

Most Profitable Market Program for High Performance Air, Water, and Combustion Products

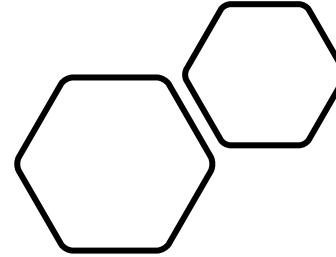


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Summary



There is a \$600 billion market for air, water, and combustion products. Half of this market is populated with products where price and delivery are as important as performance. Decisions for the other \$300 billion are made primarily based on performance. This is quantified as lowest total cost of ownership.

There is the potential to greatly increase not only revenues but also margins and profits by developing superior products and selling them at prices which would cause EBITA to rise to 30% rather than the current average of less than 15%.

The challenge is far greater than just developing superior products. The market is not functioning in a manner to embrace new and better products. The assumption is that the existing product provides the lowest total cost of ownership. Despite an internet capable of providing ample evidence to make better choices there is no easy way for the purchaser to access this information.

What is needed is an organized approach which guides both supplier and purchaser to air, water, and combust products which provide higher profits to both the suppliers and purchasers.

McIlvaine has created an approach which addresses the issues and provides solutions in a manner to maximize supplier profits.

- \$300 billion market for high performance flow, treat, and combustion products
- EBITDA can be increased from less than 15% to 30%
- Develop superior products
- Determine the potential market niches
- Validate the superiority of the product in each niche with an organized approach fully using existing knowledge
- Create a Most Profitable Market (MPM) program
- Pursue the prospects in each niche by leveraging the product superiority

Definition of Terms

Acronym	Title	Definition
AWC	Air, Water, Combustion	Also called CFT or Combust, Flow and Treat
EBITA	Earnings before interest, taxes, and amortization	Used as a measure of profitability by investors and for prioritizing market niches
IloW	Industrial Internet of Wisdom	An organized approach to coordinate knowledge in a manner similar to IIoT connecting things.
LTCOV	Lowest Total Cost of Ownership	The product which is the best choice when all aspects are considered
MPM	Most Profitable Market	An aggregation of market niches which will best leverage the resources of the supplier
TCO Factors	Total Cost of Ownership Factors	Factors in each niche which determine the total cost of ownership
	Market Niche	A market with a unique set of TCO factors
	Niche Expert	An individual with exceptional insights in a narrow subject area
SOM	Serviceable Obtainable Market	Only portions of this market will result in high EBITA and use of limited resources
TAM	Total Available Market	The total market as covered in McIlvaine market reports

Most Profitable Market Program Development Sequence

Steps	Approach
Superior Product Development	Create IloW around customer needs and potential solutions
Potential Revenue Determination (SOM)	McIlvaine reports and statistics
Most Profitable Market Program Strategy	Plan to supply superior products in applicable niches and maximize EBITA
Competition	Assess market shares and technology in each niche
Identifying and Ranking Each Prospect	McIlvaine databases and custom research can be used to forecast individual customer EBITA potential
Holistic Content Marketing Program	Coordinate and utilize media and other routes to market for LTCOV
Program Execution	Create a program for each niche and obtain support throughout the organization
R&D Investment Decisions	Product improvements can be pursued based on the MPM experience and identified needs

Market Share -TCO - Profitability Causation Loop

- Market share
- Total cost of ownership (TCO)
- Industrial Internet of Wisdom (IIoW)
- Lowest Total Cost of Ownership Validation (LTCOV)
- Profit margin and total profits



The TCO analysis provides the information needed to communicate LTCOV through IIoW.

This allows increased pricing which leads to increased profits.

Part of these profits then are diverted into R&D.

This then leads to products with lower TCO.

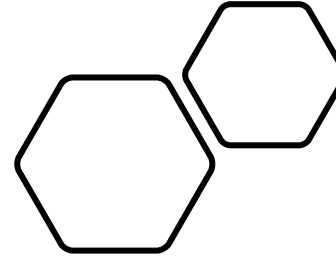
- Precise definition of the niche in terms of the competitive leadership is important.

Is this a process used in multiple industries or is it unique to one industry?

- How big is the market niche now and in the future?
- What are the shares of major participants?
- Why are they leaders?
- How profitable are these niches for the leaders?

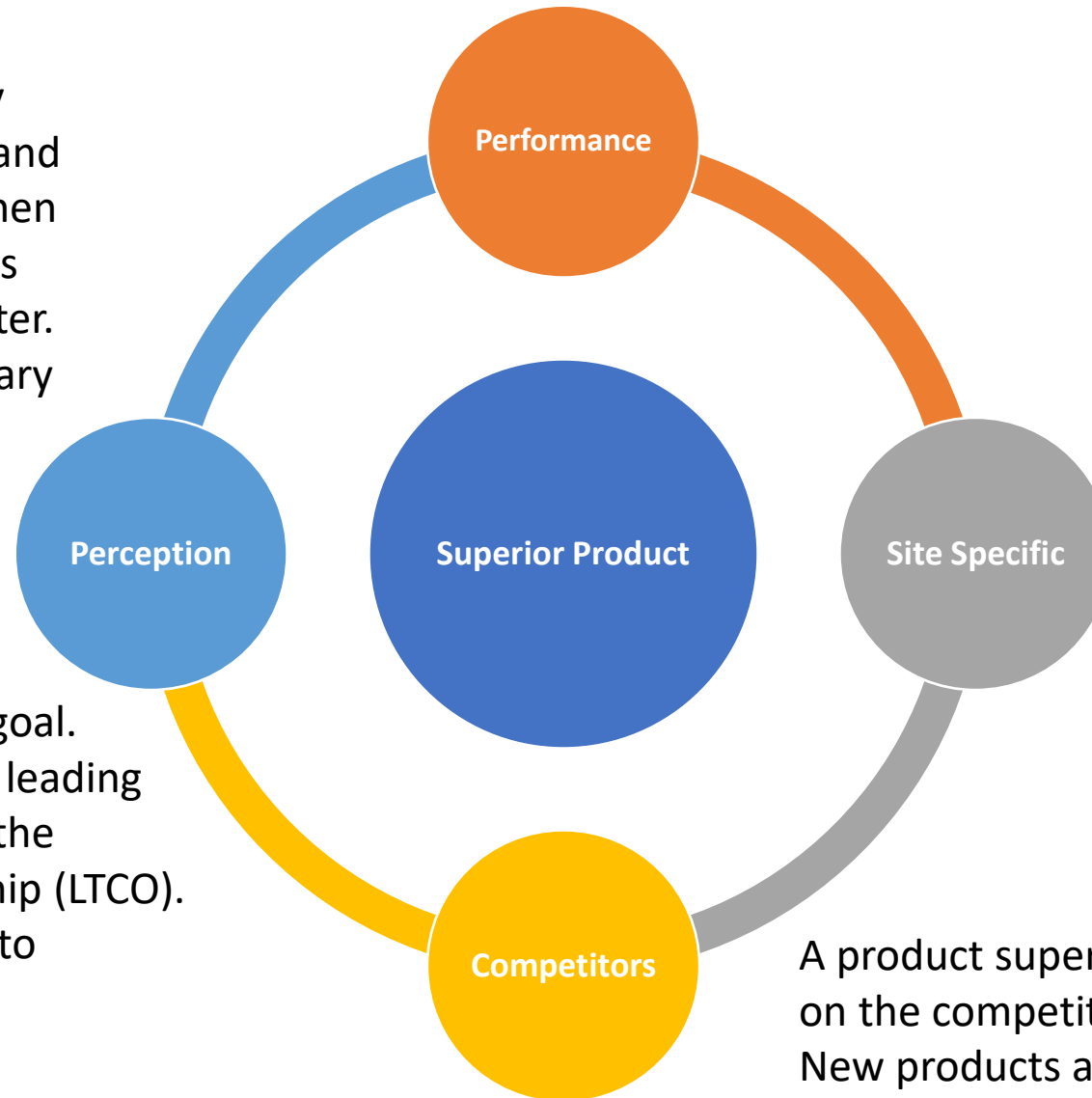
Chapter 1

Superior Product Development



Product Superiority Factors

The performance superiority depends on the application and the industry. Product loss when moving expensive products is more than when moving water. Severe, and critical service vary across thousands of niches.

