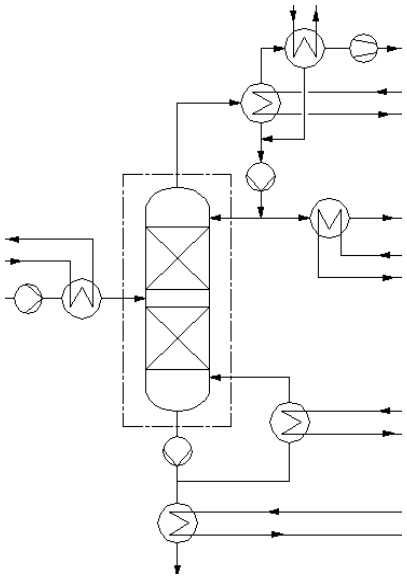
SUMMIT
Technology Management
(JM680605-W)

Partners to the Top

SUMMIT
Technology Management

Partners to the Top

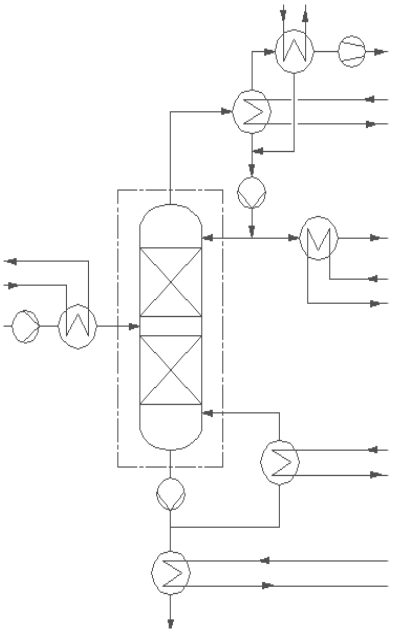


SUMMIT Technology Management is a technical consultancy group, providing specialized services and equipment to improve process plant operational efficiency, profitability and safety. We provide practical solutions by offering training, technical services, best practices, engineering, and equipment to meet the specific needs of our partner clients.

Our Associates have assisted clients worldwide in realizing the profit potential of their facilities and closing the gap to achieving upper quartile performance. Our Associates has a broad spectrum of clients ranging from large integrated oil companies, small independent refineries, to petrochemical complexes, and other process clients.

SUMMIT Technology Management has a team of highly experienced associates in the Australia, Malaysia, and Singapore, that specializes in the practical application of knowledge. Our team leaders are all degreed engineers and typically have over twenty years of specialized chemical industry experience. Assisting the team leaders are young degreed engineers and practical application specialist with many years of applicable experience.

Engineering professionals from operating, engineering, and service companies have formed SUMMIT Technology Management. We believe the experience, training, and expertise gained over the years by our team is a marketable commodity. The energy industry has become global and many companies are forced to downsize rather than expend the enormous resources required to maintain a large experienced staff. Utilizing SUMMIT Technology Management's experienced team only when needed is a great way to leverage human resources.



3-12 Block Aronia
Riverria Condovilla
Jalan Sri Perkasa 2
Taman Tampoi Utama
81200 Johor Bahru, Malaysia

Office: +(60) 12 710 9012

Website: www.summit-tech-mtg.com

Choosing a Consultant

Companies hire consultants for a variety of reasons that include;

- To provide an objective, independent view point.
- To complete short term projects without adding permanent staff.
- To provide specialized expertise for a specific need.
- To train personnel.
- To act as a catalyst between groups.
- To save time, energy and resources, with the net effect of increasing profits.

