A catalog of the FUNCTIONS Domain (81 total)

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
1	B.0	Perform Device Testing	The solution may perform NORDIC Thingy Testing.	The solution will perform device testing on a collection of data. The team will potentially focus on NORDIC thingy testing which will be testing conducted on the NORDIC prototyping platform for cellular IoT. The solution will follow a process that starts with engaging the customer to understand business needs and ends with an output of a set of reports on what the solution as ascertained about the data received (concerning the customer's device set)	The NORDIC thingy prototyping platform may prove to be a good testing platform to ensure the tool captures all the data and reports as expected.	B. Stansell	O.1, O.2, O.3, O.4, O.5, O.6
3	B.1	Engage with Customer	Converse with the customer to supply status updates and receive approval for system requirement modifications.	The solution will acknowledge functions based on system requirements and the need for stakeholder approval for any necessary adjustment. The purpose of this functional start is to create an action item between the firm (Essential-IoT) and the customer that kickstarts the relationship between them and opens the project discussion. This will likely happen in the first days of negotiation.	This ensures that the customer is involved in the design process.	H. Alloway	O.1
4	B.1.1	Utilize Configuration Tool to Capture Interview Results	The solution will utilize a configuration tool to capture customer interview results.	The solution will develop and utilize a configuration tool that organizes the customer's feedback and compiles a report (to be read by the customer) concerning issues with which the solution will align. The configuration tool may take shape in a Microsoft Form, an excel sheet, a fillable PDF, a web database, or any other format that can ingest qualitative data. This data will be in a verbal, largely narrative form (i.e., "we want to discover units that have been offline for more than 48 hours", "we don't know how many units are working in any one-time frame", "we don't have a way to catalog working units", etc.).	Capturing the interview results allows the system to be configurable to the individual circumstances and context of each customer	H. Alloway	O.1
5	B.1.1.1	Pull In Data from Interview	The solution will pull in data from customer interview(s), including "narrative taglines" and "definition of normal".	The solution shall ingest the data gained from the interview with the customer, whether automated or manually done, into the database (awaiting editing and summary compilation). Likely, Essential-IoT will fill out this configuration tool (i.e., an excel file or Google Survey Form) during or after the interview(s) with the customer. This ingestion point will be confidential between the firm (Essential-IoT) and the customer.	Receiving the data from the interview allows the team to adapt the system to the individual customer's needs	M. Di Girolamo	O.1
6	B.1.1.2	Structure Customer's Responses to Tool Interview Form.	The solution will structure the customer's responses to the configuration file/tool/interview form.	The solution will structure the customer's responses within the configuration tool for easy reading and analysis. This may include grammar/spelling adjustments, bulleting, expanding into paragraphs, creating word clouds or basic matrices of notes, and/or developing a checklist of action items. These actions/summaries will be largely uniform regardless of the client, so the process will be relatively automated.	Structuring the customer's responses will allow for a uniform and easy way of quickly identifying how the system needs to adapt to the customer's needs and circumstances	H. Alloway	O.1

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
7	B.1.1.3	Build Report to Summarize Interview Responses	The solution will build a report that summarizes customer interview responses.	The solution will develop a report summarizing the customer's responses (from the interview period). This report will be customized to the customer and will have general insights and action items that inform the subsequent OPERATIONS (2-6). This will also lay the groundwork for key details (i.e., "defining normal", "discerning what parameters we will be querying", "identifying specific visualizations or report formats that the customer desires to see").	Generating a report allows the team to easily explain to the customer their status and how the system will be adapted to their circumstances.	H. Yukihiro	O.1
8	B.1.2	Interview Customer	The solution must be initially developed by interviewing the customer and gathering their requirements.	The solution needs to interview with the customer to understand their request and cater the solution to the customer's data landscape.	An interview with the customer is a necessary step to gain requirements for the analysis.	B. Stansell	O.1, O.3, O.4, O.5
9	B.1.2.1	Assess Unit Sensor Problems	The solution will assess the unit sensor problems with customer.	The tool will assess the current unit sensors provided by the customer to gather information of current issues and problems with the customer's data landscape.	The tool needs to assess the current unit sensors provided by the customer to understand and accurately address existing problems.	L. Wu	O.1, O.3, O.4, O.5
10	B.1.2.1.1	Determine Quantity of Units	The solution will determine the quantity of unit sensors.	The tool will go over the customer's current data landscape and count the number of unit sensors.	The tool needs to ensure each unit sensor is accounted for so that the tool can confirm that all the problems will be addressed within the customer's data landscape.	H. Alloway	O.1, O.3, O.4, O.5
11	B.1.2.1.2	Determine Unit Purpose	The solution will determine the unit sensors' purpose.	The tool will go over the customer's current data landscape and determine each unit sensor's purpose.	The tool needs to account for each unit sensor purpose to gain understanding of the inputs and outputs of each unit sensor which will help in further analysis.	L. Wu	O.1, O.3, O.4, O.5
12	B.1.2.1.3	Understand Existing Architecture	The solution will observe and understand the customer's existing data architecture and flow.	The tool will go over the customer's current data landscape and document the customer's existing data architecture and flow.	The tool needs to understand the existing data structure to gain further understanding of the customer's data landscape which will help in further analysis.	M. Di Girolamo	O.1, O.3, O.4, O.5
13	B.1.2.1.4	Determine Existing Issues	The solution will review and determine the unit sensor's existing issues.	The tool will address all the existing issues on the unit sensors within the customer's current data landscape to gain further understanding of the customer's request.	The tool needs to address the existing issues as it will help the tool address the issues that have become prominent to the customer and fully address issues with the unit sensors.	L. Wu	O.1, O.3, O.4, O.5

