Pilot Program: Refinery Operations Advisor

The Beyond Limits pilot program is designed to enable new customers to quickly scope, configure and test the Refinery Operations Advisor with a limited set of users on a single unit or small section of a refinery.

Upon a successful outcome at the close of the pilot, the customer may request extensions to current use case and Beyond Limits will work with the customer to prioritize the delivery of the extensions as part of the rollout and evolution of the initial implementation.

The goal of this program is to engage, as partners, in an evolutionary implementation that maximizes value for both the customer and Beyond Limits.

Pilot Requirements

To ensure mutual value is achieved, we ask each company to meet the following requirements:

+ One or more facilities consistently experience a gap between planned operations and actual performance.
+ The client understands the Beyond Limits' Refinery Operations Advisor provides decision support to operations teams to operate the refinery to meet or exceed planning and scheduling objectives.
+ The client commits to provide the necessary data, information and resources required to support the implementation and limited rollout of the software.
+ Provide a dedicated Project Manager throughout the duration of the program.
+ Assign an Executive Sponsor for the duration of the program.
+ Define and mutually agree on project success metrics at the beginning of the pilot program.
+ Customer agrees to proceed in good faith to explore licensing the software if the success metrics have been achieved at the close of the pilot.

Technical Requirements

The customer will provide sufficient access to historical data and other required knowledge and information to help the Beyond Limits deployment team drive value from day one. Providing samples of the following will enable our team to achieve a warm start to the program and accelerate the scoping process:

+ Data:

    + Historical time-series sensor data (PI data)
    + Data and or metrics displayed by monitoring systems/dashboards
    + Constraints data
    + Lab data
    + Crude/feedstock data

+ Knowledge and Information:

    + Campaign Plans/game plans including targets and guidance / instructions for day-to-day operations
    + Shift Logs
    + Shift Reports
    + Safety Reports

- + Provide documentation for the refinery hierarchy & metadata (i.e., list and relationships of sections, processing units, and equipment) and the list of sensors attached to them
- + List of expected users by role, such as, optimization engineers, board operators and shift supervisors or equivalent that require access to the system

Access to Subject Matter Experts

Driving optimal operational impact and program success, our deployment teams will require access to subject matter experts during the setup, configuration and testing phase. Typically, our teams will need access to refinery process unit experts, board operators and engineers who will assist with setup and provide feedback on the product and its value during the program. For each resource, the average time commitment ranges from two to four hours per week during the setup and configuration phase.

UI/UX and Usability

Our teams may engage in user experience (UX) research activities. Through a better understanding of how different users or personas perform their work, our team can seek to improve the user experience.

Metrics

The customer grants permission to capture product usage data. Beyond Limits will use whatever tool is deemed appropriate per the customer environment.

Case Study Participation

The customer is invited to participate in a case study at the completion of the program. This will provide an opportunity for the customer and Beyond Limits to showcase a "success story" that illustrates how Cognitive AI can boost refinery production and profitability.

Success Criteria

Our teams will collaborate and establish an agreement on success metrics at the start of the pilot program.

Suggested metrics that demonstrate value can include improving speed to decision, reducing the # and frequency of escalations (time away from target), and improving profitability (close the gap between plan vs actual performance).

- + Success Goals and Metrics:

    - + *Gap analysis*: LuminAI Refinery actual vs planned gap analysis delivers findings that otherwise were unnoticed. Suggested metric: % achievement of target (system, unit and process levels)
    - + *Ease of planning*: Planning staff can easily manage plans. Suggested metric: # of plan modifications/campaign
    - + *Monitoring effectiveness*: Supervisors can monitor effectively the performance of the process. Suggested metric: % of time operating within/outside target range
    - + *Remediation effectiveness and efficiency*: Operators can accurately and quickly remediate off-target events compared to remediation in absence of LuminAI Refinery. Suggested metric: Elapsed time from identification to remediation decision (excursion)

+ *Remediation consistency*: Different shifts operate the refinery consistently. Suggested metric: % decrease shift performance variance

+ Post Pilot Success Survey (Beyond Limits user/customer experience focus):

  + *Ease of onboarding*: How easy is it for a user to learn and operate the system effectively?
  + *User experience intuitiveness*: Can users execute system workflows with minimal guidance?
  + *Usage*: How much time do users spend with selected features? Metrics may include elapsed time, ease of use, drop off rate, and task completion
  + *Feature fitness*: What percentage of product features fit customer workflow without requiring changes?
  + *User satisfaction*: How satisfied is the user community with the value of the system?

Program Schedule

The following table provides a high-level view into the tasks, activities and sequence of events required to setup, configure and validate the system, train users and launch the program.

Stage	1: Setup & Planning		2: Configuraton & Validation	3: User Acceptance Testing
Activity	Cloud Setup	Discovery	Data Ingestion & Validation	Training & Launch
Beyond Limits	Align to client security protocols User setup - persona; access rights		Engage client data teams to understand client best practices for data management.	Engage and train user community
Combined Team	N/A	**Data Discovery:** Review client data sample: refinery hierarchy, sensor inventory list, sensor time-series, crude assays, Lab, LP etc **Planning Process Discovery:** Review production planning and optimization process, plan formats, communication standards, guidance instructions, timing requirements, reporting requirements	Integrate, test and validate accuracy of data transfer from client to cloud environment.	Engage in face to face, online and video training. SME and end user availability to include access to: Data Scientists, Optimization Engineers, Board Operators Shift Supervisors, Shift Managers
Client Team	Provide list of users by persona	Provide data sample extracts for data discovery activity. Provide planning process flow diagram and example operations planning documents. Provide sample reports, kpi's and other reporting assets to assist in configuration of scorecards.	Support data ingestion effort to align to security protocols, company standards and ensure the data ingestion process is successful.	**Setup and configuration:** Optimization Engineers create flowsheet like diagram of their respective units or systems and align sensors of interest to their system. **Plan Management:** Optimization engineers create and test operations/optimization plans within the system; **Live and Retrospective Analysis:** Troubleshoot off-target events, identify and remediate risks to plan objectives, learn from past performance to improve planning effectiveness.

Fixed Cost Program Approach

The Pilot Program is designed to be a fixed cost and fixed duration initiative.

- The program fee includes a Beyond Limits software license plus applicable professional services costs (data cleaning, acquisition, integration, etc…). As appropriate professional services requirements will be defined, quoted and agreed upon in a detailed statement of work prior to program start.
- The pilot period can span between 3-6 months in duration, depending on the level of data readiness and accessibility, from the mutually agreed upon kickoff date.