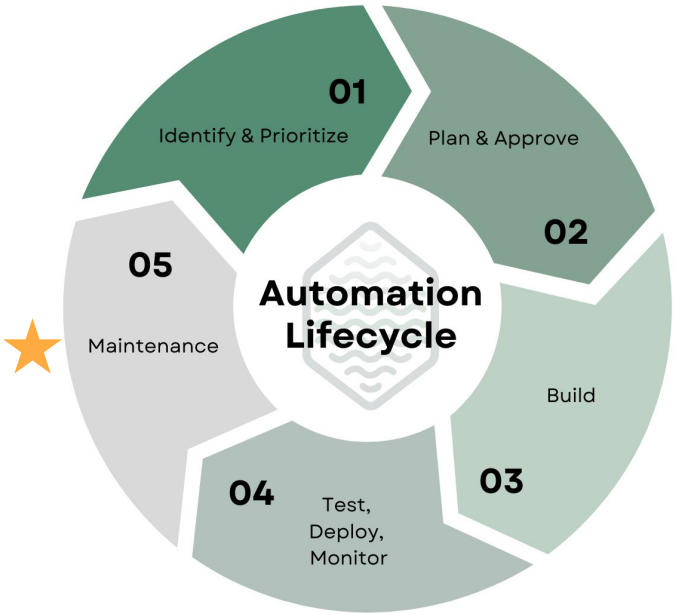
TARPON HEALTH

Automation Metrics

Agenda

- Must-haves Metrics
- Nice-to-have Metrics
- Statistical Techniques

The Automation Lifecycle



Roles and Responsibilities

Discussion

Who owns your automation dashboard?

Who receives and reviews the metrics? And how frequently?

How are people using metrics? Are they used to identify maintenance activities?

The Must-haves

The following are necessary for measuring the performance for each automation.

The Must-have Metrics
Skip Rate
Error Rate
Average / Median Automation Execution Time
Queue Consumption Rate
Error Free Days

“Measurement is the first step that leads to control and eventually to improvement. If you can’t measure something, you can’t understand it. If you can’t understand it, you can’t control it. If you can’t control it, you can’t improve it”.

- H. James Harrington

Skip and Error Rates

A lower skip rate indicates better data quality (inputs) while a lower error rate indicates a higher quality design and build.

Skip Rate

This metric measures the percentage of skipped accounts compared to the total number of queued accounts.

$$\frac{\text{N: Skipped accounts}}{\text{D: Queued accounts}}$$

Error Rate

This metric measures the percentage of accounts that are unsuccessful compared to the total number of accounts processed.

$$\frac{\text{N: Unsuccessful accounts}}{\text{D: Processed accounts}}$$

Discussion:

- What does Skip Rate tell you about the importance of your automation's health?
- What does Error Rate tell you about the important of your automation's health?

Execution Time

Average and Median execution time trending over time allows you to identify outliers cases that can be investigated for maintenance.

Average Execution Time

This metric measures the average time it takes to process an account.

$$\frac{\text{N: Account execution time 1 + 2 + } \boldsymbol{n}}{\text{D: Accounts}}$$

Median Execution Time

This metric measures the median time it takes to process an account.

n1 + n2 + **n3** + n4 + n5

Median

Discussion:

- What's the main difference between Average and Median?
- Why is a lower time better?

Queue Consumption Rate

A high rate indicates that the automation is running through the account volume within its designated run time.

This metric measures the percentage of accounts processed out of the total number of accounts queued.

This measures an automations ability to consume its anticipated queue within its designated run time. Run times are based on coded schedules and anticipated automation volume and execution time.

$$\frac{\text{N: Processed accounts}}{\text{D: Queued accounts}} \uparrow$$

Discussion:

- What does it mean if your queue consumption rate is consistently low?
- What would be your first step in diagnosing this issue?

Error Free Days

A low percentage illustrates the stability of your automation and the effectiveness of fixes put in place.

This metric measures the percentage of days that the automation runs within an acceptable error rate.

Tarpon recommends an acceptable error rate being equal or lower than 5%.

N: Error free days

D: Days the automation ran

Discussion:

- What is your organization's acceptable error rate?
- How many error free days in a month would you find acceptable?