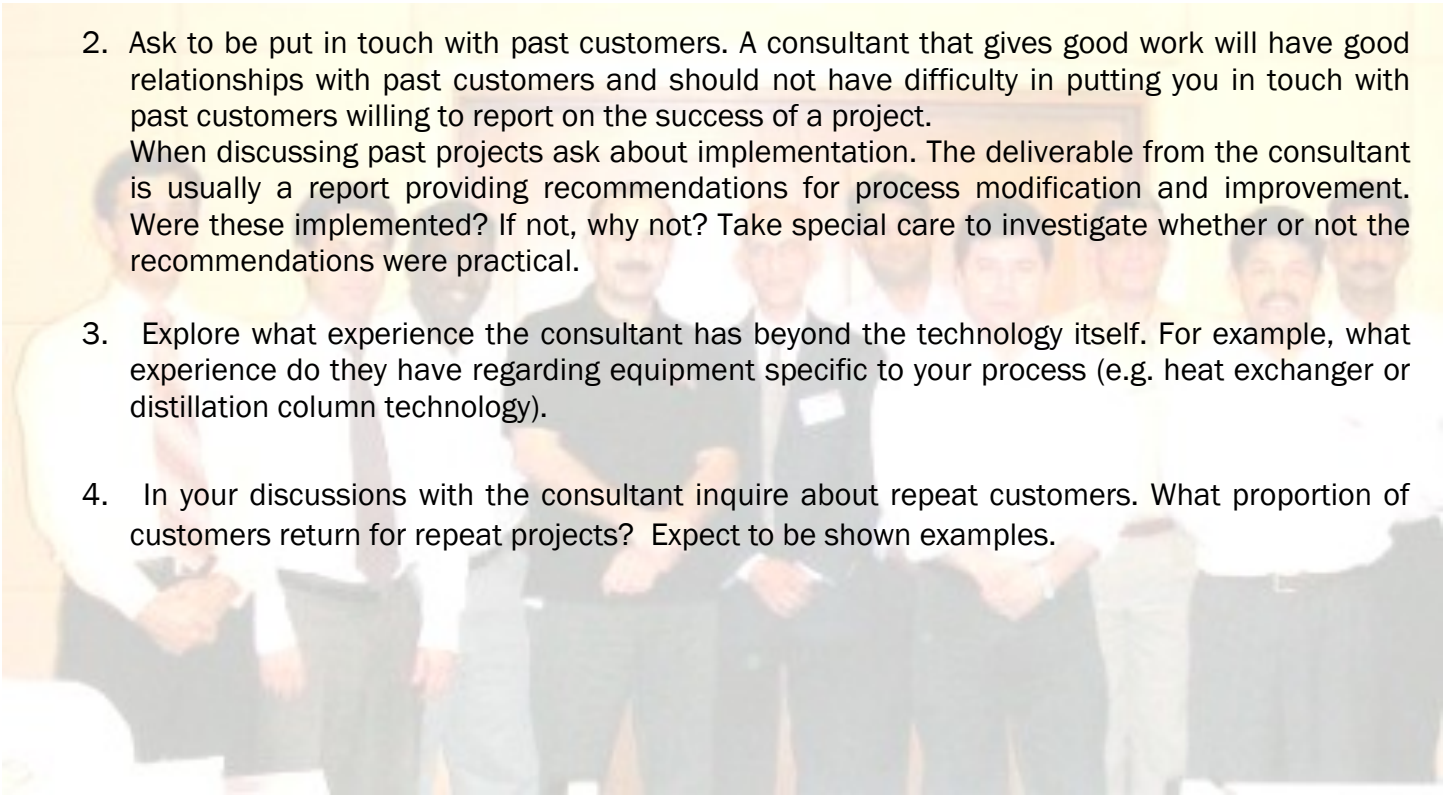
Points of Interest

1. It is the experience of the individual consultant undertaking your study that is important, not that of the firm offering their services. Firms that have been longest in the field do not necessarily employ the consultants with the most experience in the field. Many experienced consultants now work for smaller firms or even for themselves. So, whichever firm you choose: go for the individual. Evaluate the experience of the consultant before employing them. Look for a consultant that has experience on applying the technology to your particular type of plant.