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
14	B.1.2.1.5	Define "Normal"	The solution will define the normal of the existing data landscape.	The tool must understand and document the existing data structure to determine the existing normal data trends in the customer's system.	By defining normal, the tool can understand the current behaviors of the data and existing trends which will aid in further analysis.	H. Yukihiro	O.1, O.3, O.4, O.5
15	B.1.2.2	Assess Current Data Sources	The solution will assess the current sources of data.	The tool will address all current sources of data to ensure all the data inputs from the unit sensors are accounted. This will also be a survey of what technologies, companies, partners, and/or formats the customer is currently utilizing to interact with the unit data.	The tool needs to catalog each data source to ensure all data inputs are accounted for and it will help with analyzing the current issues within the data landscape.	H. Alloway	O.1, O.3, O.4, O.5
16	B.1.2.3	Assess Use of Pre-Existing Code	The solution will assess the use of our pre-existing common code with the customer's particular needs and current infrastructure.	The tool will assess all the code changes needed to push onto the current data infrastructure to ensure the code changes will resolve and not further harm current issues. "Pre-existing Common Code" will be native to Essential-IoT; Essential-IoT will possess a library of developed solutions, visualizations, queries, and other code sets that approach commonly observed unit health metrics. This phase will determine which of those library functions Essential-IoT can recycle for the specific customer, and which of the customer's needs will require new software development from Essential-IoT. The customer's current infrastructure will also largely influence how Essential-IoT applies pre-existing common code, as certain frameworks may not be conducive to the pre-existing code, and adjustments ay be required.	The tool needs to review each code change to ensure the current data infrastructure knowledge is up to date and no new problems have arisen since the code push.	H. Alloway	O.1, O.3, O.4, O.5
17	B.1.2.3.	Assess Data Storage	The solution will assess current methods of data logging and storage.	The tool will assess the current methods of data logging and storage to gain familiarization of the customer's current data storage methods.	The tool needs to become familiar with the data logging and storage to be able to adapt to the customer's current data infrastructure.	H. Alloway	O.1, O.3, O.4, O.5
18	B.1.2.3.2	Assess Data Formatting	The solution will assess current methods of data formatting and recording.	The tool will assess the current methods of data formatting and recording to gain familiarization of the customer's current data formatting methods.	The tool needs to become familiar with the data formatting and recording to be able to adapt to the customer's current data infrastructure.	H. Yukihiro	O.1, O.3, O.4, O.5
19	B.1.2.3.	Assess Data Transporting	The solution will assess current methods of data transportation.	The tool will assess the current methods of data transporting to gain familiarization of the customer's current data transportation methods.	The tool needs to become familiar with the data transporting to be able to adapt to the customer's current data infrastructure.	M. Di Girolamo	O.1, O.3, O.4, O.5
20	B.1.2.3.	Determine Availability	The solution will assess the available code change that can easily be implemented.	The tool will assess all the code changes for the customer's current data landscape and determine which code change is available for push.	By assessing the available code changes, the tool can document and learn the current trajectory of the customer's current data structure.	H. Alloway	O.1, O.3, O.4, O.5

