

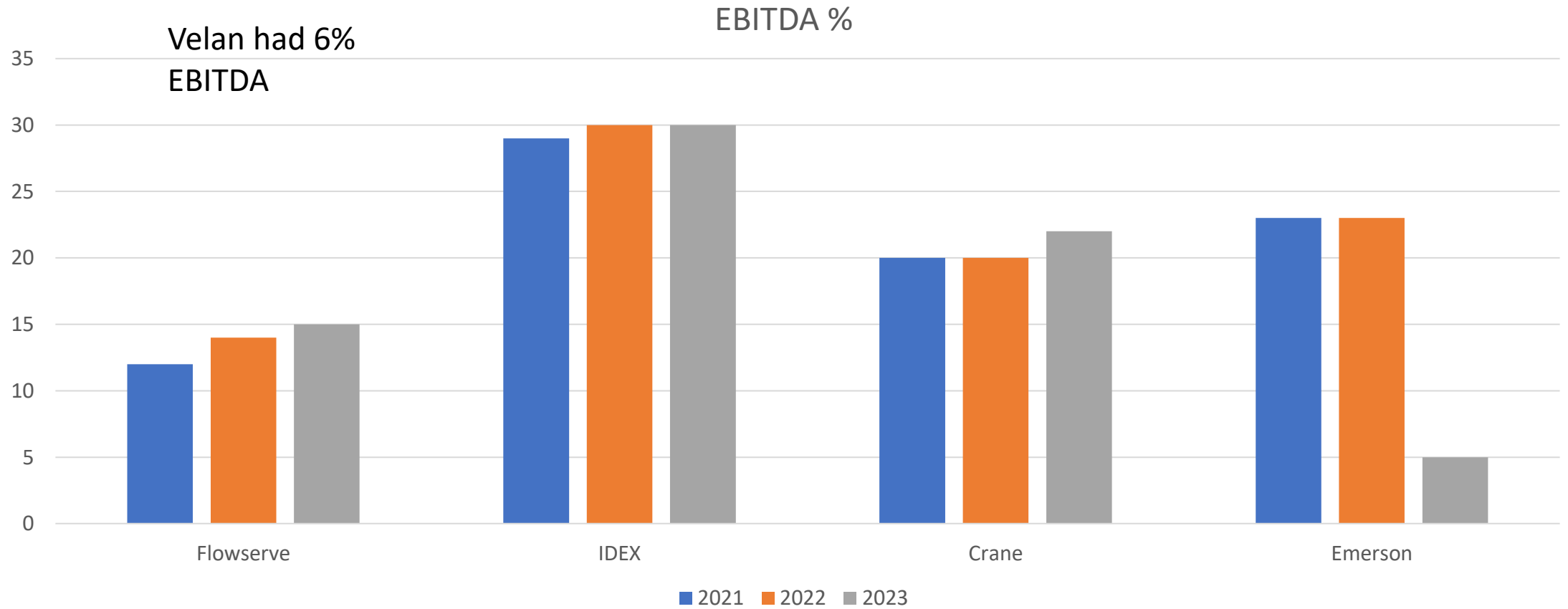
# Flowserve - Velan Market Niches

How the most profitable market can be pursued by identifying each \$10 million niche and guiding collaboration.

# Maximizing Flowserve EBITDA with the MPM Niche Program

- Flowserve has acquired Velan creating a company with over 1% of the World industrial valve revenues.
- Both companies have strong research efforts and high-level technology.
- Velan EBITDA is 6% versus 14 % for Flowserve and far less than the 30% achieved by the top companies.
- The pump, compressor, valve and related markets are an aggregation of niches.
- Identifying those niches which can boost sales while achieving 30% EBITA is possible with the leveraging of facts, factors, and forecasts.

# 2022 EBITDA - Valve Companies



# What is a niche?

- A niche is a market opportunity of \$10 million/yr. with a 20% market share or \$ 2 million.
- The target is 30% EBITDA or \$600,000.
- If direct sales cost is 5%, \$100,000 can be spent on each niche.
- An equal amount can also be spent to validate the value proposition.
- With the niche focus the company understands the unique customer needs and provide superior products which creates the larger EBITDA opportunity.
- The coordination of Velan efforts with Flowserve can be quicker and more effective with the niche sharing approach.
- This presentation provides a road map on how this can be achieved.