2. Ask to be put in touch with past customers. A consultant that gives good work will have good relationships with past customers and should not have difficulty in putting you in touch with past customers willing to report on the success of a project.
   When discussing past projects ask about implementation. The deliverable from the consultant is usually a report providing recommendations for process modification and improvement. Were these implemented? If not, why not? Take special care to investigate whether or not the recommendations were practical.

3. Explore what experience the consultant has beyond the technology itself. For example, what experience do they have regarding equipment specific to your process (e.g. heat exchanger or distillation column technology).

4. In your discussions with the consultant inquire about repeat customers. What proportion of customers return for repeat projects? Expect to be shown examples.



SUMMIT Technology Management

Partners to the Top

Great Value for Your Company

SUMMIT Technology Management's value not only comes from its overall lower price, lower billable hours, and product guarantee, but from the fact that you get to choose the best available technology on the market today.

Being able to choose the technology not only gives you the added advantage of cost savings and flexibility but also allows you to get the best engineering consultants to build, run, and optimizes your plant.

In today's market investors must maximize all their available resources and find ways to provide the best available product at the best available price.

Areas of Specialty

- Start-up Consultation Team
- Applicable Process Designs
- Operations Simulation & Optimization
- Distillation Fundamentals
- Energy Optimization
- Operations Training & Development
- Operations Commissioning
- Plant Turnaround Management
- Project Management
- Safety Management
- Environment Management
- Strategic Planning & Economic Evaluation

SUMMIT Technology Management is the best solution to your engineering needs."

Shutdown & Turnaround Specialist

We provide services during any shutdown and turnaround.

Services Include:

1. Estimating
2. Planning
3. Scheduling
4. Manpower Management
5. Safety & Startup Team
6. All necessary licensing, permits, & approvals from local authorities and government departments.

SUMMIT Technology Management

Partners to the Top

EFFICIENCY

In your plant there is a constant need to improve productivity. SUMMIT Technology Management understands that continued success depends on a plant's processes being examined and greater efficiency achieved. We have vast experience in analytical and technical services, and can provide you with the expertise necessary to ensure your plant develops and maintains processes that keep you profitable in rapidly changing ets.

PROFITABILITY

SUMMIT Technology Management understands your bottom line starts with your front line. Leveraging your staff with our team of world class engineers and operators gives you the added advantage of focusing on streamlining and more time on tasks that add to your profitability. The difference between profit and loss can often be fractions; let SUMMIT's use its experience to ensure your success.

"SUMMIT's core competencies focuses on our customers need for efficiency, profitability and safety."

LL Choo
Managing Director

SAFETY

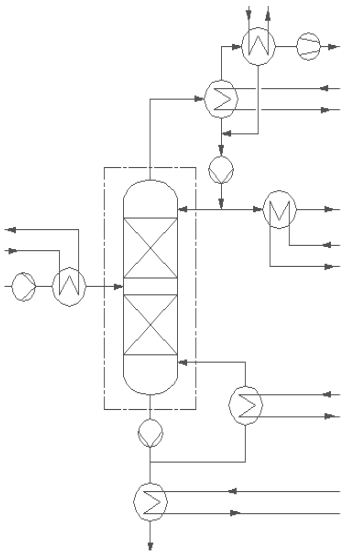
Safety is and will remain the most distinguishing core value of SUMMIT Technology Management. Safety is historically an integral part of all SUMMIT's products, processes and services. We believe there is no compromise on safety. We are committed to protecting our employees, the public, and the environment by operating in a safe and responsible manner. At SUMMIT safety is not about committees, teams, or champions; it is not about incentives, accountability or celebration; It is about the sanctity of human life.