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
21	B.1.2.3.5	Determine Work	The solution will determine which code changes need work.	The tool will assess the code changes for the customer's current data landscape and determine which code change needs work to better the current data structure or resolve an issue.	By having the tool be proactive in determining the areas of the current data system that need work, the tool can better configure its efforts towards high-pressure areas of the customer's current data landscape.	L. Wu	O.1, O.3, O.4, O.5
22	B.1.2.3.6	Identify Code Improvements from Customer Hooks	The solution will identify common code tool improvements versus the customer-specific hooks.	The interview will ascertain the key aspects of the customer's needs. Following this identification of what analyses/visualizations/diagnostics the customer desires, Essential-IoT will identify which software developments are (1) tweaks/adjustments to current, pre-existing code, and which software developments are (2) new, "customer-specific hook" software needs that will require building a tool from the ground up. The final solution (analysis of the customer's units) will likely be a combination of (1) and (2).	Identifying code improvements from customer hooks helps the team configure the system to the customer's individual needs and circumstances as well as identify the specific aspects of the system that need to be tailored to fit the customer's unique circumstances	H. Yukihiro	O.1, O.3, O.4, O.5
23	B.1.2.3.7	Release Documentation of Plan	The solution will release the documentation of Essential-IoT "Application of Code" plan.	Following the interview, Essential-IoT shall release a gameplan of what the 50,000-foot perspective to approach the customer's analysis/diagnostic needs concerning the units.	This allows the team to be transparent with the customer and gives them a clear picture of what is expected	H. Alloway	O.1, O.3, O.4, O.5
25	B.2.0	Collect Raw Data from Customer	The solution will receive raw data from the customer.	This information will provide Team 03 the ability to perform trial periods with the integrated applications (Power BI & ELK Stack) to prepare for the first ingest of log files.	Training in this sense equips Team 3's members with the ability to ingest, sort and log data. This is part of the process of developing the entity's behavioral solution as this process creates a condition from an external system.	H. Alloway	O.2
26	B.2.0.1	Embedded Level Tap Point	The solution will include an Embedded Level Tap Point as an initial set of operating conditions.	The solution shall ingest data from an embedded level source of data; this data will be tagged within the database as being sourced from an embedded level. The tag "sourcedFromEmbeddedLevel" may result in niche diagnostics in later OPERATIONS. This data may provide insight into analysis of the unit by virtue of its origin.	This allows the system to keep track of where the data has been ingested from and may provide more insight into analysis of the unit	B. Stansell	O.2
27	B.2.0.2	Network Level Tap Point	The solution will include a Network Level Tap Point as an initial set of operating conditions.	The solution shall ingest data from a network level source of data; this data will be tagged within the database as being sourced from a network level. The tag "sourcedFromNetworkLevel" may result in niche diagnostics in later OPERATIONS. This data may provide insight into analysis of the unit by virtue of its origin.	This allows the system to keep track of where the data has been ingested from and may provide more insight into analysis of the unit	B. Stansell	O.2

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
28	B.2.0.3	Application Level Tap Point	The solution will include an Application Level Tap Point as an initial set of operating conditions.	The solution shall ingest data from an application level source of data; this data will be tagged within the database as being sourced from an application level. The tag "sourcedFromApplicationLevel" may result in niche diagnostics in later OPERATIONS. This data may provide insight into analysis of the unit by virtue of its origin.	This allows the system to keep track of where the data has been ingested from and may provide more insight into analysis of the unit	B. Stansell	O.2
29	B.2.1	Automate Intake of Data	The solution will automate intake of data.	The tool will automate the intake of data to ensure data is ingested into the system with no stopping when needed. This is a key pressure point of the firm (Essential-IoT); data should be ingested from a designated raw CSV holding location periodically (set on a timer to recur reliably and frequently).	Automation of data intake is desired for the system as the data ingestion must be automatic to ensure the tool gathers the data continuously throughout a period without manual intervention.	M. Di Girolamo	O.2
30	B.2.1.1	Design Ingestion System	The solution will have a designed ingestion system.	The tool will contain a designed ingestion system to gather the continuous or semi-continuous flow of data.	Since the data intake is automated, the tool must ensure it has an ingestion system that is capable to gather all the data for a long period of time.	M. Di Girolamo	O.2
31	B.2.1.2	Design Code Platform to Manipu	The solution will have a designated coding platform to manipulate data.	The tool will contain a designed coding platform to manipulate the data received. This coding platform will be managed and manipulated internally by the firm (Essential-IoT).	Once the data has been ingested into the system, the tool needs to be able to manipulate the data for further analysis.	M. Di Girolamo	O.2
32	B.2.1.3	Design Output Mechanis m	The solution will have a designed output mechanism.	The tool will contain a designed output mechanism to be able to send out revised data files. These files will still be in CSV format.	To compile data and create tables for analysis, the data needs to be formatted by an output mechanism to fit the tables and columns.	M. Di Girolamo	O.2
33	B.2.1.4	Design Recurr ence Mechan ism	The solution will have a designed auto-recurrence mechanism.	The tool will contain a designed auto-recurrence mechanism to refresh the data automation system for new data.	The tool must avoid getting backed up with old data so the system must be able to refresh to gather new data smoothly.	M. Di Girolamo	O.2
34	B.2.1.5	Record Findings	The solution will record findings.	The tool will record findings from the data ingested into the system. This may be a simple report that is stored in a folder, acting as an action log. It may update a .txt file. It may issue an email from the firm (Essential-IoT) to the firm and the customer. It may be a different mechanism.	While the tool must automate intake, ingestion, and output mechanisms, the tool must be able to record data findings for further analysis processes.	M. Di Girolamo	O.2
35	B.2.1.6	Delineate Private Findings	The solution will differentiate public from private findings.	The tool will delineate the public from the private findings to ensure all private and public data points are kept separate. This is to ensure the integrity of the relationship between the firm (Essential-IoT) and the customer.	Private and public findings must be kept separate to ensure data analysis is performed separately between the two as they contain different data points of interest.	M. Di Girolamo	O.2, O.6