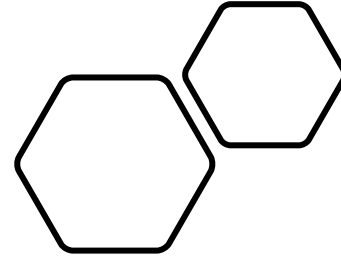


Many costs are site specific. Electricity costs vary within a country and among countries. Useful life factors differ from industry to industry .

Perceived superiority is the goal. Often the existing or market leading product is assumed to have the lowest total cost of ownership (LTCO). This requires an extra effort to provide validation (LTCOV).

A product superiority is dependent on the competitive alternative. New products are likely to be periodically impacting this factor.

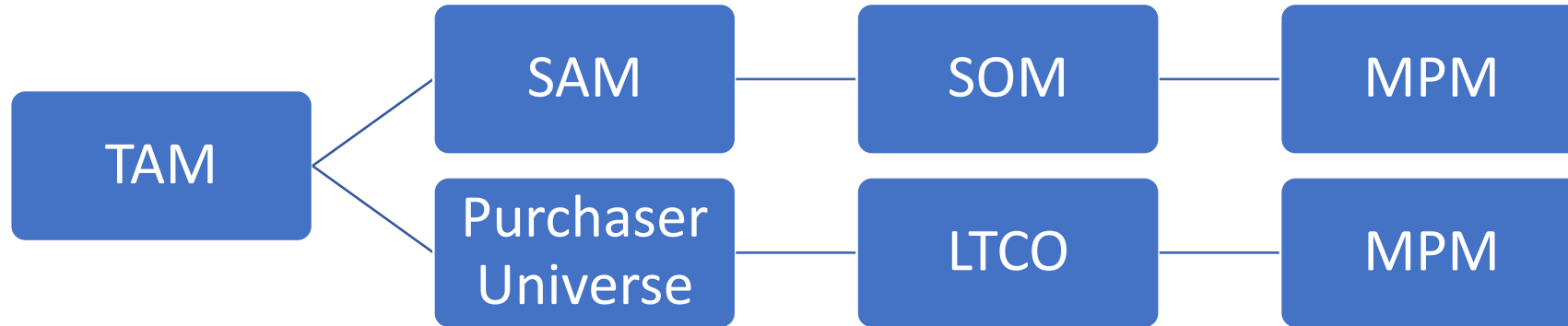
- A product can be deemed superior and reduce cost of ownership for many reasons
 - Reduce maintenance
 - Improve safety
 - Increase production
 - Improve the final product
 - Reduce product loss
 - Improve the environment
 - Reduce energy costs
- The superiority is relative and is therefore in part determined by the performance of competitors products
- The more dynamic the market the easier it is to develop a superior product because
 - There is much less competition
 - There is the potential for substantial benefits to the purchaser who may be pursuing new opportunities
 - Hydrogen production and use would be one example
 - Biopharmaceutical processes with small production runs of very expensive drugs would be another
- The superiority of a product in a niche is dependent on the TCO factors in that niche
- R&D expenditures have to be evaluated on the potential gain in market share versus the development costs and the uncertainties of success
- R&D decisions are part of the Market Share-TCO Profitability causation loop
- R&D personnel benefit from the IloW in each niche



Chapter 2

Potential Revenue Determination (SOM)

Total Available Market is the First Step Toward MPM



It is first necessary to accurately forecast the Total Available Market before narrowing it to the Serviceable Available Market (SAM). This needs to be then narrowed to the Serviceable Obtainable Market. It is recommended that the focus be further reduced to the Most Profitable Market (MPM).

Simultaneously there should be a winnowing of the prospect base to those where the product will be deemed superior and the business attractive enough to generate high EBITA.

- Before the analysis can be made of the most profitable market it is necessary to determine the Total Available Market
- McIlvaine has compiled forecasts of the air, water, and combustion market since 1974.
- Many millions of TAM forecasts are available for each country, province and state; in each industry and for each of many different air, water, and energy products.
- There are also continually updated forecasts of underlying market drivers such as pharmaceutical revenues, semiconductor wafer production, and tons of ore mined.
- There are derived factors such as the secondary wastewater treatment in mgd in each country with forecasts for the next five years.
- McIlvaine has specific reports on pumps, valves, various filters and centrifuges and instrumentation to measure conditions and individual constituents.
- There are also reports on technologies such as cleanrooms, isolators, flue gas desulfurization, NOx control, ultrapure water, gas turbine combined cycle technology and Bioenergy with Carbon Capture and Sequestration (BECCS).
- The forecasting of revenues in various processes is not only useful to suppliers selling products for these processes; but it an important factor in predicting industry and GDP growth.
- For example, a few researchers doggedly pursued shale fracturing and completely changed the oil and gas outlook and balance of power in the world.

550 Purchasers buy 60% of the CFT Products and Services

Industry	No. Included
Total	555
Chemical	40
Electronics	15
Food	40
Metals	30
Mining	20
Oil and Gas	50
Pharmaceutical	30
Power	70
Pulp & Paper	50
Refinery	60
Stone	50
Wastewater	50
Water	50

LTCOV for Individual Purchasers

- 550 companies buy 60% of CFT products
- 5000 companies buy 85% of CFT products
- 12,000 companies buy 90 % of CFT products
- Trend toward centralized purchasing with LTCOV
- Forecast for each product in each division for a prospect is invaluable as a collaboration tool for local sales people
- MPM market program is most effective if the largest individual purchasers are included
- Large potential to sell multi product packages and to provide total solutions
- Cost of the MPM program can be shared among divisions

Forecasts are Built on Facts such as Production by Country

For most CFT products sales revenues are a function of the production of a plant or country. For the power industry it can be capacity or hourly generation. For the chemical industry the tons per year of product produced is the basis. Future production can be estimated from the project databases which McIlvaine maintains.

Ethylene Production 1000 tpy									
	2016	2017	2018	2019	2020	2021	2022	2023	2024
Austria	596	631	669	709	752	797	845	895	949
Belgium	2930	3106	3292	3490	3699	3921	4156	4405	4670
Finland	393	417	442	468	496	526	558	591	626
France	4407	4671	4951	5249	5563	5897	6251	6626	7024
Germany	6836	7247	7681	8142	8631	9149	9698	10279	10896

MPM Forecasts for Each Plant

Ethylene Production in France

As of 2017		
Location	Company	1000 tpy
Berre (Aubette)	LyondellBasell	470
Dunkerque	Versalis	380
Feyzin	A.P. Feyzin	250
Gonfreville	Total	525
Lavera	Naphtachimie	740
NDG	ExxonMobil	425