# Niche Analysis for the Two Companies

Category	Flowserve \$ millions/#	Velan \$ millions/#	Total \$ millions/#
2022 Revenues FC	1000	380	1380
2022 Valve Revenues	600	320	920
Niches @ 30% EBITDA	300	160	460
Niches @ Actua EBITDA	600	800	1400
Sub-niches	6000	8000	14000
Direct Sales Cost Target	30	16	46

# Collaboration Around Each Niche

- Flowserve flow control revenues are 2.5 those of Velan but valve revenues are only twice as large.
- Because of the much lower EBITDA Velan derives revenue from 8000 valve sub-niches versus 6,000 for Flowserve.
- If the combined company spends 5% of revenue on direct sales it can spend \$46 million.
- One sub-niche could be valves for compressors for green hydrogen where the Flowserve SIHI compressor would be used. So, the niche could involve sales people for both products.
- Bottoms up collaboration is possible in this regard.
- Regional, OEM, and product managers all will have sub niche opportunities in concert with the local salesman.
- A major goal will be to increase EBITDA .



# Acquisitions

# Acquisitions have shaped niche opportunities and now the focus should be on increased EBITDA

- Flowserve was formed in 1997 with the merger of BWIP and Dukrco.
- The Velan acquisition is the largest valve acquisition in the last decade.
- The largest valve supplier, Emerson-Tyco, was created by rolling up many small valve companies in the 1990s.
- A number of the companies with the highest EBITDA have acquired niche players and encouraged them to keep pursuing their niches.
- Flowserve in 2015 acquired SIHI which makes compressors.
- In justifying the acquisition of Velan, Flowserve commented on the complementary aspects of the product line. This can be translated as sub-niches which together provide the best value proposition.
- Competitors are pursuing similar strategies. Both Ingersoll Rand and Atlas Copco have been buying valve companies to marry compressors and the other flow control components.
- Raising the EBITDA in the niches already being pursued could double profits.



# Flowserve Acquisitions

- 1997 - Merger of [BW/IP](#) and [Durco International](#) (adoption of brand name Flowserve)
- 1997 - [Stork Engineered Pumps](#)
- 2000 - [Ingersoll-Dresser Pumps](#) (IDP)
- 2000 - [Innovative Valve Technologies Inc.](#) ([Houston](#)-based maintenance, repair, and replacement services for industrial valves, piping systems, and process system components<sup>[13]</sup>)
- 2002 - Flow Control division of [Invensys](#) (manufacturer of valves, actuators and associated flow control products<sup>[14]</sup>)
- 2004 - [Thompsons Kelly & Lewis](#)<sup>[15]</sup> (Australian supplier of centrifugal pumps<sup>[16]</sup>)
- 2005 - [Interseal](#) assets (from Australia-based [Ludowici Mineral Processing Equipment Pty Ltd.](#)<sup>[17]</sup>)
- 2006 - [HydroTechnik](#) (privately held mechanical seal manufacturer based in [Olomouc](#), [Czech Republic](#)<sup>[18]</sup>)
- 2007 - [MF Sealing Systems](#) (British industrial pump and seal repairer<sup>[19]</sup>)
- 2009 - Calder AG (Swiss desalination energy-recovery system provider<sup>[20]</sup>)
- 2010 - Valbart Srl (privately owned Italian valve manufacturer<sup>[21]</sup>)
- 2011 - Lawrence Pumps Inc. (privately held centrifugal pumps manufacturer<sup>[22]</sup>)
- 2013 - [Audco India Limited](#) (MMN PLANT<sup>[23]</sup>)
- 2013 - [Innomag Sealless Pumps](#)<sup>[24]</sup>
- 2015 - [Sihi Group](#)<sup>[25]</sup>