Technical Service Agreement

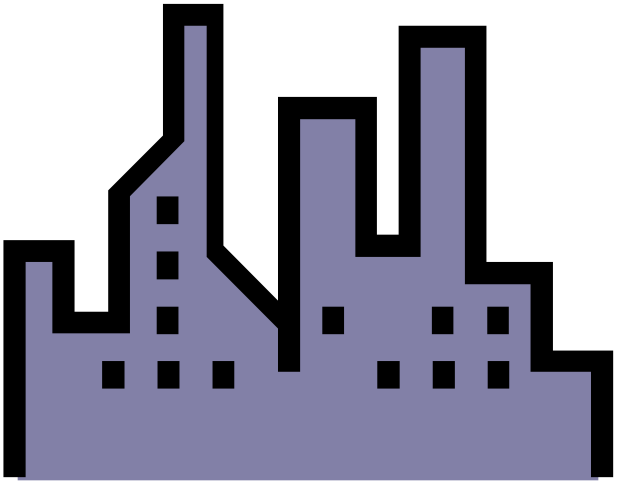
SUMMIT Technology Management can provide Process & Mechanical Guarantees with our team of experts.

Special points of interest:

- Do not hire a consultant or company that will not provide guarantees.
- SUMMIT will provide process guarantees for all of their designs.
- Mechanical guarantees will be backed by the equipment supplier.



Our Technical Service Agreements have been very advantageous for many companies. By purchasing engineering hours in blocks, volume discounts can be negotiated, while allowing the consulting firms to add essential staff to fulfill the end client's needs. In many cases this has been beneficial to each partner. The end client has access to a highly experienced staff to assist when required, without the full time cost of the experienced staff. Utilizing SUMMIT Technology Management's experienced team only when needed is a great way to leverage human resources. Often in an operations environment it is difficult to focus on a single task. The production or staff engineer is multi-tasking to accomplish the various duties that are required. To outsource specific tasks that require a special focused approach is a great tool to consider.



Distillation Fundamentals Expertise

There are many separation processes and each one has its best application. They include distillation, crystallization, membrane, and fixed bed adsorption systems. Occasionally the best system may be a combination of these systems.

The choice of the best application should be based on the life cycle cost. The life cycle cost is the initial capital cost of plant along with the first ten years operations and maintenance cost. The life cycle cost should include a reliability factor, which is very important in designing any process plant equipment, reactors or separation equipment. Improved reliability has a very large impact on return on investment (ROI). Many life cycle cost only review energy, but not solvent, adsorbent, or catalyst cost because of accounting rules and this can lead to skewed economic decisions.

Distillation may be the most economical and utilized when possible. Distillation is the separation of key components by the difference in their relative volatility, or boiling points. It can also be called fractional distillation or fractionation. Distillation is favored over other separation techniques such as crystallization, membranes or fixed bed systems when;

1. The relative volatility is greater that 1.2,
2. Products are thermally stable,
3. Large rates are desired,
4. No extreme corrosion, precipitation, or sedimentation issues are present.
5. No explosion issues are present.

Paths to Distillation Optimization

A process study is a good way to optimize a revamp or to identify opportunities of improving the performance of distillation facilities. Previous studies have identified improvements with small or no investment.

A study should be conducted jointly with the operations team to properly account for operational constraints. A clear view of unit economics should be included in the process study to maximize return on investment.

SUMMIT Technology Management

Partners to the Top

Equipment & Installation

- Tower Shells
- Tower Internals
- Heat Exchangers
- Fin Fans
- Reboilers
- Condensers
- Pumps
- Installation of Process Equipment
- Verification of Correct Installation

Special points of interest:

- SUMMIT continues to apply the fundamentals of design in the field.
- Most equipment can be optimized at least 5% by a test run.

Equipment Commissioning

1. Equipment Commissioning
2. Operations Training
3. Equipment Troubleshooting
4. Optimization of Existing Equipment

Process Engineering

SUMMIT Technology Management has helped provide over 5 column shells, 50 tower internals, 10 heat exchangers in the last 5 years with our key partners.

For a process study, feasibility study, a single column or small revamp SUMMIT Technology Management is by far the best choice.