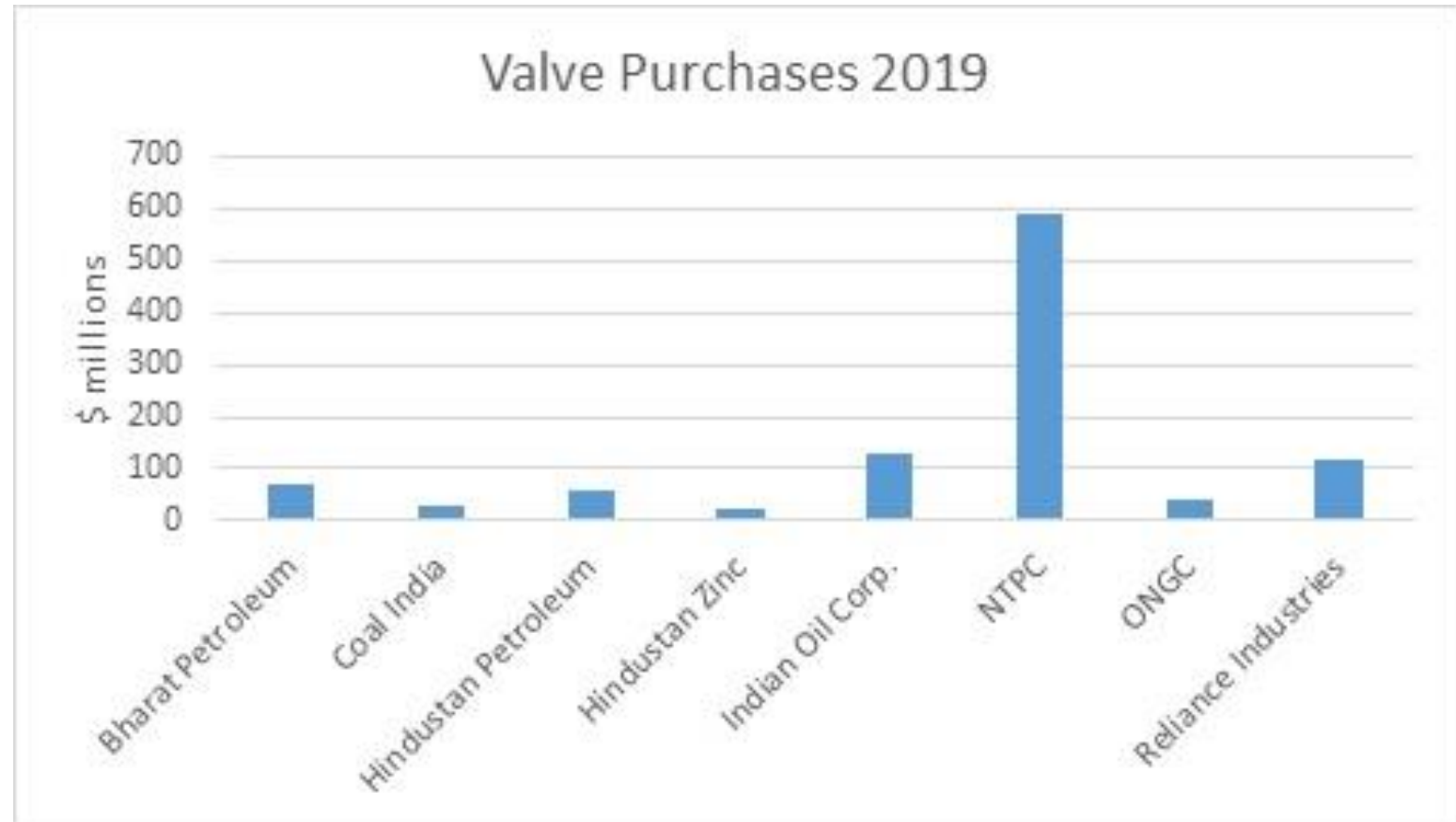
Forecasts by Product for Each Process in Each Plant

Forecasts can be made for each plant based on the production of chemicals at that plant. An ethylene plant might also make polyethylene. Some plants making chlorine reuse it in multiple processes. The CFT MPM for each process can be predicted using production forecasts.

Forecasts of Valve Purchasers by Large Indian Companies

Forecasts can be made for specific products with each major prospect. Here is an example of valve purchases by large Indian companies. Forecasts were made for total valves, but segmentation can be provided by service type (severe, critical etc.) and by valve type (ball, gate etc.). Forecasts can also be segmented by function e.g., control versus isolation.

Analysis of the processes is very important. In 2019 National Thermal Power Corporation ordered flue gas desulfurization systems for existing plants. Hundreds of large valves were needed at each plant. Knowledge of the regulations and the process are necessary for this type of forecast.



Segmenting the New and Replacement Forecasts is Important

When a system supplier provides a new system at an existing plant, the plant owner is likely to provide a preferred product bidders list. If a product is going to be replaced or for normal service and repair the plant will be the purchaser. Only a few percent of purchases will be for greenfield plants not owned by companies already operating CFT products. Expansion at existing plants is more common. Replacement of equipment is likely to be a bigger potential than purchase of equipment for a new system. If the industry growth rate is 5 percent and the CFT product life is 20 years, the replacement market will be the same size as the new system market.

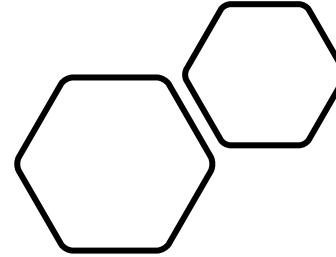
For most air, water and combustion products the lowest total cost of ownership is assumed to be the product of the market leader, or the product being used. This creates a big challenge for those attempting to sell a better product. The answer is to make it easy to buy a superior product.



The replacement opportunities are more easily quantified and identified than the new ones.

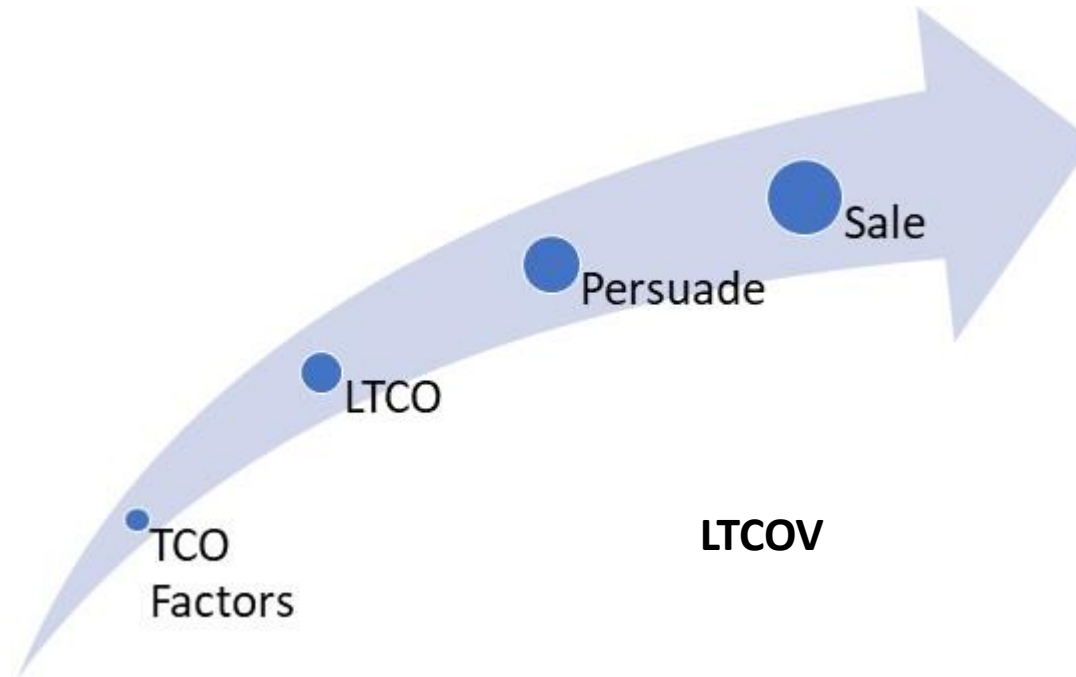
Chapter 3

Most Profitable Market Program





The Most Profitable Market (MPM) success results from leveraging content marketing and Lowest Total Cost of Ownership Validation (LTCOV) in each niche.



Strategy Based on Bottoms Up Niche Analysis

Niche analysis includes evaluating all the cost of ownership factors and comparing that to the offerings of the supplier and its competitors.

A market share analysis sets the stage for decisions on pricing, sales and R&D. It is important to evaluate processes and potential OEMS to determine future opportunities.

McIlvaine has services evaluating the OEMS and technology in filtration and treatment and is evaluating developments in cell and gene therapy, water reuse, and BECCS on a weekly basis.



Sales Leads vs MPM Program

Sales leads are valuable where the company is not already communicating with the prospect and the decision will be made on price and delivery.

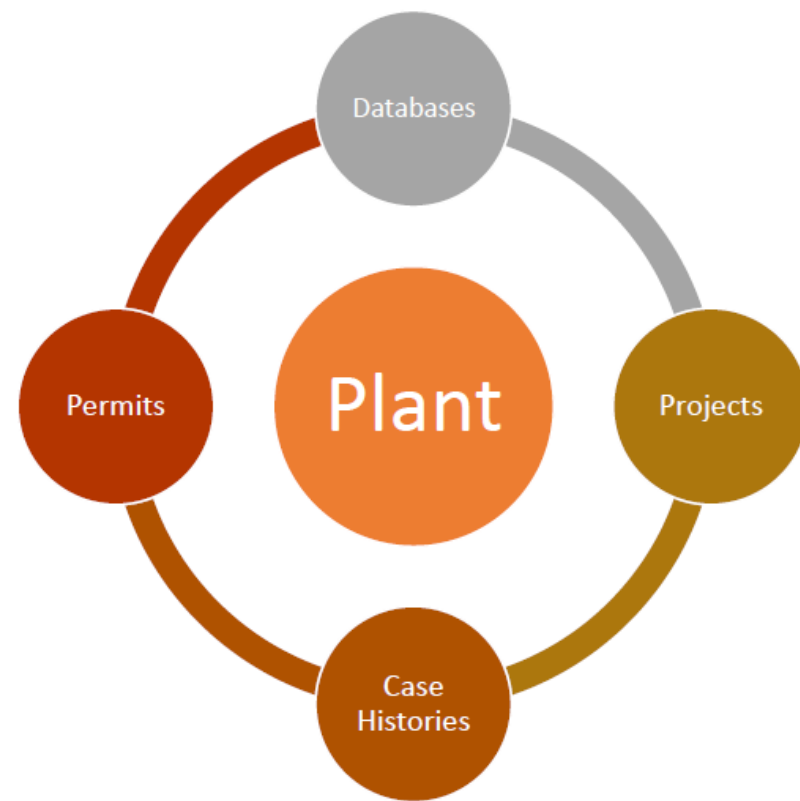
High performance CFT product decisions are generally made based on lowest total cost of ownership. This requires activity long before a request for quotation is made. Whether the order will come in 6 months or 24 months the pursuit should be continuous.