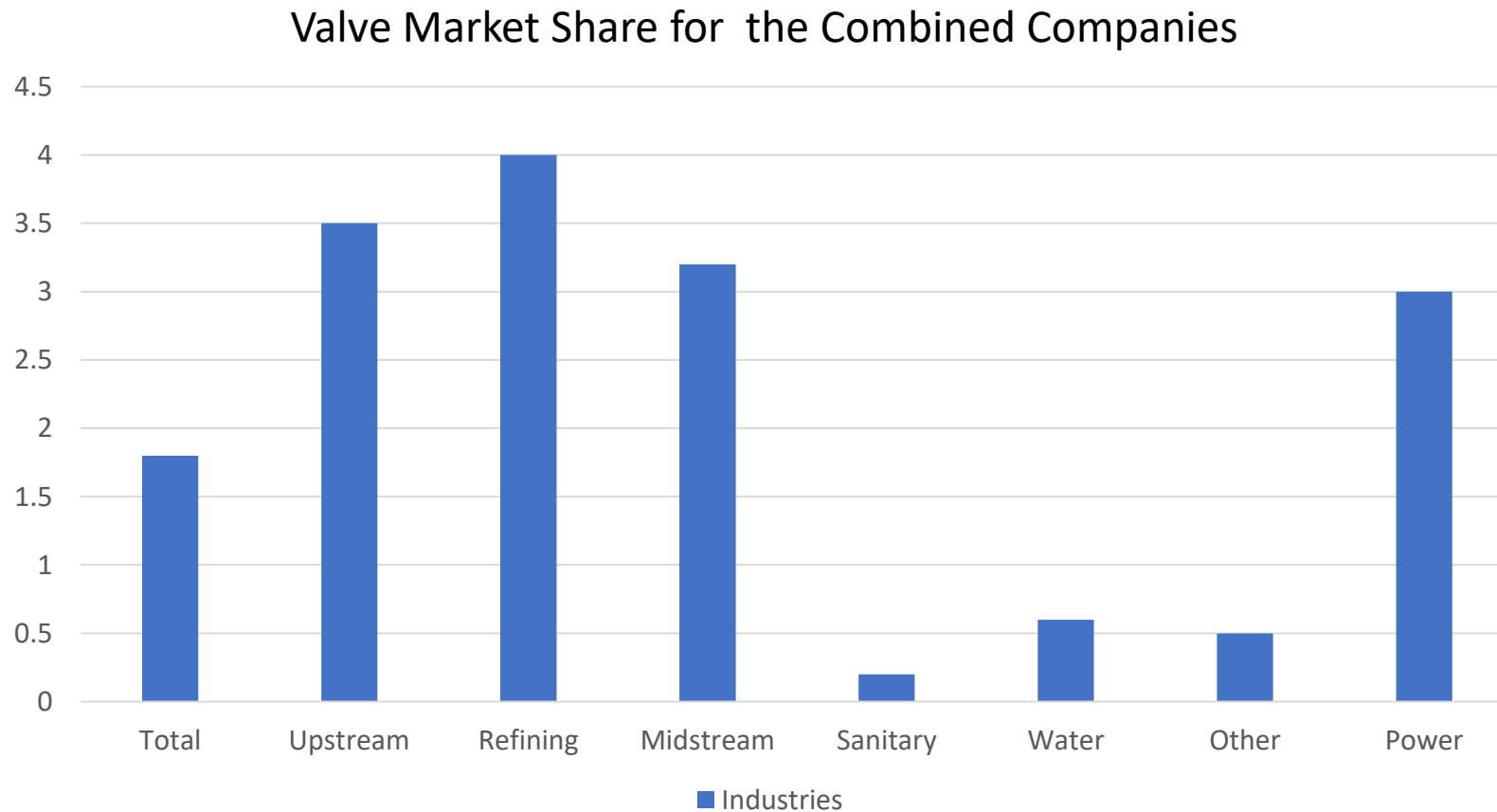
# FCD revenues were over \$500 million when acquired in 2002

- In 2002 Flowserve purchased Flow Control from Invensys. The division was a manufacturer of valves, actuators and associated flow control products mainly to the oil and gas, chemical and petrochemical, power generation and process industries. For the twelve months ending March 31, 2002, the business generated revenues and PBIT of around US\$520 million and US\$65 million.
- By 2015 Flowserve was segmenting into pumps 50%, flow control 30% and solutions 20% (primarily seals). Revenues were \$ 4.5 billion. So Flow Control was \$1.35 billion.
- Revenues plummeted along with the price of oil and gas and still are less than the 2015 peak.
- EBITDA has improved from a negative to the present 14%.