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
36	B.2.1.6.1	Determine Data Sanitization Need	The solution will determine if any data or outputs need to be sanitized for public viewing.	The tool will identify data that needs to be sanitized for public viewing if the report were to be public.	Some of the data points may be confidential or ambiguous for data viewing, therefore, the tool must be able to refine the report for public reading.	M. Di Girolamo	O.2, O.6
37	B.2.1.6.2	Redact Appropriate Fields	The solution will redact appropriate fields, visualizations, dashboards, and/or reports.	The tool will redact fields, visualizations, dashboards, and reports that are not meant for public viewing.	After the data not meant for public viewing has been identified, the tool must remove the said data to finish the refinement.	M. Di Girolamo	O.2, O.6
38	B.2.2	Normalize Time	The solution will normalize time by utilizing timestamp conventions.	The tool will configure an expected timestamp and log convention for the data to normalize the time of data ingested into the system.	By normalizing the time in the customer's system, it will allow the tool to further configure the data points and determine a normal trend based on existing and new data points.	H. Alloway	O.2
39	B.2.2.1	Define Timestamp Convention	The solution will define an expected timestamp convention.	The tool will define an expected timestamp convention which will align with the customer's expectations.	To adapt to the customer's points of interest, the timestamp convention must be adapted to ensure all labelling will satisfy the customer's expectations.	M. Di Girolamo	O.2
40	B.2.2.2	Timestamp Log at Ingestion	The solution will timestamp log at moment of ingestion.	The tool will timestamp log at moment of ingestion to follow the expected timestamp convention.	The tool must develop a timestamp log now of ingestion to account when each data point has entered the system.	M. Di Girolamo	O.2
41	B.2.2.3	Label Log Origin at Ingestion	The solution will label log origin at moment of ingestion.	The tool will label log origin now of ingestion to follow the expected timestamp convention.	The tool must label each log origin to account each input a data point has utilized to enter the system.	M. Di Girolamo	O.2
42	B.2.2.4	Format Uniform Timestamp for Ingested Data	The solution will format uniform timestamp convention for existing data points.	The tool will format a uniformed timestamp convention for the existing data points that adhere to the expected timestamp convention.	All the data points must adhere to the timestamp convention, whether new or existing, to be able to be formatted correctly for compilation.	M. Di Girolamo	O.2
43	B.2.2.5	Issue Revised Data Files	The solution, prior to integrating the data tool, will define a standard log file form that is prepared for ingestion to align with criteria approved by the stakeholder.	Internal criteria such as timestamping, labelling and creating uniformity between data will be included in the design process during ingestion. This will prepare a log file for implementation with software tools as stated in the Mission Statement.	Uniformity through revision of log files ensure that critical pieces of information from ingested log files are isolated to enhance system health.	M. Di Girolamo	O.2