The Nice-to-haves

The following are ‘Nice-to-haves’ because they aren’t critical, but grow in importance over time.

The Nice-to-have Metrics
External Error Rate
Branch Error Rate
Average Automation Branch Execution Time
Downtime Rate

All the Nice-to-have metrics require extra effort to build and maintain. Are they worth the extra effort?

Ultimately, we believe so because it will allow your team to more quickly diagnose issues. This skill will become more important as your program scales. Eventually maintenance will become as much of a priority as building the next wave of automations.

External and Branch Error Rate

Knowing the cause of external failures or branch errors allows for a more precise maintenance approach.

External Error Rate

This metric measures the percentage of inaccurately processed transactions due to external reasons (e.g., application/portal not being available) compared to the total number of accounts processed.

External is generally defined as an issue that you cannot resolve with your internal resources.

Branch Error Rate

This metric measures the percentage of inaccurately processed transactions for each unique branch of an automation.

A branch is a series of steps that leads to a distinct outcome.

Discussion:

- What types of elements should be coded / considered external?
- Does anyone have a good example of a different branch for each automation?

Average Branch Execution Time

Knowing the branch execution time over time allows you to identify outliers cases more easily that can be investigated for maintenance.

Average Branch Execution Time

This metric measures the average time it takes a unique branch of an automation to process. The average must be completed for each branch of the automation.

N: Account branch **X** execution time 1 + 2 + ***n***

D: Branch **X** accounts

Discussion:

- What is the best way to identify a ‘branch’ of an automation?
- How many organizations have split out the different paths for an automation?

Downtime Rate

A lower rate indicates a more stable automation.

Downtime Rate

This metric measures the percentage of downtime as a portion of scheduled time. Downtime can be for any reason, whether it's internal or external.

This is only applicable when automations **are not** dynamically scheduled.

N: Hours the bot was scheduled to, but did not run

D: Hours the was scheduled to run

Discussion:

- A lower rate indicates a more stable automation
- Is there an equivalent for dynamic scheduling?

Statistical Process Control

Statistical process control (SPC) is defined as the use of statistical techniques to control a process or production method. SPC tools and procedures can help you monitor process behavior, discover issues in internal systems, and find solutions for production issues. Organization's should adjust expectations depending on the phase of the automation (i.e., is the automation new, steady-state, or in regression).

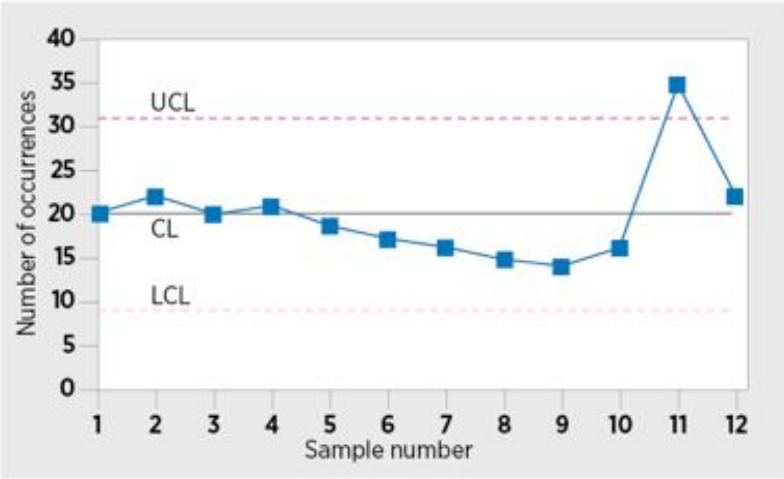
Tarpon recommends using two of the common SPC tools: the Control Chart and the Histogram. For more information on SPC tools visit American Society for Quality ASQ.

Control Chart

Control Chart

The control chart is a graph used to study how a process changes over time. Data is plotted in time order. A control chart always has a central line for the average, an upper line for the upper control limit, and a lower line for the lower control limit. These lines are determined from historical data.

By comparing current data to these lines, you can draw conclusions about whether the process variation is consistent (in control) or is unpredictable (out of control, affected by special causes of variation).



