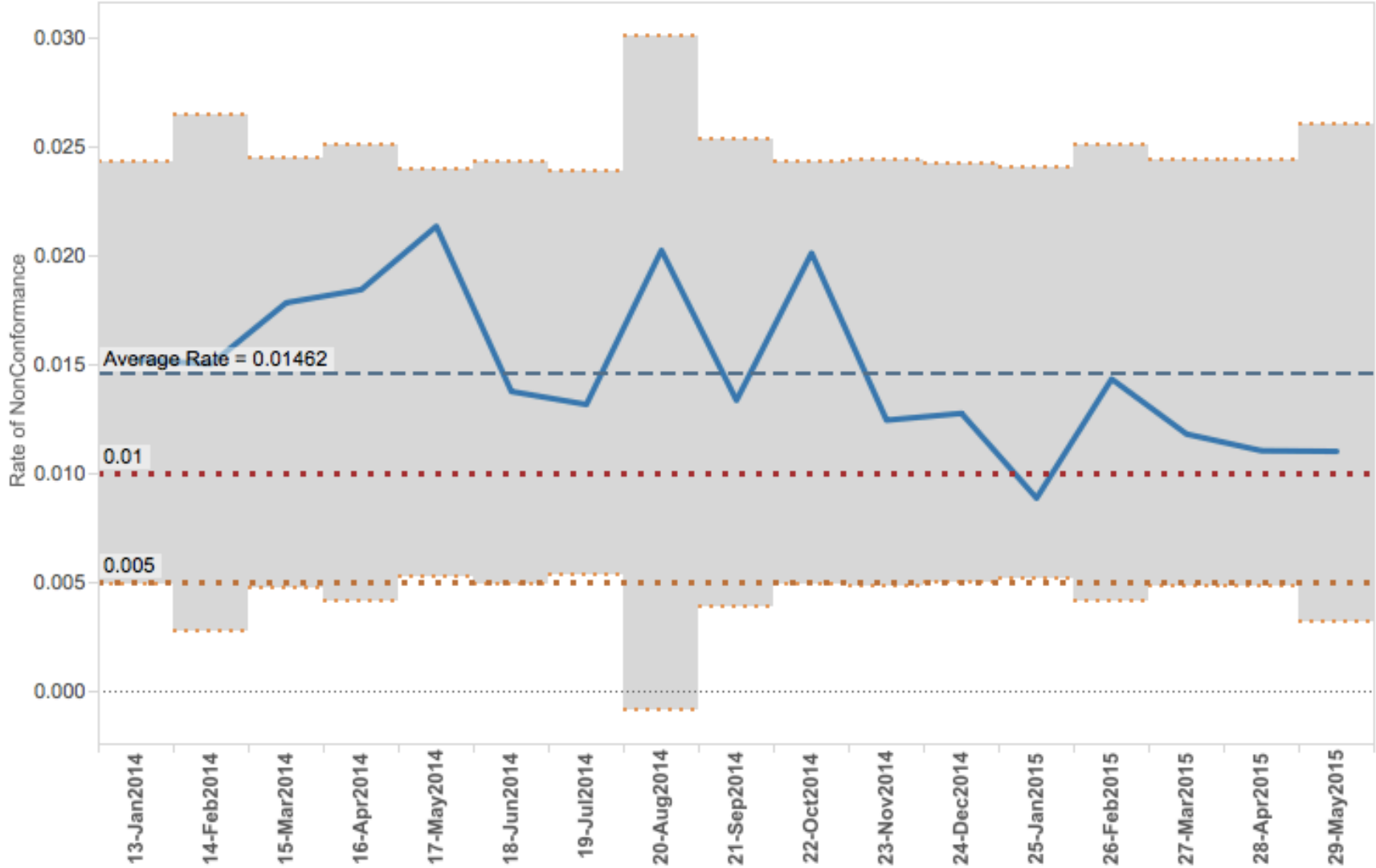
Example: “Out of Control”

(Note: This example is based on fictitious data.)