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
44	B.3	Determine Data Formatting	The solution will define whether the data is in a structured format.	The tool must ensure the data is in a structured format for successful compilation.	After the data has been formatted correctly, the system must double check to ensure no errors due to formatting will occur during the compilation stage.	M. Di Girolamo	O.3
45	B.3.1	Reformat Data	The solution will reformat the data to fit the tool.	The tool shall adjust the data storage/formatting within the current file to pass the data from the file to the toolset (based in PowerBI and ELK Stack). This function is valuable in simplifying that transition as much as possible. The "reformatting" may be as direct as "redacting Column D" or as indirect as "deleted comma-delimited values within the range of 4-6 empty data ranges".	Reformatting the data allows the system to maintain a uniform flow of data throughout the system that follows a common and agreed upon format	H. Yukihiro	O.3
46	B.3.1.1	Differentiate Log Occurrence & Submittal	The solution will differentiate time of log object occurrence and log file submittal.	The tool will differentiate between the time of log object occurrence and log file submittal to gather information of each log's timestamp. This differentiation in timestamp is valuable for analyzing when processes occur and tying those observations with a source of truth. It is paramount that these timestamps be an absolute source of truth.	Once the system can gather the separate timestamps for a log's occurrence and submittal, the tool will be able to compile the data accurately into a table.	H. Alloway	O.3
47	B.3.1.2	Perform Additional Operations	The solutions will perform additional operations as necessary.	The solution shall perform additional reformatting operations as necessary to facilitate the transition of data from the CSV to the toolset (based in PowerBI or ELK Stack). These reformatting operations may not be identified until further into the implementation phase of the toolset, or they may be delineated as early as the interview DISCOVERY phase with the customer.	The ability to perform additional operations allows the system to be scalable and adaptable to different unexpected circumstances to maintain a uniform flow of data through the system	H. Yukihiro	O.3
48	B.3.2	Compile Data and Create Tables	The solution will compile data and create tables.	The tool will compile the data and develop tables for reports.	Once the data has been fully formatted, the next stage for the tool is to compile the data and develop tables from the compiled data for further report generation.	H. Yukihiro	O.3
49	B.3.2.1	Store Data in Database	The solution will store data into a database of an existing software tool.	The tool will store data into a database of an existing software tool.	The existing software tool to database the data will be ELK Stack which will further satisfy the stakeholder requirement of building on the shoulders of giants.	H. Yukihiro	O.3
50	B.3.2.2	Create and Label Columns	The solution will create and label additional columns.	The tool will create and label additional columns as needed during compilation and table creation.	To account for all types of data logs, the system must be able to adapt by adding columns when there are expected data points specified by the customer.	H. Yukihiro	O.3

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
51	B.3.2.3	Discard Unnecessary Columns & Rows	The solution will discard unnecessary data columns and rows.	The tool will throw away any garbage data rows or data columns.	To ensure the system is not holding useless data, the tool must be able to address and discard any column/row that may be taking up space that have no use.	H. Yukihiro	O.3
52	B.3.3	Define Expected Columns	The solution will define the expected columns to calculate.	The tool will determine the expected columns to calculate, based on the customer's request, to compile and transform the data.	When interviewing the client, the solution must be developed by adhering to the expected column calculations per the customer's specifications to properly compile and transform the data for the report.	H. Yukihiro	O.3
53	B.3.4	Define Expected Tables	The solution will define the expected additional tables.	The tool will define the expected additional tables for compilation and transformation per the customer's specifications.	When interviewing the client, the solution must be developed by adhering to the expected additional tables per the customer's specifications to properly compile and transform the data for the report.	H. Yukihiro	O.3
54	B.4	Determine Data Transformation	The solution will determine if the data is already transformed to a summarized, calculated form.	The tool will assess if the data is transformed to properly perform calculations in additional columns and tables.	After the compilation of data tables, the tool must be able to check if all data has been transformed properly to ensure no further errors are due to errors in data transformation.	H. Yukihiro	O.4
55	B.4.1	Perform Calculations in Columns/Tables	The solution will perform calculations in additional columns and tables according to the customer's needs.	The tool will perform calculations in the additional columns and tables to further the analysis of the data. The assessments are not limited in scope; they will be defined during the interview DISCOVERY phase with the customer. The assessments also may not utilize the default sub-functions listed within the function.	For the data to flag anomalies, calculations must be conducted to produce the expected trends specified by the customer.	L. Wu	O.4
56	B.4.1.1	Assess the Unit's Expected Pings	The solution may assess if the unit's expected rings are registered.	The tool may perform Boolean calculations to assess if the unit's expected pings are registered in the system.	By utilizing the TRUE and FALSE mechanisms of Boolean equations, the tool will be able to easily recognize if the expected pings are coming through to the system.	L. Wu	O.4
57	B.4.1.2	Assess SUM/COUNT	The solution may assess sum/count detailed by customer.	The tool may perform integer calculations to assess the sum and count, which are specified by the customer.	Sum and count calculations will be conducted on the data per the customer's request to further transform the data to the expected data trend.	L. Wu	O.4

