Air Filtration and Purification World Markets
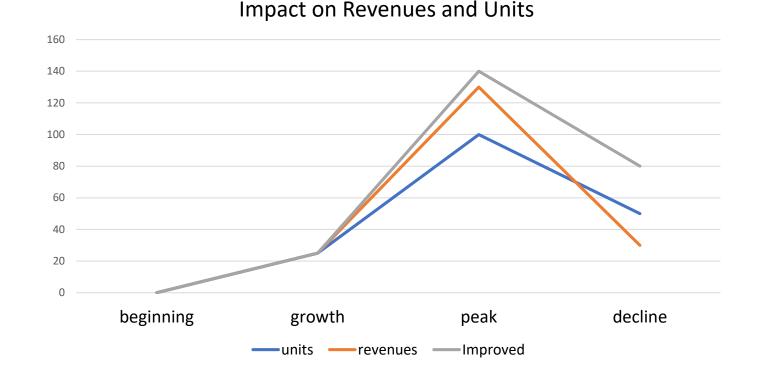
with Coronavirus Supplement

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- The Air Filtration and Purification market is being radically transformed by the novel coronavirus pandemic.
- The McIlvaine Company has been analyzing this market and providing market research for decades.
- The *McIlvaine Air Purification World Markets* is being expanded to provide the latest forecasts on media, filters, and systems for use in the pandemic.
- Long range aspects such as excess supply capability of media or alternatively a pandemic which keeps re-occurring are continually assessed.
- Continuous assessment of the science and technology is undertaken because the market is a function of which products are necessary to provide the necessary results.
- The market is shaped by a number of Decision Trees each of which pollinates the others.
- McIlvaine analyzes each of these Decision Trees.
- McIlvaine is performing this function on an accelerated basis just as it did after the Gulf Oil Spill when it helped NASA and Dissolved Oxygen Analyzer suppliers determine which instrument type was best suited for the underwater drones.
- The report has monthly updates plus more frequent Alerts. It also includes client briefings and webinars.

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The increased production and increased revenues per unit for both media and finished filters are creating a very large air filter market. The questions are

- How big will the market be at its peak?
- When will that peak occur?
- Will new and better technology be developed?
- Will an oversupply lead to low prices during the decline?
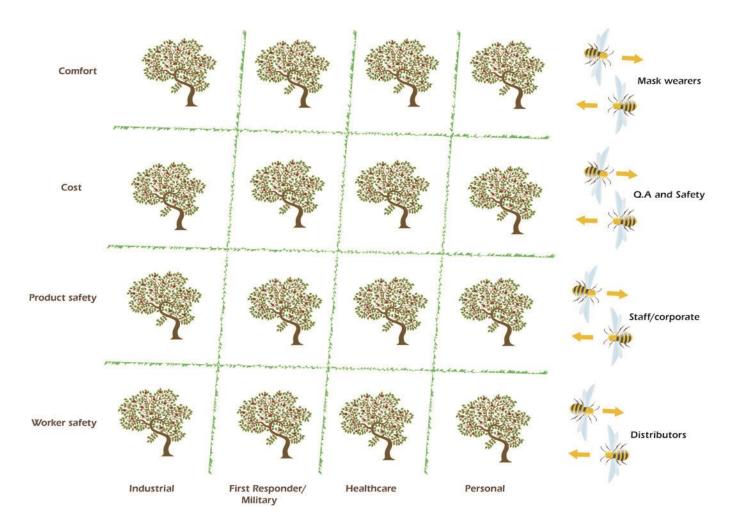
Impact on Revenues and Units

There is a large potential for filters which will more reliability eliminate the coronavirus and for capture systems which protect against the spread of the virus through HVAC systems. The potential for improved filters and systems to generate large revenues even after the pandemic subsides are being analysed.

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The markets are determined by the choices made by individuals relative to safety, cost, and comfort. The choices are influenced by the application. Each Decision Tree is pollinated by the others.

The most accurate market forecasting takes into account the whole pollination process. The coronavirus adds a new Decision Tree based on emotion rather than logic.

Decision Makers

Comfort

Cost

Product safety

Worker safety

Industrial   First Responder/ Military   Healthcare   Personal

Mask wearers

Q.A and Safety

Staff/corporate

Distributors

Forecasts for 80 Countries and Sub Regions with Regional and World Aggregations

Air Filtration Revenues - India									
Industry	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Total									
Bioclean									
Commercial									
Electronics									
Metals									
Other Industries									
Power									
Residential									

Forecasts of 5 Product Types for each of 7 Industries in 80 Countries for 9 years = 25,000 Forecasts provided on an Excel Spreadsheet

Subject	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total									
Electronic									
G 1-4									
Gas Phase									
H 10-17									
M 5-6, F 7-9									

Coronavirus Supplement

Provides the answers to the important suppler questions

The supplier needs to know where his product can best be employed or how it should be redesigned to meet the needs. The media supplier needs to know whether HEPA filters are needed and whether they should be combined with media to adsorb gases and whether media should be impregnated with catalyst for photocatalytic oxidation.

The equipment supplier needs to know how to best apply that media in
- Airplanes, ships and other mobile transport media
- Residential, commercial, and government buildings
- Hospitals and dental offices
  - Waiting and emergency rooms
  - Operating suites
  - Isolation rooms
  - HVAC systems

The equipment can range from
- Patient breathing filters
- Miniature room purifiers
- Large room purifiers (e.g. 12 m3/min)
- Portable rooms
- Isolation systems
- General HVAC

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The industry needs to understand the technology uncertainties which will drive the market

- Can coronavirus survive to travel through HVAC ductwork and provide a viable threat to occupants elsewhere? CDC says no but researchers say yes.
- Viruses are too small to be captured directly in HEPA filters but is diffusion (Brownian movement) sufficient to remove them through collision with fibers and particles?
- Virus survival in humid vs dry air and on surfaces.
- How does the difficulty of capture differ from other viruses?
- How many times per hour does air in a room need to be purified to cost effectively minimize risk?
- Are there game changing technologies which will shape future markets?

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Market Answers needed by Media and Equipment Suppliers

• How large is the market in each application and each country?

- Present
- Future

• Who will be the key decision makers?

- Governmental
- OEM
- Operator

• How much fluctuation in price will occur between times of high demand and lower demand?

• Will media companies be able to keep up with the needs of the filter producers?

• Will countries impose import or export restrictions on media or equipment?

• To what extent will purchasers buy the lowest true cost product rather than the one best advertised?

• Who will be the major competitors for each product in each region?

• What are the routes to market?

- Retail
- Distributor/sales rep
- OEM

• How to validate low true cost

- Magazines
- Associations and conferences
- Webinars