By forecasting the purchases for each prospect a much more effective sales program can be initiated.

Impact	Sales Leads	MPM Forecasts
Profitability Focus	No	Yes
Value of Pursuit	Undetermined	Yes
Timing	Often Too Late	Years or Months Ahead of Decision
Ability to Validate Lowest Total Cost of Ownership	Random	Part of Program
Guidance for Promotional Expense Allocation	Poor	Excellent
Guidance for Sales Targets by Location, Industry, and Product	Poor	Excellent
Reliance On Sales Commissions and Distributor Mark Ups	Higher	Lower

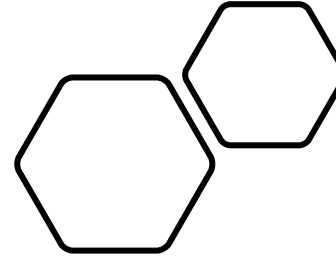
MPM Forecasts for Each Plant are also Produced Cost Effectively

- The top 550 companies with 60% of CFT purchases operate 10,000 plants.
- MPM for the individual plants is important in terms of service and purchase of general performance products.
- Most CFT purchasers have environmental emissions as well safety issues resulting in availability of detailed government information.
- The production of power in MWh, tons of iron, ethylene or pulp can all be determined and accurate MPM forecasts made.
- 95% of CFT purchases are made for existing plants whether it be replacement or expansion.
- The purchase of high performance products can be anticipated months or years in advance.
- Sales leads are not the route to selling high performance products.
- McIlvaine maintains plant and project databases for many industries



Chapter 4

Competition



McIlvaine has Already Compiled Extensive Competitor Information

- The market shares of participants in each niche are needed to make the best MPM decisions.
- In addition, the amount of advertising and exhibition activity shows the targeted geographies and industries where the competitor wants to increase share.
- The gathering of market share data is a challenging and time-consuming task.
- Local salesmen are good resources for geographic data.
- There is relatively little information readily available for private companies and for divisions of public companies where the relevant segment revenues are only a small percentage of total divisional revenues.
- Some of the estimates need to be at a granular level not even tracked by the company.
- McIlvaine has calculated valve sales by valve type and industry for some large valve companies. The result is more than 100 extractions.
- Since McIlvaine already has the relative market for each valve type in each application it is possible to apply these relative factors to obtain a useful forecast by type.
- McIlvaine maintains market share data for thousands of companies.
- Past analyses have resulted in very narrow niche market share analyses.
- McIlvaine has been involved in many mergers and acquisitions where market share information was compiled.

Ways to Determine Competitor Market Share in Each Niche

Financial History	Public companies have ample information. Others who have made acquisitions or have been privatized in the past have valuable older records. In many niches it is important to analyze the acquisition of a small company by a large one.
McIlvaine M&A Experience	McIlvaine has been involved in a very large number of mergers and acquisitions.
McIlvaine Custom Research	The determination of competitor market shares is published in some McIlvaine reports. But much more has been created in private studies.
IloW	White papers and other data published by companies have important pieces of the competitive puzzle.
Bidders Lists	Purchasers who are subject to public oversight often are required to list qualified bidders and publish the actual bid.
Import Transactions	Quantities of products imported by a domestic subsidiary from a parent company was invaluable in the assessment of canned motor pump market shares.
McIlvaine Newsletters, Alerts	McIlvaine has tracked many of the companies for more than 45 years and has reported sales and company information in the newsletters and Alerts.

Ways to Determine Competitor Market Share in Each Niche, cont.

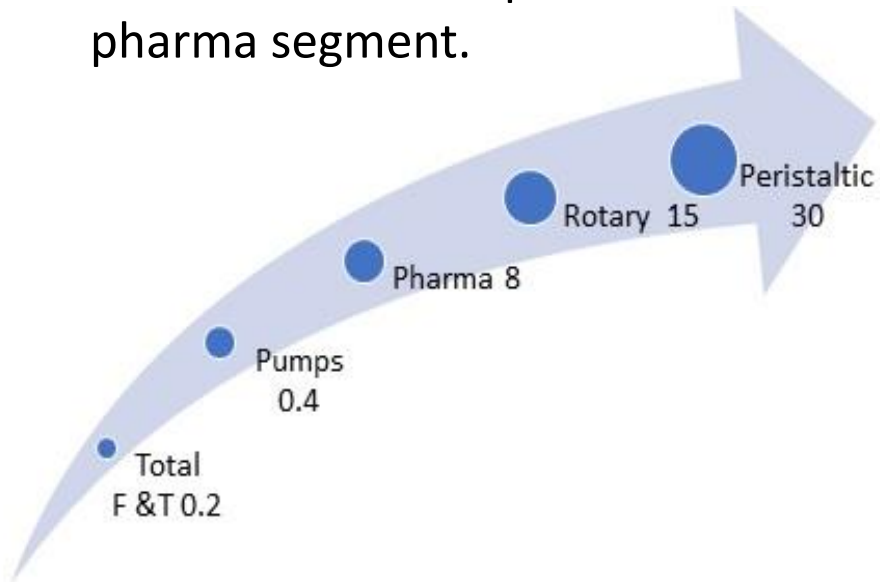
Interviews with other competitors	Many competitors are willing to share estimates of the market shares of other companies.
Interviews with consultants	Consultants are often tasked with assessing the experience of potential bidders on a project. Large consulting firms specify significant quantities of AWC products.
Interviews with customers	Customers can relate their experience with specific vendors and often the depth of experience of a supplier for a specific product in a specific application.
Interviews with OEMS	Large OEMs are major purchasers of the specific AWC products used in the systems they sell.
Process of elimination	A large company may report only the revenues for its AWC division. But if the effort is made to determine percentages for known segments the others can be deduced.
Product Exhibitions	At FiltXPO or Filtech the relative activity of filter media suppliers can be ascertained.
Industry Exhibitions	Industry exhibitions are particularly useful in determining the competitive activity in a niche. An analysis of regional brewery exhibitions provided disc centrifuge competitive insights by region.
Magazine Advertising	Magazine advertising is indicative of the industries and regions where a competitor is active. Also, the focus of the ads can be revealing.

Ways to Determine Competitor Market Share in Each Niche, cont.

Plant air and water permits	Several assignments have involved calculating production based on data on permits which includes equipment lists and potential emissions from each.
Google Earth parking lots	The employment at a shift can be approximated by the number of cars in the parking lot.
Local paper interviews	CEO interviews with local newspapers often have approximate revenues and expectations for future employment.
Distributors	Distributors are knowledgeable about the market shares in their territory and have great insights on the purchases of individual companies.
Installation Lists	System suppliers often prepare installation lists which are quite comprehensive.
Association Participation	Association participation provides product, industry, application and geographic insights.
LinkedIn employee info	The numbers of management people in an organization along with information in their blogs often is useful in competitive assessments.
Retired Individuals	Recently retired people have unique knowledge and often have the interest to participate in various analyses.

Analyzing Market Share in each niche

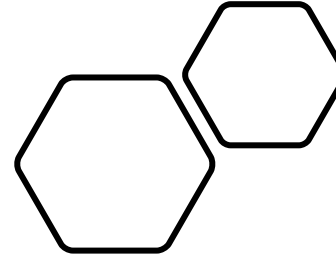
Forecast each market niche with a unique LTCO. One company has only 0.4% of the pump market but a 30% share of the peristaltic pharma segment.