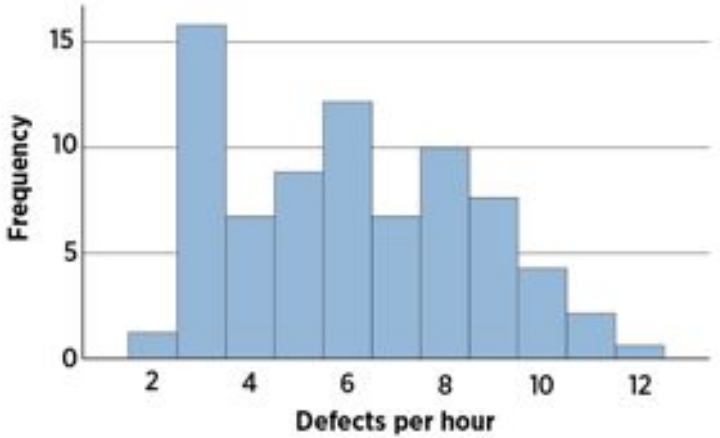
Control Chart Example

Histogram

Histogram

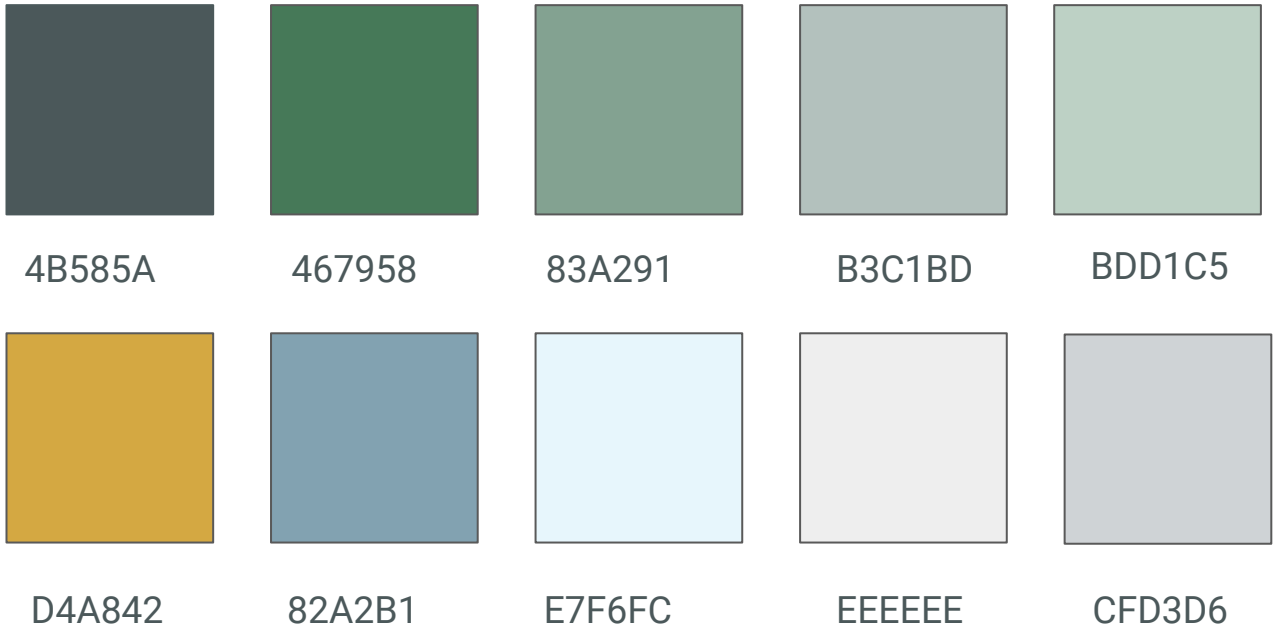
A histogram is an approximate representation of the distribution of numerical data. It is a type of bar chart that shows the frequency or number of observations within different numerical ranges, called bins.

The histogram provides a visual representation of the distribution of the data, showing the number of observations that fall within each bin. This can be useful for identifying patterns and trends in the data, and for making comparisons between different datasets.