# Identifying the Niche Markets

# Present Market Share for the Combined Companies



# Forget Broad Market Share and Focus on the Niches

- While Flowserve is now one of the largest valve companies it does not have even a 10% share in any of the broader markets.
- It has a very large market share in some niches.
- So the goal is not to maximize market share broadly but to be a market leader in all the right niches.
- The right market niches are shaped by unique value propositions.
- Sub-niche value propositions need to be created.
- The assignments for sales people in the combined company should be determined by the sub-niche facts, factors, and forecasts.

# Examples of Niches Where 20% Market Share and 30% EBITDA is Achievable

Industry	Application	Product	geography
Coal	Supercritical steam	Motor operated gate valves	NTPC
NTPC is a large Indian power producer with multiple niches and Velan has installations			
Nuclear	Steam Cycle	Main Isolation Valve	Eastern Europe
There are number of geographic , OEM, and Operator niches in multiple countries			
Renewable Energy	Molten Salt concentrated Solar	Triple Offset Butterfly	World
This tough application is scattered with a few large installations and a few OEMs and Aes making the decisions.			
Midstream	LNG liquefaction	Trunnion ball valve	Louisiana
Big application with multiple niches in U.S.and Middle East and experience by both companies			

# 2023 Outlook from Flowserve

## **Oil & Gas**

- Global capex forecast projects ongoing growth through 2023 • Middle East has largest investment program both upstream and downstream • Decarbonization of existing assets becoming a priority for operators.

## **Chemical**

- Global chemical output expected to rise 3% in 2023 driven by Middle East and Asia investments
- Decarbonization and efficiency investments expected to accelerate • Europe and North American investment slowing

## **Power**

- Energy security and independence driving investment in existing facilities • New build nuclear in India, Europe, and Asia as well as nuclear life extensions accelerating.
- Renewable power investment continues to grow globally General Industries & Water • Distribution channel continues to provide robust activity •

Industrial, waste water, and flood control spending continue to have a positive outlook.

# Flowserve Flow Control Products

## Actuators and Accessories

- Gate Valves
- Control Valves
- Globe Valves
- Ball Valves
- Check Valves
- Lubricated Plug Valves
- Steam Traps
- Butterfly Valves
- Manual Quarter-Turn Valves
- Condensate and Energy Recovery Systems
- Valve Automation Systems
- Pneumatic Positioners
- Valve/Actuator Software
- Electro Pneumatic Positioners
- Nuclear Valves
- Smart Valves
- Quarter-Turn Actuators
- Digital Communications
- Valve Repair Services

- The Flowserve and Velan products are complementary. Velan has been using Flowserve actuators
- A niche can include a package of pumps, valves, digital communications, actuators, and seals
- The niche can be viewed as an annual contract with service and repair also included



# Velan has strength in Energy

Velan France is known for specialized valves and niche technologies. It is connected with a wide variety of customers and is currently working on many prestigious projects including the ITER Fusion Reactor Project, LHC-CERN, and Fermilab, in Chicago. “These particular research cases are decades ahead of what we are seeing in the normal industry,” said Dan Velan. This experience has given the team strong expertise with extreme low temperatures, which they are able to leverage for commercial processes. Velan’s cryogenic triple-offset valve leverages technology that was developed for the ITER project.

# Velan Italy pursuing LNG

- Velan Italy has worked on expanding its large portfolio of ball valves to accommodate applications in LNG. Velan Montreal has adapted its longstanding research programs in fugitive emissions and materials technologies to advance its product offering for LNG and hydrogen. All of these efforts combine for a truly global offering, with plants in India, Korea, Portugal, Italy, and Canada all manufacturing products for cryogenics, LNG, and hydrogen. Velan leverages these global capabilities to spread knowledge and business practices across sites and business units, and to offer customers a very broad product offering.