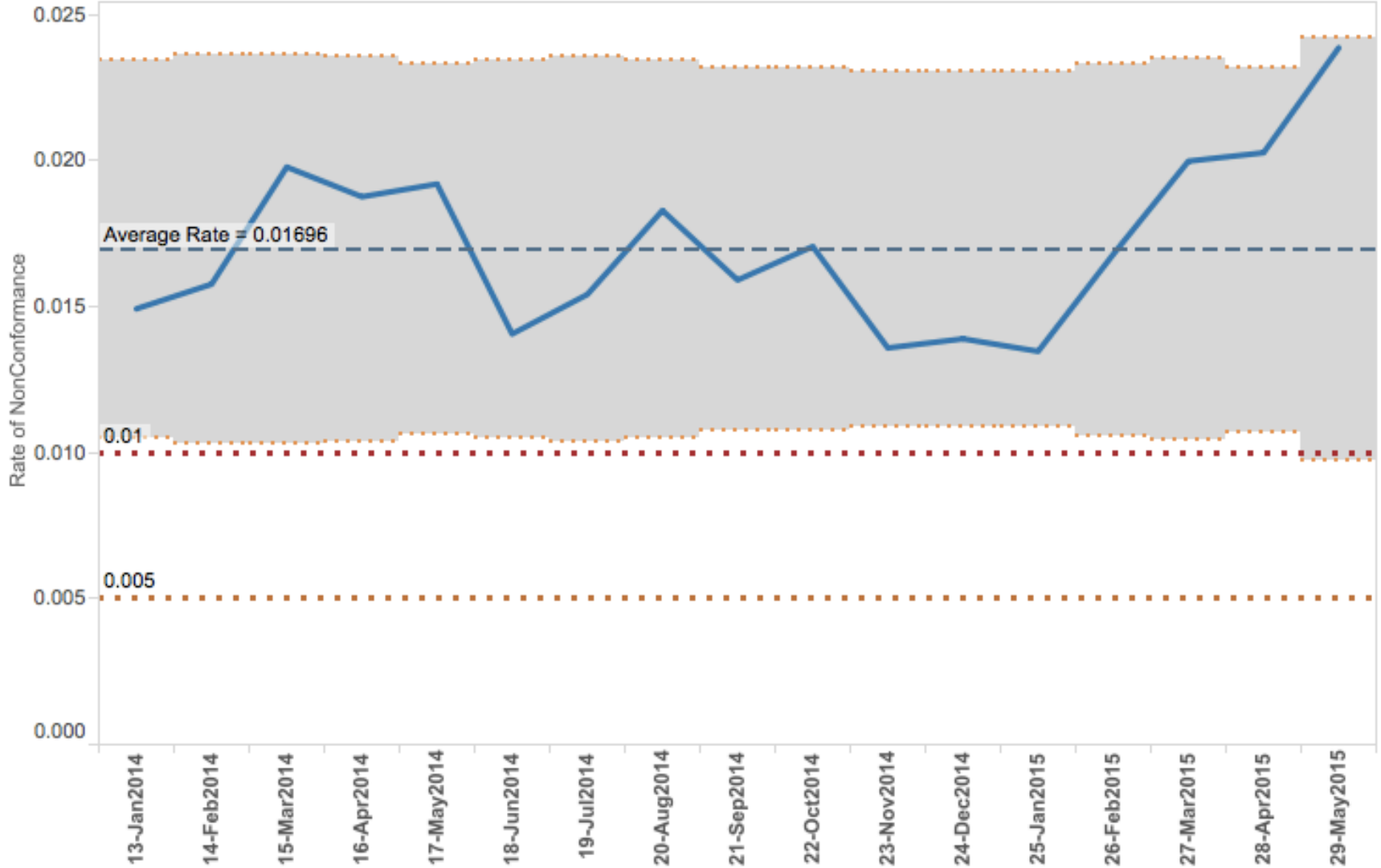
Example: “In Control” and High Rate

(Note: This example is based on fictitious data.)



Example: “In Control,” High Rate, Negative Trend

(Note: This example is based on fictitious data.)



Data Visualization

Benefits of Data Visualization

- Allows decision-makers to process large amounts of data in an intuitive manner.
 - **Salience:** Draws attention to the most important information through the use of pictures and/or colors.
 - **Consistency:** Lowers cognitive load (decrease training requirements and increased understanding).
- Encourages users to engage in data exploration.
 - **Compelling:** Draws the user into the process by providing an interesting user interface.
 - **Interactive:** Allows the subject matter experts (SMEs) to ask meaningful questions and “drill down” to gain insight.

Summary

- **Theoretical Model:** “Safety Star.”
- **Analytical Technique:** Focus on Quality.
 - Tool: SPC charts (measures rate of nonconformance).
 - Trend monitoring (prevents negative change).
 - Allows monitoring of continuous improvement initiatives when the process is in statistical control.
 - Examples.
- **Data Visualization:**
 - Intuitive design allows rapid processing of large amounts of data.
 - Interactivity allows SMEs to engage in data exploration and gain valuable insight.
 - Example: FDA Dashboard.