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
58	B.4.1.3	Assess Product/Divide	The solution may assess product/divide detailed by customer.	The tool may perform integer calculations to assess the product and divide as detailed by the customer.	Product and divide calculations will be conducted on the data per the customer's request to further transform the data to the expected data trend.	L. Wu	O.4
59	B.4.1.4	Assess Timeline	The solution may assess timeline detailed by customer.	The tool may perform datetime calculations to assess the timeline as specified by the customer.	Datetime calculations will be conducted on the data per the customer's request to further transform the data to the expected data trend.	L. Wu	O.4
60	B.4.1.5	Assess Delta of Values	The solution may assess the delta of the current values to the previous values as detailed by customer.	The tool may perform integer and percent calculations to assess the delta between the current values and previous values as specified by the customer.	Integer and percent calculations will be conducted on the data per the customer's request to further transform the data to the expected data trend.	L. Wu	O.4
61	B.4.1.6	Assess Additional Parameters of Interest	The solution may assess additional parameters of interest detailed by the customer.	The tool may perform integer and percent calculations to assess the additional parameters of interest as specified by the customer.	Integer and percent calculations will be conducted on the data per the customer's request to further transform the data to the expected data trend.	L. Wu	O.4
62	B.5	Flag Anomalies	The solution will flag anomalies from the transformed data.	The tool will flag anomalies after analysis of the transformed data. These flags may be in the form of a HIGH/LOW indicator in a column.	Flagging anomalies are useful to observe if the data is as expected or not as expected.	L. Wu	O.5
63	B.5.1	Create Conditional Columns	The solution will create conditional columns based off previously calculated columns.	The tool will create conditional columns based off previously calculated columns to further format the table. The columns will show HIGH/LOW values depending on calculations made in OPERATION 4; the tolerance/parameters of these columns will be informed by the interview DISCOVERY phase between the firm (Essential-IoT) and the customer.	Conditional statement columns must be developed off the calculated columns for the system to properly analyze and flag data anomalies.	L. Wu	O.5
64	B.5.2	Define a Format of Flags Based on Operation	The solution will define a format that defines flags based on SUM/AGGREGATE operations.	The tool will define a format that can be a sum or aggregate in a query to show flags.	Sum and aggregate queries will help the system indicate specific flags for the data.	H. Alloway	O.5
65	B.5.3	Ensure Flags are Consistent	The solution will ensure the flags are consistent with data expectations.	The tool will ensure the flagged data points are consistent with the data unit and formatting expectations specified by the customer.	After all the data has been flagged for anomalies, the system must check that the flagged data are following the expected data trend accordingly.	H. Alloway	O.5

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
66	B.5.4	Configure by Customer's Baseline	The solution will configure by the customer's baseline.	The tool shall pull information from the "configuration tool" that captured the customer's interview responses. This information will inform the definition of "normal" and "abnormal". It will also inform what flags the tool cares about reporting, and what flags are thrown out before the final report (i.e., the customer may not care that "XX units communicated every 5 minutes", and the customer may care that "XX units communicated every 5 hours"). Finally, the more unique aspect of this toolset, the customer's baseline information will inform what "narrative taglines" the report output (and therefore flags) will consider. For example, if the customer desires to be informed of the tagline ("ZZ% of our water pumps are active during high-heat periods of time, 10am-3pm, indicating civilian use. Of that set of act pumps, YY% of pumps report their highest usage during that period.") These taglines verbally summarize the numbers that will also eventually be delivered. The taglines also inform what flags the toolset desires to keep and what flags are not valuable to the customer.	This allows the system to be configurable based on the customer and helps satisfy their needs given their unique circumstances.	M. Di Girolamo	O.5
67	B.5.4.1	Define "Normal" Flags	The solution will define "normal" flags.	The tool will define data that fits the expected data trend with normal flags.	Normal flags will signify the data is conforming to the expected data trend.	H. Yukihiro	O.5
68	B.5.4.2	Define "Abnormal" Flags	The solution will define "abnormal" flags.	The tool will define data that does not fit the expected data trend with abnormal flags.	Abnormal flags will signify when data is not as expected.	H. Yukihiro	O.5
69	B.5.4.3	Determine "High-Level" Flags of Interest	The solution will determine "high-level" flags of interest.	The tool will determine the data that fits the high-level of interest, as specified by the customer, and flag it. This may be qualitatively defined (i.e., "flag units that communicate excessively") or it may be quantitatively defined (i.e., "flag units that have >5 pings within 1 hour")	High-level flags of interest will signify data that are related to the customer's areas of interest.	M. Di Girolamo	O.5
70	B.5.4.4	Develop Narrative Taglines	The solution will develop narrative taglines.	The solution shall develop a repertoire of narrative taglines that serve to communicate data insights to the layman or non-technical report reader. These taglines impact what flags will need to be developed within the toolset.	These taglines help keep reports concise while also being easily comprehensible	H. Yukihiro	O.5