# Hydrogen Niches

# Cryogenics Relevant for Blue and Green Hydrogen

- Velan's product offering includes gate, globe, check, ball, butterfly, and control valves; a portfolio that is amongst the largest available from any manufacturer. Velan has supplied cryogenic valves for applications in chemical processing, LNG, hydrogen, aerospace, and big science. The company's first Velflex cryogenic butterfly valves were installed in LNG tankers almost 50 years ago.
- In recent years, Velan has taken steps to expand its product lines, for example, in ball valves. "We have sold cryogenic ball valves for over 30 years, but recent R&D efforts at Velan ABV, the subsection of our company that is focused on up and midstream sectors, has improved and greatly expanded our capability. Recent projects have included valves to 24" and ASME 900 pressure class," said Dan Velan.
- Most of Velan's products are for isolation type applications, whether they be manual or actuated. Velan France, however, has a portfolio of control valves for cryogenic applications that are quite unique. Velan's line of bellows seal control valves are designed for temperatures down to 1.2 K (-457.5 F), and have Cvs of 0.001 to 1700, depending on size.

# Hydrogen is a Velan Target

- One of the most intriguing new developments at Velan is our work with hydrogen,” said Fredric Blanquet, sales manager. “A few years ago, one of our customers started developing hydrogen, and we were able to supply valves to their first hydrogen liquefaction plants in the U.S. Although it is still quite a new market, hydrogen is becoming more of a focus in our industry.” Velan has been successful in this market so far, and has been able to adapt its valves and materials to new hydrogen applications.
- Liquid Hydrogen (LH2) is cooled to temperatures of 20K, when liquid Helium used in particle accelerators at CERN and some other applications are cooled at 4K, so Velan’s experience has proven a good fit. Although hydrogen may still be at the beginning phases, Velan is able to leverage existing proven expertise within other markets regarding designs, materials, and fugitive emissions requirements to meet the new requirements. Additionally, on going development projects are being done to further provide quality solutions for hydrogen production, use, storage, and transportation to meet new applications. Velan’s success and reputation for high-quality products provides reassurance for customers in a newly developing energy market.

# Flowserve Pursuing Hydrogen with Multiple Paths

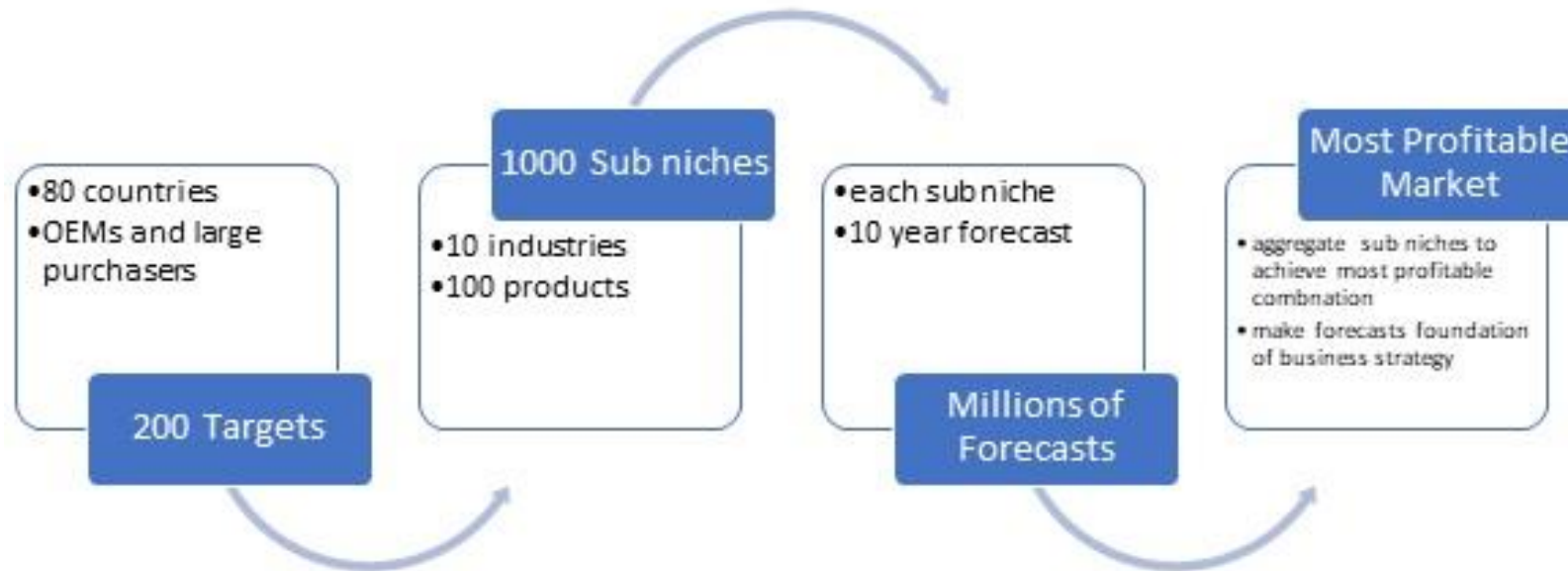
- Flowserve is pursuing both the industrial and mobile markets. On the mobile front Flowserve has signed an agreement with Chart which will use some of the Chart pump developments to furnish the hydrogen fueling pumps.
- Under a MOU, Flowserve will provide its SIHI Liquid Ring Compressor to Hydrogen Optimized for use with a RuggedCell™ system at its High-Power Demonstration Facility in Ontario.