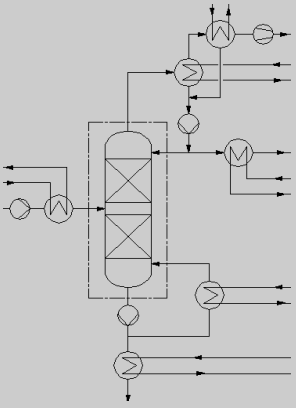
BASIC ENGINEERING PACKAGE

PROCESS OPTIMIZATION

- Provide the actual cost to run the process (Low investment, high return)
- Provide well train personnel to fully optimize the operation
- Generate a reusable energy that can be used through out the plant
- Provide a detailed equipment optimization program
- Energy consumption for the total process
- A detailed schedule & material balance of the process
- Optimize the energy produce from the process

PROCESS DESCRIPTION

- Produce the Detailed Process Description Manuals
- The Process Feed Stock, Product and By-product Specification
- Chemicals & Catalysts for Life Span & Usage of the Process
- Equipments Energy Needs & Requirements
- Detailed Equipment Operations manuals
- Chemical Handling for the Process
- Equipments Capacity & Reliability
- Process Capacity Per Annum
- Maintenance & Shutdown Schedule



PROCESS FLOW DIAGRAM (PFD)

- Provide the entire process flow diagram.
- Provide the material balance for the process.
- Provide the tag name for each equipment in the PFD.
- Provide the PFD stream number temperature, flow and pressure value.
- Acquiring the necessary approval for the process and PFD.

BASIC ENGINEERING PACKAGE

PIPE & INSTRAMENT DRAWING (P&ID)

- Provide the details Pipe& Instrument Drawing. (P&ID)
- Details of line sizing, pipe rating & type, insulation materials, and pipe & equipments elevation
- Provide an isometric drawing for the plant construction
- Specified the controllers & transmitter, rating of each valve & relief valve on the P&ID, and the rating for all equipment

EQUIPMENT SPECIFICATION

- Details of Equipment Capacity & Reliability
- Equipment Guarantees by Specified Suppliers

UTILITY LIST

- Provide Energy Producing Equipment List
- Provide Process Energy Consumption Needs
- Provide Waste Treatment Energy Needs

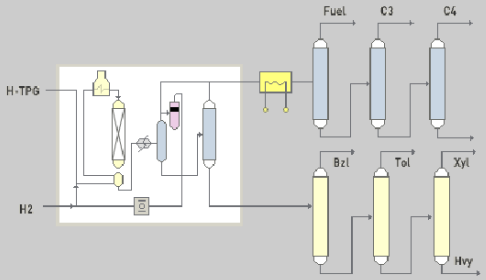
BUDGETARY COSTING

- Supply Total Project Cost
- Furnish Breakdown Budget for each equipment
- Provide Schedule for Shutdown Costing
- Provide Year to Year Costing
- Project Return of Investment Schedule

Detailed Engineering Package

Civil Engineering

- E.I.A Report
- Land Survey
- Land Clearance & Excavation
- Soil & load test
- Piling Work
- Building & Structural Works
- Road & Drainage Works
- Approval from Local Departments
- Commissioning & Testing of Building Equipment



Mechanical, Electrical, & Instrumental Engineering

- Details Drawings
- Equipment List & Capacity
- Equipment Guarantees
- Installation
- Test Runs
- Certification by Appointed Engineers
- Approval by Government Bodies
- Commissioning
- Training

Process Engineering

- P&ID Review
- PFD Review
- Operation Manuals
- Safety Manuals
- Materials Safety Data Sheet. (MSDS)
- Approval by Owner

SUMMIT
Technology Management
(JM0650605-W)

3-12 Block Aronia
Riverria Condovilla
Jalan Sri Perkasa 2
Taman Tampoi Utama
81200 Johor Bahru, Malaysia

Office: +(60) 12 710 9012
Website: www.summit-tech-mtg.com