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
71	B.5.5	Preview Data with Customer	The solution will preview the data with the customer.	The solution will then check in with the customer, confirming that this set of flags is as the customer desires. The firm (Essential-IoT) will ask the customer questions to understand if the objectives stated in the interview have been satisfied (i.e., "is this unit that we have flagged actually a unit that you want to be informed about? Is this issue, ascertained from the data, a significant issue?").

It may be the case the unit is not actually defective (due to improperly defined constraints, incorrectly understood pressure points, etc.), or it may be the case that the unit is in fact defective, and the report is doing as it is supposed to do by bringing the unit to the customer's attention (i.e., flagging the unit). | This allows the team to be transparent with the customer and helps keep the team in sync with the customer's desired outcomes | H. Alloway | O.5 |
| 72 | B.5.5.1 | Determine Customer Flag Insight | The solution will provide an explanation to the client, the reasoning behind each of the defined flags and the scope of their impact | The solution will describe to the client in an understandable format, what each flag criteria identifies and how the system was developed to respond to stimulus from ingested data. | This keeps the client well informed in the processes involved with detecting variances. | H. Alloway | O.5 |
| 73 | B.5.5.2 | Target Data as We Understand it | Using a defined 'normal', separate data that does not fulfill this definition. The data filtered out will be the targeted data to analyze and use to develop system functionality in an operating environment | Identifiable data is used to perform functions that contribute to the stakeholders needs and align with the mission statement. | The solution will direct efforts towards meeting the project goal defined by the mission statement: "To bring unique structure to identifying what is normal" | H. Yukihiro | O.5 |
| 74 | B.5.5.3 | Build a Configuration Form | The solution must have a definition for its configuration to detect variation from a 'baselined' normal | The solution shall respond to the customer's insights on the flags currently generated. This may result in code changes (either in OPERATION 4 or OPERATION 5) to correctly flag units going forward. This "configuration form" will document customer insight in the same fashion that the "configuration tool" from OPERATION 1 documented customer insight.

A note to the customer when reaching this level: Artificial Intelligence is out of scope for this solution, but it is a viable replacement or enhancement to OPERATION 5. Ideally, the process of determining which flags are valid and which flags are invalid would be automated and handled by the system internally. | The configuration is essential to align with the Mission Statement to define 'structure' of component transcription to data ingestion that is 'generic' | H. Alloway | O.5 |