# LNG and Hydrogen in Some of the Same Niches

Velan Italy has worked on expanding its large portfolio of ball valves to accommodate applications in LNG. Velan Montreal has adapted its longstanding research programs in fugitive emissions and materials technologies to advance its product offering for LNG and hydrogen.

All of these efforts combine for a truly global offering, with plants in India, Korea, Portugal, Italy, and Canada all manufacturing products for cryogenics, LNG, and hydrogen.

# Millions of Forecasts Just for Hydrogen





# Hydrogen Applications

Production Methods	Transportation
Electrolyzers	Pipeline
Steam methane reformation	Road
Partial oxidation	Ship
Other	Train
Form	Storage
Gas	Use
Compressed gas	Gas turbines
Liquid	IC Engines
Ammonia	Coal fired boilers
Sources	Waste to Energy
Methane	Refineries
Water	Chemical Plants
Coal	Steel
Waste and biomass	Ships

# Asian Hydrogen Valve Market in 2028

Mclivaine has a new hydrogen valve report with many thousands of forecasts for each country and for major applications. Separate forecasts are provided for each valve type.



# Specific Ball Valve Forecasts for Hydrogen in the Chemical Industry (\$ millions)

Industry	Subject	Continent	World Region	Country	2022	2023	2024	2025	2026	2027	2028
Chemical	Ball	America	NAFTA	United States	0.49	0.59	0.70	0.84	1.01	1.22	1.46
Chemical	Ball	America	NAFTA	Canada	0.03	0.03	0.04	0.05	0.06	0.07	0.09
Chemical	Ball	America	NAFTA	Mexico	0.02	0.02	0.03	0.03	0.04	0.05	0.06
Chemical	Ball	America	South & Central America	Argentina	0.01	0.02	0.02	0.02	0.03	0.03	0.04
Chemical	Ball	America	South & Central America	Brazil	0.15	0.18	0.22	0.26	0.32	0.38	0.46
Chemical	Ball	America	South & Central America	Chile	0.01	0.02	0.02	0.02	0.03	0.03	0.04
Chemical	Ball	America	South & Central America	Colombia	0.01	0.02	0.02	0.02	0.03	0.03	0.04

# Chemical Manufacturers Valve Purchases (\$ millions)

Company	Corporate Location	Industry	World Valve Purchases \$ millions	Company Percent	Company Purchases \$millions
Braskem	Brazil	Chemical	7318	0.95	69
Sinopec	China	Chemical	7318	2.92	214
Air Liquide	France	Chemical	7318	1.15	84
BASF	Germany	Chemical	7318	4.25	311
Linde	Germany	Chemical	7318	1.12	82
Evonik	Germany	Chemical	7318	1.00	73
Covestro	Germany	Chemical	7318	0.89	65
Mitsubishi Chemical	Japan	Chemical	7318	1.62	119
Toray Industries	Japan	Chemical	7318	1.03	76
LyondellBasell	Netherlands	Chemical	7318		