Product	% market share
Total Flow and Treat	0.2
Pumps	0.4
Pharmaceutical pumps	8
Pharmaceutical rotary pumps	15
Pharmaceutical peristaltic pumps	30
Regeneration pharmaceutical peristaltic pumps (5 years)	70

Chapter 5

Identifying and Ranking Each Prospect



- Many AWC companies rely on sales leads to help identify prospects.
- One of problems with this approach is that this same data is being sent to competitors.
- A larger problem is that decisions on high performance products are likely to be made long before a sales lead is generated.
- While a decision to buy a product identical to one already in use or to buy the market leading product can be made at the plant level, decisions about new and better products are more frequently now made a corporate level.
- Arcelor Mittal is a good example. A staff group in Belgium has been responsible for buying new and better products for many of its worldwide plants. The result has been a substantial decrease in operating costs.
- BASF has a corporate group in Germany which includes experts on valves. Hundreds of BASF plants around the world are using smart valve technology selected by the group.
- It is therefore desirable to set targets for each plant and for the entire corporation.
- A coordinated marketing program for each large multi plant company can leverage bottoms up collaboration among the salespeople involved with the plants and corporate staff.
- In a company with multiple divisions which sell to the same customers quotas for each product and then bottoms up collaboration increases sales force effectiveness.

- Quotas or targets for individual countries can be set by aggregating the individual company totals.
- Corporate staffs of major AWC companies are located in France and Germany.
- Worldwide purchase forecasts for the international companies are desirable in terms of determining the sales effort needed in the country where the corporate staff resides.
- In some cases, this will not be the corporate home office.
- Arcelor Mittal is an Indian based corporation; but AWC corporate is located in Belgium.

Valve Purchases by Large Companies Home Based in France and Germany - 2019

Company	Home	Industry	\$ millions
Air Liquide	France	Chemical	84
EDF	France	Power	583
Engie	France	Oil & Gas	143
LaFarge Holcim	France	Stone	72
Sanofi	France	Pharma	50
Schlumberger	France	Oil & Gas	57
Total Refineries	France	Refinery	235
Total SA	France	Oil & Gas	339
BASF	Germany	Chemical	311
Covestro	Germany	Chemical	65
Evonik	Germany	Chemical	73
Heidelberg	Germany	Stone	36
Linde	Germany	Chemical	82
Merck	Germany	Pharma	50
Uniper	Germany	Power	51

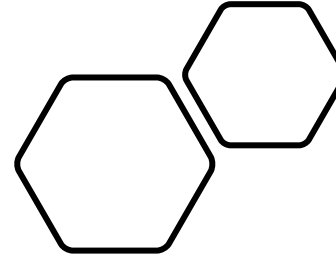
Divisional Collaboration

- A company with many divisions such as Parker Hannifin sells a wide variety of products to Intel.
- Intel makes many of the AWC decisions at the corporate staff level.
- If the salespeople involved with Intel are aware of the quotas or targets set for each division, they can better pursue bottoms up collaboration.
- One division sells filters while a sister division sells the instrumentation to measure filtration performance.
- This results in the two divisions working on the same projects.

Semiconductor CFT Purchases – 2019 - \$ millions			
Company	Total	Intel	Further Segmentation Available
Cleanroom Hardware	5500	935	Rooms, HVAC, Devices, Filters, Ceilings, Doors, Walls
Cleanroom Consumables	2800	476	Gloves, Wipes, Disposable and Reusable Garments, Chemicals, Paper, Laundering
Ultrapure Water Systems	900	153	Condensate Polishing, Piping, Disinfection, Filtration, Wastewater Treatment
Scrubbers, Oxidizers	240	41	Adsorbers, Absorbers, Biofilters, Nozzles RTO, Catalytic Oxidizers
Pumps	240	41	Centrifugal, Rotary, Diaphragm, Reciprocating
Valves	400	68	Control and Off Valves Each Segmented In 8 Categories
Cartridges	475	81	Membrane, Non-Woven, String Wound, Carbon, Metallic
Other Filters, Separators	380	65	Filter Presses, Belt Filters, Bag Filters, Clarifiers, Hydrocyclones, Centrifuges
Cross Flow Membranes	250	43	Microfiltration, Ultrafiltration, Reverse Osmosis
Fans, Compressors	290	49	Multiple Fan Types and Multiple Compressor Types
Treatment Chemicals	420	71	13 Types of Treatment Chemicals from Biocides to Flocculants
Guide	700	119	Process Management and Data Analytics Software
Control	600	102	PLC, SCADA, Edge Technology, Wireless Transmitters, Cloud Software
Measure -Liquids	140	24	Flow, Turbidity, Contaminants, Level, Pressure, Viscosity
Measure - Gases	70	12	Flow, Particulate, Acid Gases, Pressure, Temperature, Humidity
Measure -Powders	40	7	Flow, Quantity, Constituents, Particle Size
Other	2,000	340	Piping, Couplings, Heat Exchangers
Total	15445	2627	

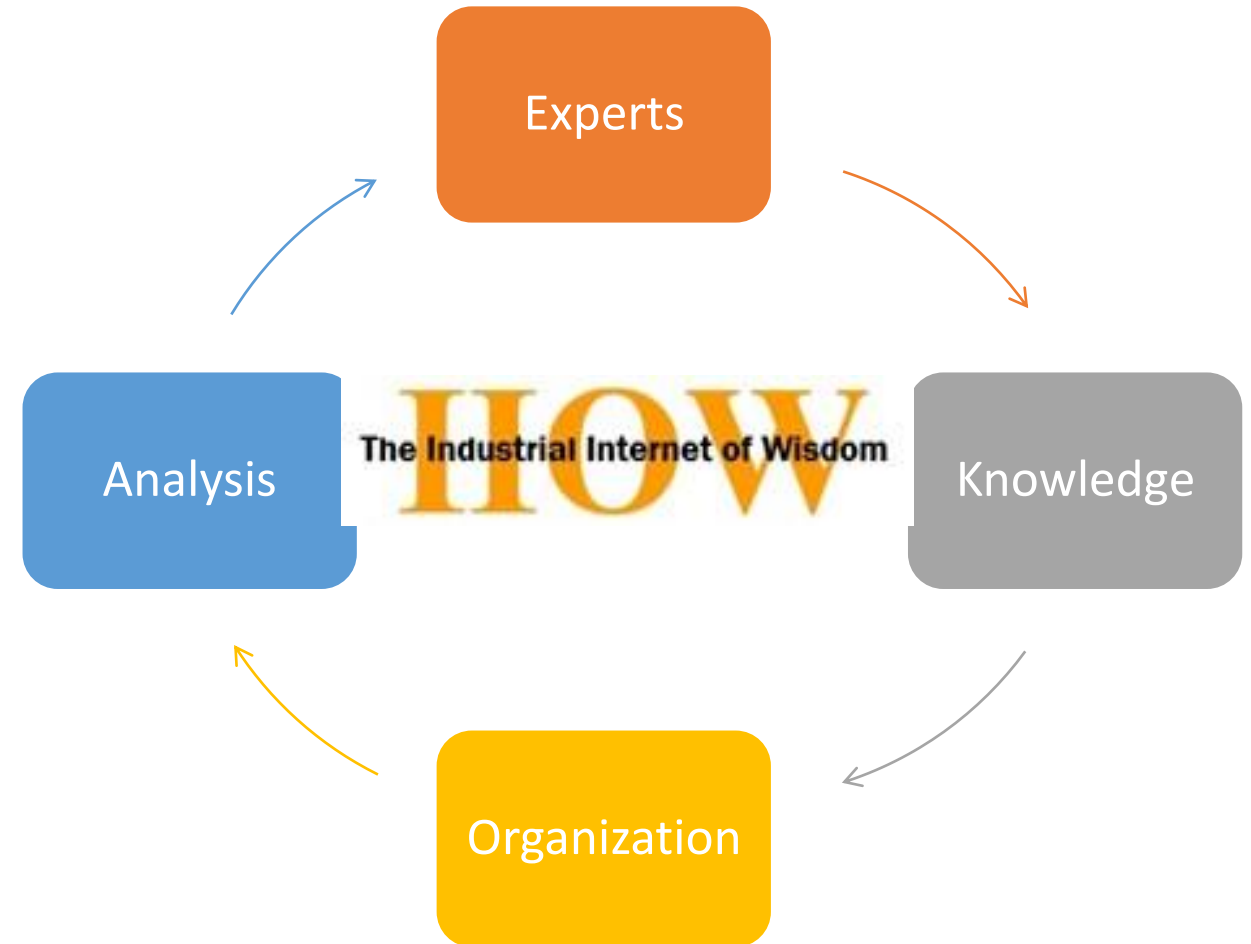
Chapter 6

Holistic Content Marketing Program Development



Bottoms Up Approach Using IloW

- There are ways to validate performance and utilize accurate cost factors using much of the knowledge which is already available but hard to find.
- This knowledge is linked by creating an Industrial Internet of Wisdom.
- This system provides the insights of subject matter niche experts (SMUEs) who not only have the past knowledge but the ability to leverage the IloW for even greater wisdom.
- This wisdom should then be conveyed through a bottoms up program in each niche.
- The combination of exhibiting, advertising, speaking, and contributing to articles should be organized around the LTCOV goal.
- The LTCOV In each niche should be clearly presented on the supplier's website along with links to the supporting evidence.