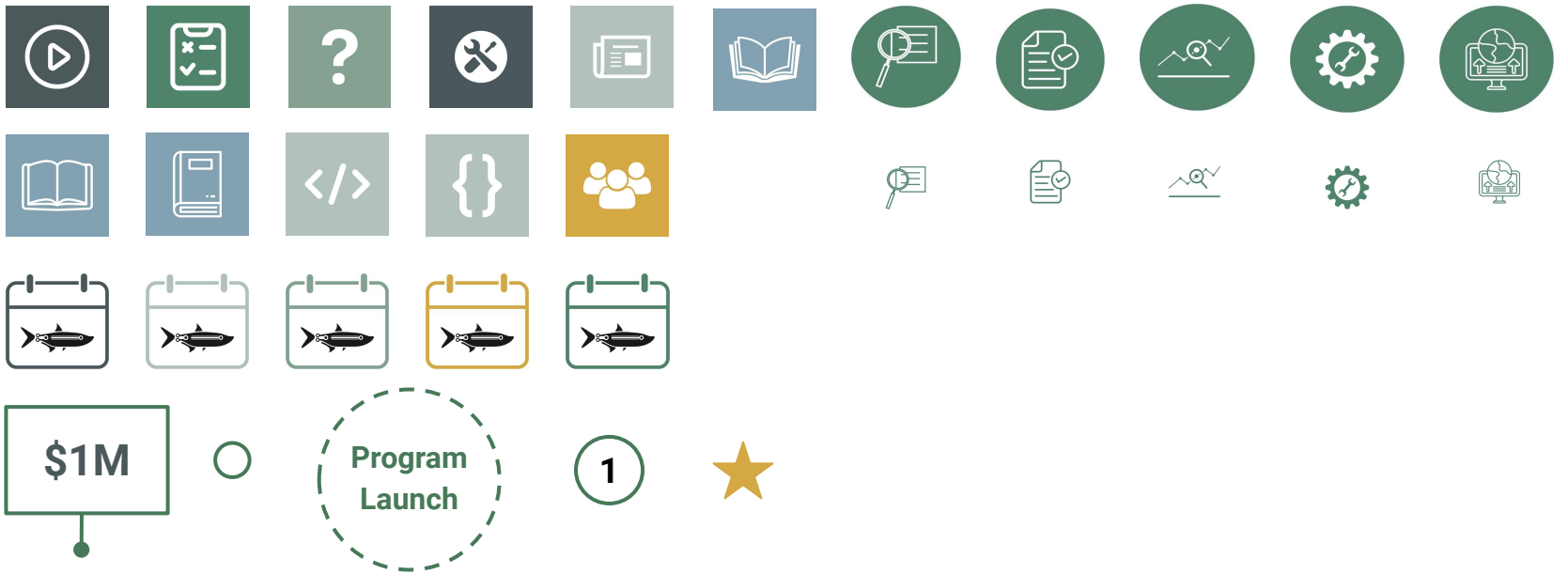


Histogram Example

Tarpon Health colors



Icons



Tables you can use

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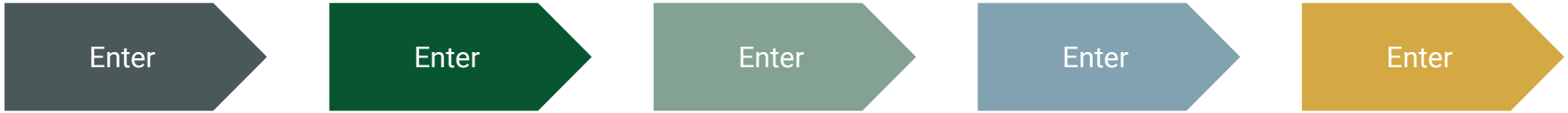

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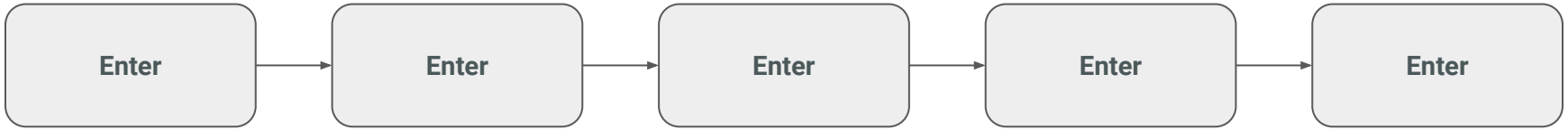
Process steps you can use



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