# Hydrogen Market Niches in Chemical Industry by Product and Region for Hydrogen in 2024 (\$ millions/%)

Subject	Industry	Local sales %	Regn mgr. %	Prod %	BASF %	Total \$
Ball Valves - U.S	Chem	68	10	20	2	0.59
Ball Valves - O.Am	Chem	68	10	20	2	0.30
Other valves - U.S	Chem	68	10	20	2	4.0
Other Valves - O.Am	Chem	68	10	20	2	3.7
Pumps - U.S.	Chem	68	10	20	2	8
Pumps – O.Am	chem	68	10	20	2	4

The sales assignments in each sub-niche can be divided according to the responsibilities of individuals. The U.S. market next year for valves in hydrogen chemical applications is \$590k. The product manager could have at least 10% of the responsibility since it is a new application. The market in the Other Americas countries is so small that it is very likely to be part of sub-niches including pumps and compressors.

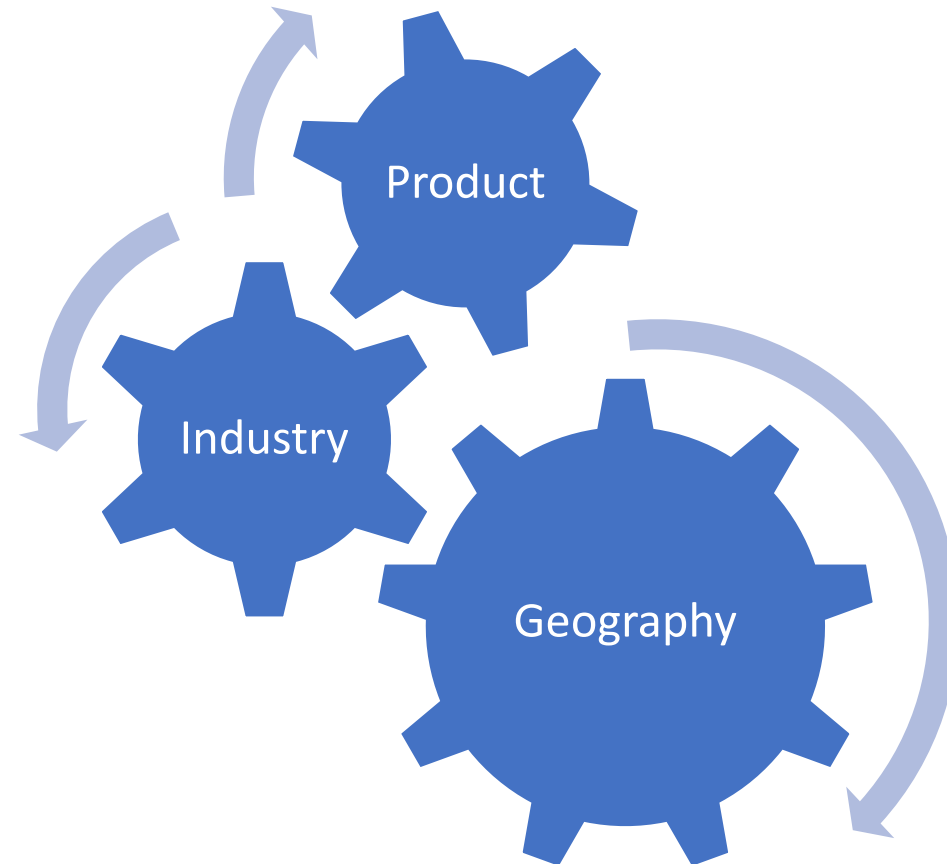
# Each Niche is a Combination of Industries, Products and Geographies

In each geography there is a combination of industries, applications, large users, and products which makes the optimum niche.

Each salesperson can have a unique combination of sub niches in each niche pursuit.

For example, the local salesperson in a small country can have a number of industries and several products in one of his niches.

Each salesman has an assigned percentage of each niche and sub niche He can then collaborate with other salespeople with assignments in the same sub niches.