ID	WBS	Nickname	Name	Description	Rationale	Originator	Corresponding Operation
75	B.6	Present Table with High-Level Flags	The solution will present a table with high-level flags.	The tool will present a table that consists of data that were flagged as high-level interest points.	Since the high-level flags consist of data the customer expects from the report, the tool must develop a table that contains all the qualified data points for a successful report generation.	H. Yukihiro	O.6
76	B.6.1	Specify Desired Diagrams/ Visualizations	The solution will customize report with the customer's desired diagrams and visualizations.	The tool will customize the report with either diagrams or visualizations that are developed at the request of the customer.	The dashboard can be customized with baseline graphs, diagrams, or both. The customer will state the desired specifications for the dashboard which could be either of the three report options.	H. Alloway	O.6
77	B.6.2	Visualize Baseline Graphs	The solution will visualize the requested baseline graphs in dashboard.	The tool will create visualizes of baseline graphs per the customer's specifications. These "baseline graphs" will already exist in the firm (Essential-IoT) library of graphs.	If the customer wants baseline graphs of the data contained in the dashboard, the tool must be able to create and incorporate it into the dashboard report.	L. Wu	O.6
78	B.6.3	Visualize Desired Diagrams	The solution will visualize the requested diagrams in dashboard.	The tool will create visualizes of desired diagrams per the customer's specifications. These "desired diagrams" will not exist in the firm (Essential-IoT) default library of graphs but will subsequently be added to the library following generation.	If the customer wants diagrams of the data contained in the dashboard, the tool must be able to create and incorporate it into the dashboard report.	L. Wu	O.6
79	B.6.4	Develop Dashboard Report	The solution will develop a dashboard report of visualizations.	The tool will compile all the visuals into a dashboard report. This report may be a web interface, may live in the software directly (i.e., PowerBI Desktop or ELK Stack Desktop), may live in a local file, or may live in another location.	Once the visualizations have been developed, the tool must compile the visualizations onto a dashboard report for the customer's viewing.	L. Wu	O.6
80	B.6.5	Develop Narrative Report.	The solution will develop a narrative report with a table of flags.	The tool will compile a verbal report that aligns with and contains a table of flags that consist of normal, abnormal, and high-level interests.	All the anomaly flags must be reported to the customer to confirm if the data has followed the expected trend or deviated.	L. Wu	O.6
81	B.6.6	Deliver Report	The solution will deliver the report to customer.	The tool will deliver the report to the customer as the final product. The report will be redacted and sanitized as specified by the customer and agreed upon with the firm (Essential-IoT).	Once the report has been compiled and refined to the customer's specifications, the report can be handed off the customer.	L. Wu	O.6

A refresh of the OPERATIONS Domain (6 total)

ID	WBS	Nickname	Name	Description	Rationale	Originator
2	O.1	Understand Customer Landscape	The solution will respond to external stimulus derived from the way in which it receives data from the customer.	Following the maturation of the system's ability to adapt to the client's landscape; the system must now respond to external stimulus, triggers and other catalysts that cause it to forcibly adapt to a situation. The team will interact with the customer to DISCOVER what the customer's needs, pressure points, and problems are with their devices; a report and plan will be developed based on this information.	This model acknowledges the data landscape process of ingestion, configuration and reporting on data in a time-based, sequential, and concurrent approach. The performance-based outcome of this process, organizes the traffic of information into an easy-to-understand format.	H. Yukihiro
24	O.2	Ingest Data	The solution will respond to external stimulus derived from the way in which it ingests raw data.	The system must be able to adapt to changing data and timestamp it according to external factors and client requested formats (CSV and Log Files)	Normalization and visualization of data are the systems operational measures. The behaviors of the product must be able to adapt to changing conditions and produce consistent normalization and visualization.	H. Alloway
44	O.3	Adapt Data to Tools	The solution will delineate between log submittal and log occurrence under changing conditions.	To measure system health, the ingested data will be analyzed to identify cadence and health of system behavior/functionality. This is the formatting phase of the system so that the toolset (based in PowerBI and ELK Stack) can intake the files fluidly.	Time-stamping data according to phase, mode and state of the operation ensures ingested data is informative and beneficial to analyzing system health.	H. Alloway
51	O.4	Assess Data	The solution will analyze data under changing conditions and flag it according to client constraints.	The solution will create flags according to abnormalities and will plan for future implementation to calculate and normalize columns of data. This is the meat-and-potatoes portion of the solution. It will be code-heavy. In the case of PowerBI, the code supporting this OPERATION will be largely housed in the Power Query container. In the case of ELK Stack, these assessments and subsequent calculations will likely be intermittent.	Creating flags requires the ability of the system to analyze and categorize changing data and create expected results that are a function of phase, mode, and state of the previous operations.	L. Wu
60	O.5	Flag Data	The solution will flag data anomalies as a response to changing conditions from an external factor.	The solution will create flags based on three data source levels that define client satisfaction and system health according to the expected outcomes of the operation. This is what directly adds value for the customer; this is the reason that Essential-IoT has been sought out (from a broad conceptual sense). The customer desires to see flags of where the units need attention.	Flagging data enables Team 03 to develop a system that targets abnormal data and analyzes it to improve system functionality.	H. Yukihiro
72	O.6	Visualize Data	The solution will display external influences that have an impact on system operation through visualizing forms of data.	The visualizations will be incorporated with a verbal report in the form of a dashboard to outline baseline operations, current processing, and post-analysis of the system's ability to meet system requirements. This is the bread-and-butter of the firm (Essential-IoT), and this motivates the customer to interact with the firm directly, as these tools and visualizations are often difficult to generate internally.	This post-processing ensures the product will be prepared to ingest data on the following cycle and perform similar system capabilities.	L. Wu