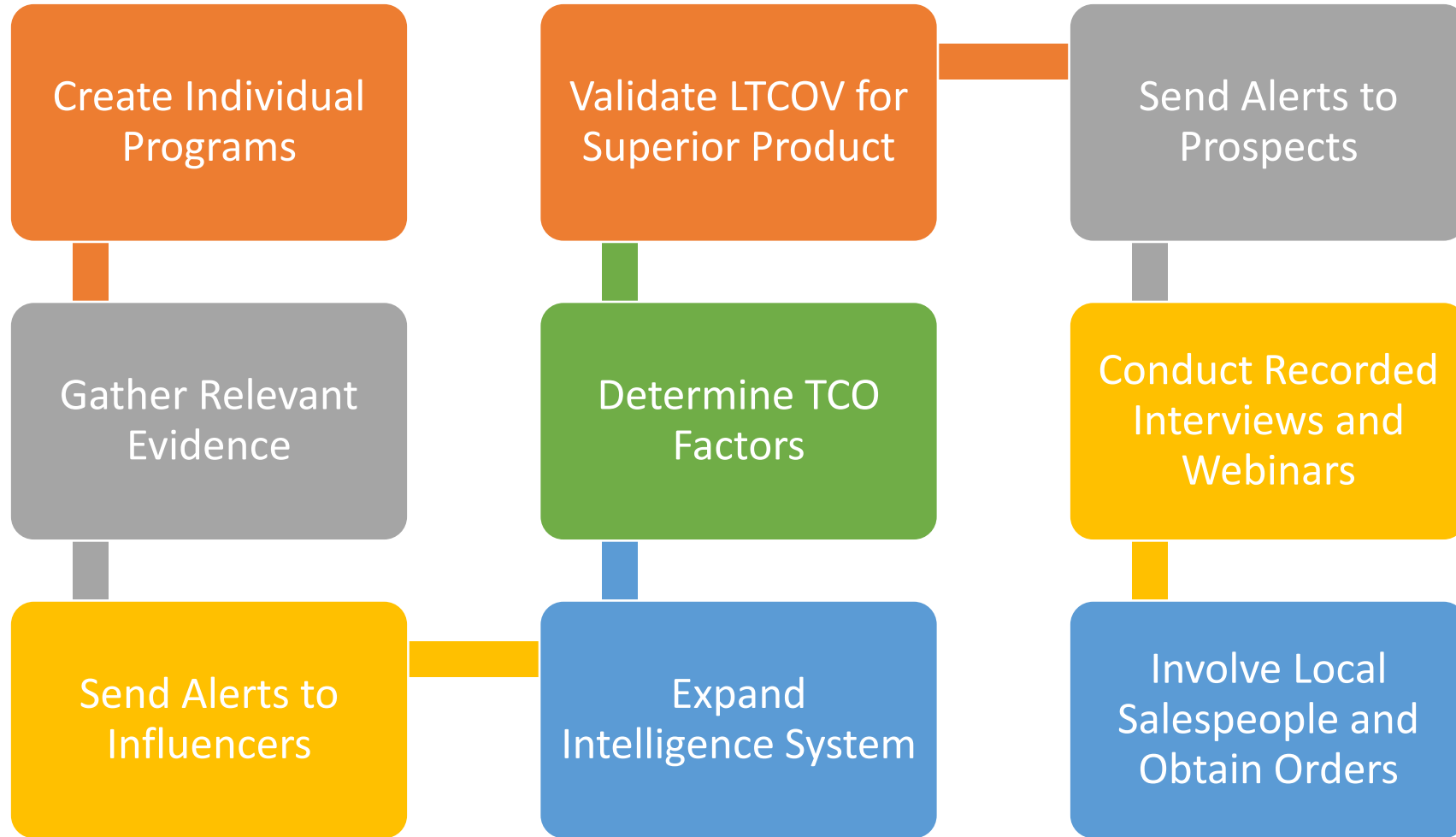
LTCOV-Lowest Total Cost of Ownership Validation

- Validation of lowest total cost of ownership requires convincing decision makers. The supplier is equivalent to the lawyer making a case to a jury.
- The other side will be making their arguments to counter the supplier.
- The process is sequential and continuous.
- The process is made by multi media: websites, magazine articles, conference speeches, and in person.
- Validation needs to be based on accepted
 - Process variables
 - Labor, downtime, energy and other costs
- Subject matter expert testimony is more convincing if the expert has a body of evidence to support his conclusion.



- Evidence: A good lawyer assembles all the evidence and presents it in a way to support his assertions.
- McIlvaine has created decision guide templates which can be expanded to provide the body of evidence.
- A subject matter expert who helps prepare and then is most knowledgeable about the decision guides becomes subject matter ultra expert (SMUE) and provides the most credible testimony.

MPM Program with Website and Alerts



Create Individual Program Home Pages

- Each opportunity with unique TCO factors should have a coordinated display with the ability to drill down more deeply on a sequential basis.
- This page should be easily accessible from the home page. It can be organized as
 - Exclusive to the supplier with links from other sites
 - Shared with other suppliers and linked from a third-party site such as the McIlvaine Global Knowledge Orchard
 - A link from a third-party site such as an industry or product association

Gather Relevant Evidence

There are likely to be relevant case histories and expert analyses already accessible on the internet. All relevant papers and videos should be identified and made accessible.

Send Alerts to Influencers

The experts within the company as well as some outside the company should be sent alerts asking for further input in the quest to validate LTCO.

Expand Intelligence Systems

The intelligence can be centrally expanded with articles, case histories, analyses and white papers which are prepared from the growing evidence. Component suppliers, service providers and distributors along with local salespeople will also be able to contribute.

Determine TCO Factors

The relevant TCO factors can be systematically gathered along with the performance of the competition and the site-specific factors such as electricity cost.

Validate the LTCOV for Each Product

The program page should provide the validation in a manner easily understood by prospects and with the proper evidence to make the case.

Send Alerts to Prospects

Sending regular Alerts to prospects and consultants can include answering their questions and including their comments. If a third party is organizing the program for multiple suppliers, then each supplier should have the updated mailing list. Local salespeople should have access to the names but also provide additional names. Distributors also can utilize and contribute email addresses.

Conduct Recorded Interviews and Webinars.

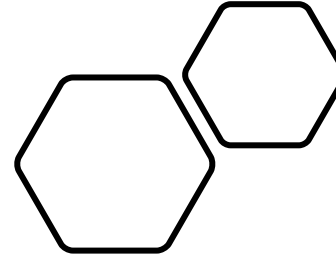
Webinars involving experts who are consultants or are in a staff role at a purchasing company are ideal panelists. Recorded interviews with customers who have found the product to be superior would be of a high priority.

Involve Local Salespeople and Obtain Orders

The local salespeople can obtain more benefit from the program pages and IloW than they could from sales leads. Each program can be provided to salespeople along with confidential information such as prospect identification, market potential and competitive forces.