# Trunnion Ball Valve Niches

# Trunnion Ball Valves Could Result in a Number of Niche Successes

- Trunnion ball valves are likely to provide higher EBITDA than floating ball valves in a number of severe service applications.
- As a result, there are a number of niche successes which can be achieved by the combined companies.
- The forecasts for each niche are based on facts which are then multiplied by factors.
- In the next few slides, the factors for trunnion ball valves in various severe service applications were determined.
- There are a wide range of size requirements.
- Each size is a sub-niche.
- As actual niche markets are pursued these percentage factors will be adjusted by more specific data.



# Mcilvaine Analysis of Trunnion vs Floating Ball Valves

## •Floating Ball vs. Trunnion

- 1. **Ball valves** may be advantageous over other designs because they are smooth operating, quarter-turn full actuation, offer low pressure loss, available in compact designs, can be fabricated from bar stock, forgings, or castings, and have multiple end connections including flange, butt weld, screw, and others. They are widely applied in Oil & Gas, onshore and offshore, refinery, chemical, petrochemical, and general industry.
  - 2. **Floating ball valves** include a ball that is free to move slightly in a lateral direction to seat by line pressure against the downstream valve seat. They are bi-directional valves. Floating ball valves are best for low to medium pressure applications, and in the smaller valve sizes because very large valves or high-pressure applications can exert damaging excessive ball force on valve seats. Also, operating torque increases with line pressure and can require excessively large valve actuators at high pressure or for very large valve sizes. ANSI pressure class decreases with increasing valve size.
  - 3. **Trunnion ball valves** include a ball that is held fixed by the ball trunnions and the shaft stem. The valve seals are "floating" and move against the ball by line pressure to provide a seal. Trunnion ball valves are also bi-directional valves. Trunnion ball valves are preferentially used for large valve sizes or for high pressures because they require lower operating torque and smaller actuators, which saves on cost and size. Trunnion ball valves are available in **top entry** and **side entry** configurations.
  - 3. **Side entry** ball valves are used for oil and gas **pipeline service**, with API 6D certifications.
  - 4. **Top entry** ball valves are used for process applications in **the refinery, chemical, and petrochemical applications**, and provide simplified **removal of the ball** for service or repair without removing the valve body from the line. They are ideal for hydrocarbons. Typical applications include sour gas & oil, high temperature, cryogenic, underground pipeline, high alloy applications.
- Major **drivers** for customer selection of trunnion ball valves over floating ball valves are **large valve size, high system operating pressure, reduced operating torque requirements, and actuator size and cost, and available space.**





# Trunnion Valve Takeaways

- The value proposition for trunnion is different than for floating.
- A superior trunnion ball valve can result in the 30% EBITDA.
- The justification for the higher price varies by industry.
- A wide range of sizes is required.
- There are a number of applications.
- A starting point in the niche forecasting is the calculation of the percentage split by support type and industry for each of a number of valve sizes.



# Summary

# The Aggregation of Niche Markets will be Beneficial in the Flowserve - Velan Merger

- The two companies will combine for just over 1% of the world market.
- With EBITDA of 6% for Velan and 14% for Flowserve the EBITDA is not that of market leaders.
- On the other hand, the companies have impressive products, technology, international reach, and other tools which should allow them to achieve the 30% EBITDA achieved by the leaders.
- The companies are engaged in 1400 niches and at least 14,000 sub niches which can be mixed to create alternative niches.
- In each sub-niche the value proposition needs to be determined.
- Sales assignments should be dictated by the niche value propositions.
- Millions of forecasts provide the foundation of the niche activity.

# Examples of How the Combined Company Moves Forward

- Two examples were provided. One was an application: hydrogen. The other was a product: trunnion ball valves.
- Both companies have been pursuing hydrogen. It should account for a number of niches in the future.
- The chemical industry is a small segment of the hydrogen market. In many countries the valves, pumps, and compressors will be part of the same niche.
- Forecasts for small countries in the Americas shows the granularity.
- Forecasts for trunnion ball valves in a number of sizes for various severe service applications shows the use of factors to make very detailed forecasts.