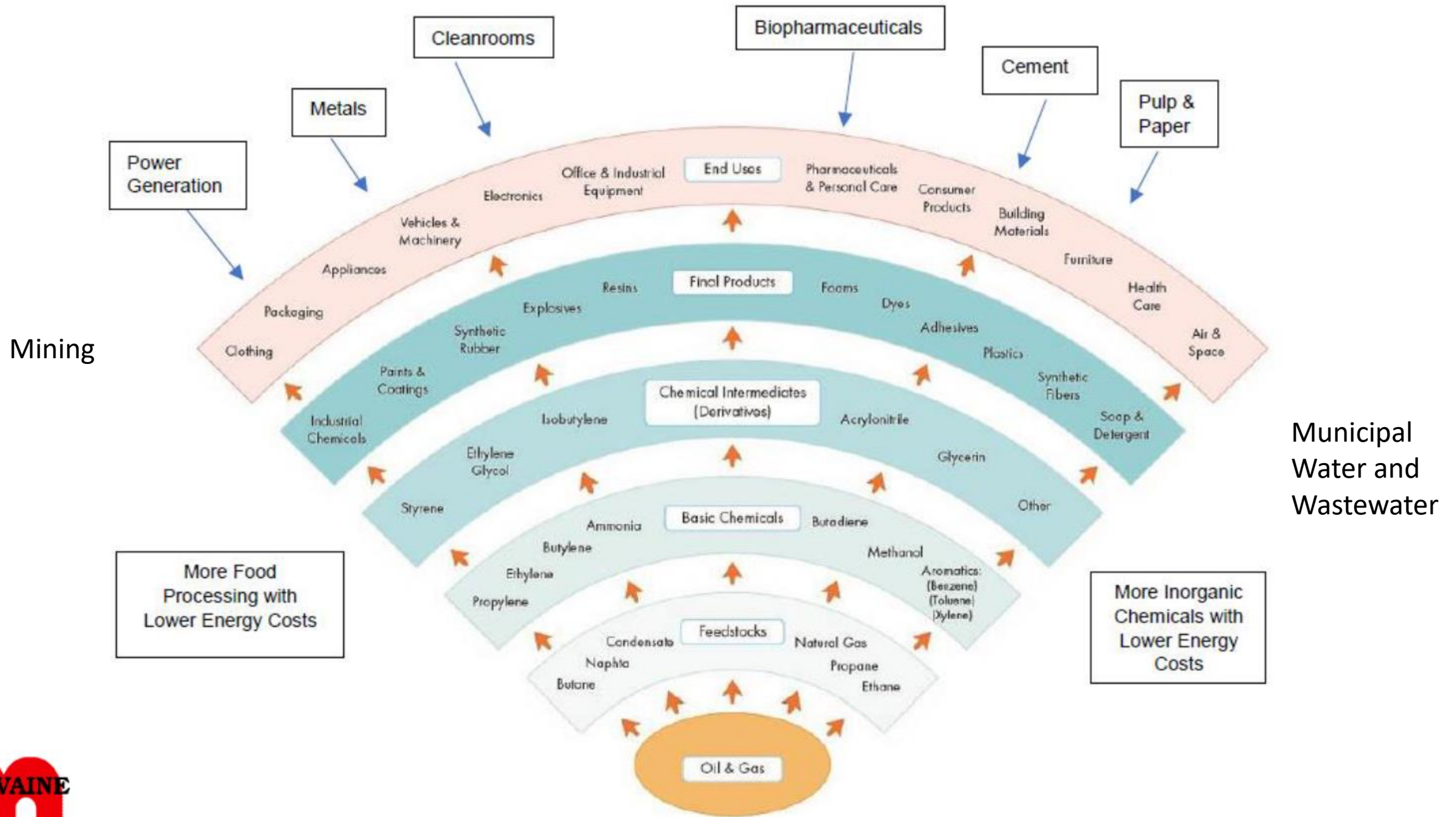
Chapter 7

Program Execution

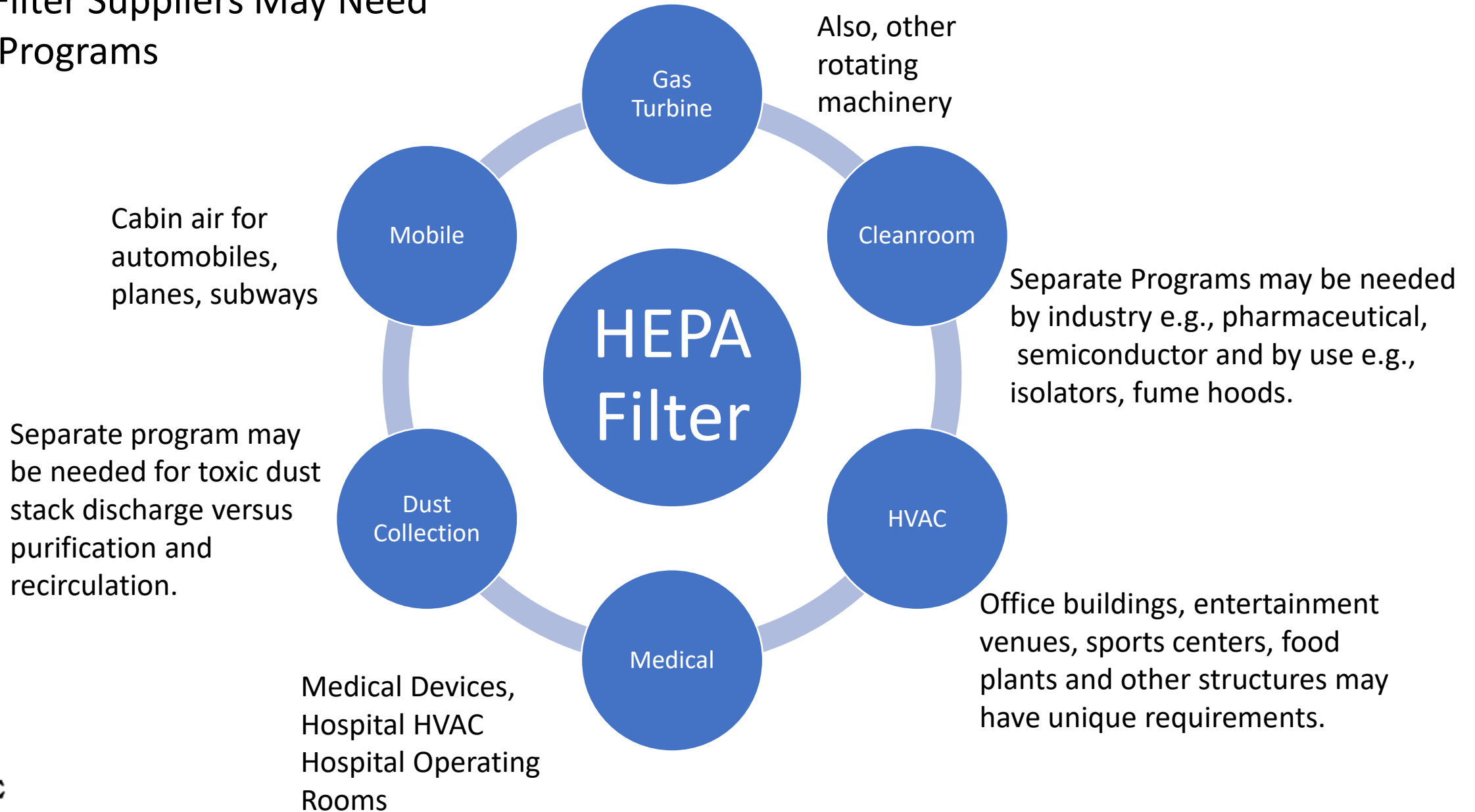


- For any individual product there can be thousands of applications within many industries.
- Forecasts can be provided for each niche and for each major customer in that niche.
- It is necessary to prioritize the opportunities based on the near term and long-term potential EBITA.
- The development status of new products must be considered.
- The potential for acquisitions or joint ventures also has to be compared to the organic alternative.
- The entry into new areas such as hydrogen or single use pharmaceutical products has to be influenced by the timing and size of the potential EBITDA.
- A holistic content marketing campaign should coordinate advertising, exhibiting, speaking, and event participation in a manner which will best provide LTCOV.
- In many cases the customer or influencer will be an OEM and not the operator in which case the TCO may be somewhat different depending on his relationship with the customer.
- The involvement of local salespeople and distributors can be assured with the Alerts, discussions and mutual access to the LTCOV evidence.
- With specific quotas available for each customer in each location the salespeople can not only be evaluated but can also provide insights to change the market forecasts for their territories.

There are Many Thousands of Production Niches Where Unique TCO Factors Apply



HEPA Filter Suppliers May Need Many Programs

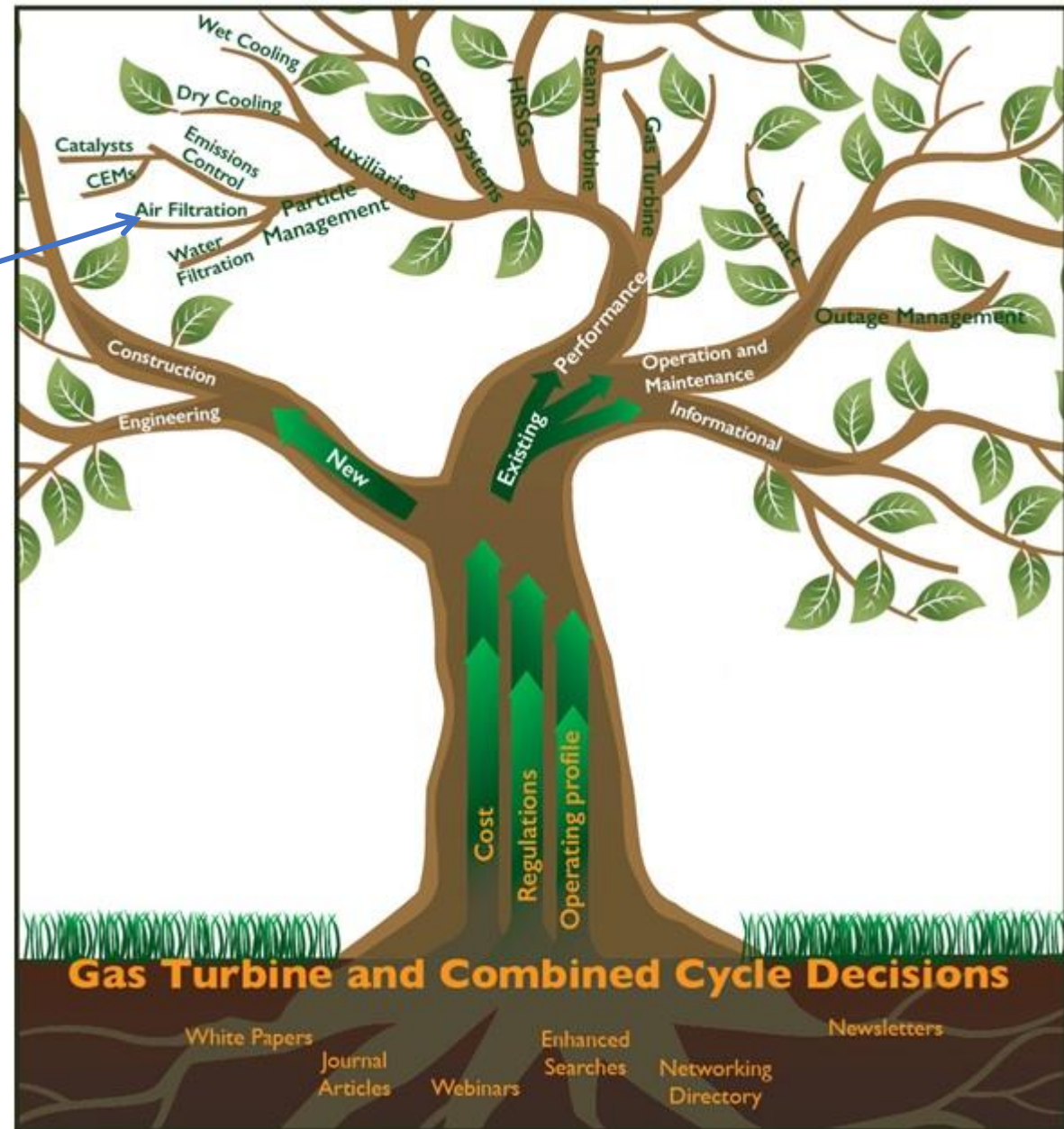


There are 1000s of unique air, water, and combust product applications in a gas turbine power plant.

The turbine intake air filtration is critical.

It warrants an individual program. This includes the suppliers of the filter systems, the filters, and the products and services used to determine the filter efficiency.

Many of the air filter decisions are dependent on the turbine design. The fact that McIlvaine also has programs for process equipment is a big advantage.



The Alerts have links to case histories, expert analyses and other evidence useful in validating the superior performance of filters or media.

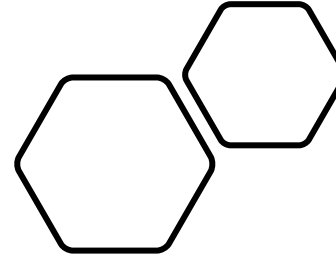
McIlvaine works closely with INDA and their magazine International Filtration News and their conference FILTXPO. One alert covered the exhibitors at FILTXPO.

Exhibitors of Gas Turbine Filtration Media at FILTXPO 2020				
Efficiency	F-9 and below		E-10 and above	
Media Type	Pre Filter – Non Cleanable	Final Media – Cleanable And Non	Final Filter -Media Non Cleanable	Final Filter Media Cleanable
Ahlstrom	x	x	x	x
Guangzhou Cleanlink			x	
FiberTex Nonwovens		x	x	
Hollingsworth & Vose	x	x	x	x
Jacob Hardi	x	x		
JX Nippon ANCI		x		
Guangzhou Kangly	X	x	x	
KJ Filtration	x	x		
Kimberly Clark	x	x		
Lenzing Fibers	x	x		
Lydall	x	x	x	x
Park Non wovens	x	x		
Polimeros & Derivados	x	x		
Shanghai Lingqiao			x	x
Shangdong Taipeng	x			
Sinoma		x		
Superior Felt	x	x		
SWM	x			
Welspun		x		
Wenzhou Yonghong	x	x		
Zhejiang Y.G. Nonwoven	x	x		



Chapter 8

R&D Investment Decisions

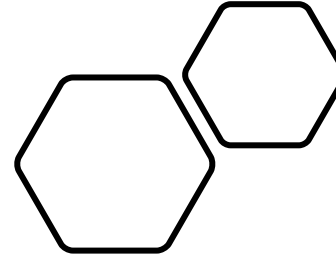


- Investment decisions need to be based on Return on Investment (ROI).
- The investment in development of a superior product must be compared to the size and timing of an EBITA stream.
- The acquisition route can be compared to the organic route in terms of development cost.
- The air, water, and combustion opportunities include those in some fast-growing segments which can utilize innovative high-performance air, water, and combustion products and services.
 - IIoT and Remote O&M: Smart valves, pumps, and filters can
 - Improve operations with quicker and more precise response
 - Reduce safety and environmental risks
 - Allow remote guidance to lessen manpower requirements on site and travel time for service engineers
 - Set up cost reduction sharing arrangements with customers and maximize EBITA
 - Technologies to meet net zero
 - Green hydrogen with water and renewable energy
 - BECCS with CHP and CCS as the most carbon negative of all the energy options
 - Homogenization to create new prepared foods from peanut butter to yogurt
 - Movement and treatment of delicate and expensive pharmaceuticals
 - Liquefied CO2 for hydraulic fracturing
 - Water purification and reuse as potable water
 - Zero liquid discharge
 - Hard coated products to meet severe corrosive and erosive conditions
 - Single use systems for small batch biopharmaceuticals
 - Filtration and masks to meet pandemic needs

Chapter 9

McIlvaine MPM

Program Support



Most Profitable Market Program Support

Steps	McIlvaine Support
Superior Product Development	McIlvaine can leverage its databases and newsletters to provide TCO and process knowledge.
Potential Revenue Determination (SOM)	McIlvaine reports and statistics are already available for many products. Custom research can provide others.
Most Profitable Market Program Strategy	Support can be provided on a continuing basis.
Competition	As a starting point numerical identification is available for more than 10,000 companies which allows retrieval of competitive information from McIlvaine Publications.
Identifying and Ranking Each Prospect	McIlvaine databases and custom research can be used to forecast individual customer EBITA potential.
Holistic Content Marketing Program	Advice and recommended procedures can be provided on an ongoing basis.
Program Execution	The level of McIlvaine involvement will depend on whether the approach is with a single or multiple supplier approach.



For More Information

- Comprehensive market reports with TAM forecasts are available and can be reviewed at www.mcilvainecompany.com and then click on Markets at the top of the page.
- Databases in power, oil and gas, pharmaceuticals, cleanrooms and other areas are discussed at www.mcilvainecompany.com and then click under databases at the top.
- The OEM Networking directory with company information and contacts by service and product is discussed at www.mcilvainecompany.com and then click under “people”.
- For questions about custom consulting or the services contact Bob McIlvaine at rmcilvaine@mcilvainecompany.com or by cell at 847 226 2391.

