

Partnering with our Clients to deliver winning Growth Strategies

Introduction to Frost & Sullivan

December 2017

Agenda

1

Frost & Sullivan Introduction

2

Our Global Footprint & Mission : the Growth Cycle

3

Frost & Sullivan Focus on Industries

4

Visionary Sciences

5

Mega Trends and their Impact

6

Digital Transformation & its Impact

7

Frost & Sullivan Services & Solutions: GPS, GC, GIS and GLS

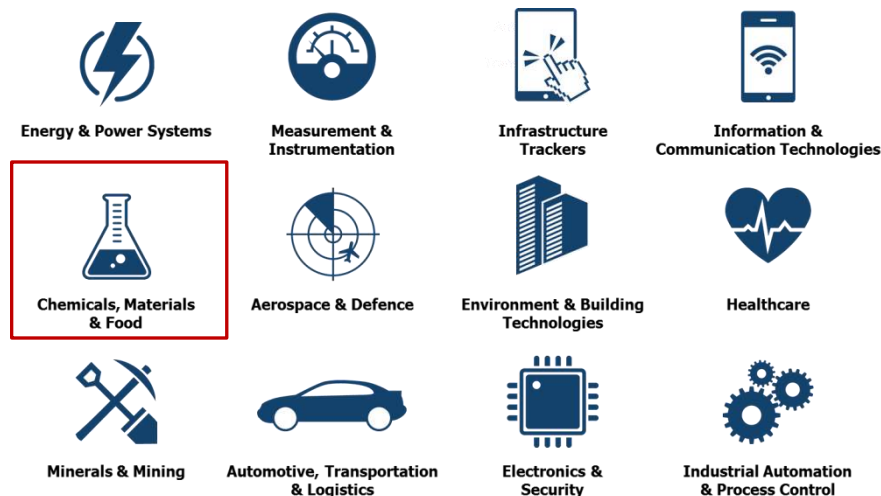
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Voice of The Customer Research

Frost & Sullivan

Clients' trusted Growth Partner since 1961, supporting their Growth, Innovation and Leadership Journey

- **Leading Global Growth Consulting Firm, 48 offices in 35 countries**
 - Local expertise, global context & networks
- **Facilitates expansion across all the stages of the growth cycle through:**
 - Strategic market-competitive business intelligence
 - Strategy advisory services
 - Implementation support & follow-through
- **1500 consultants/analysts, combining superior sector and functional expertise**
- **Pro-active, constant focus on 14 industries globally, unique network of industry contacts**
- **Premier track record to support outcome based, end-to-end Growth Strategies across the world**



Our Footprint

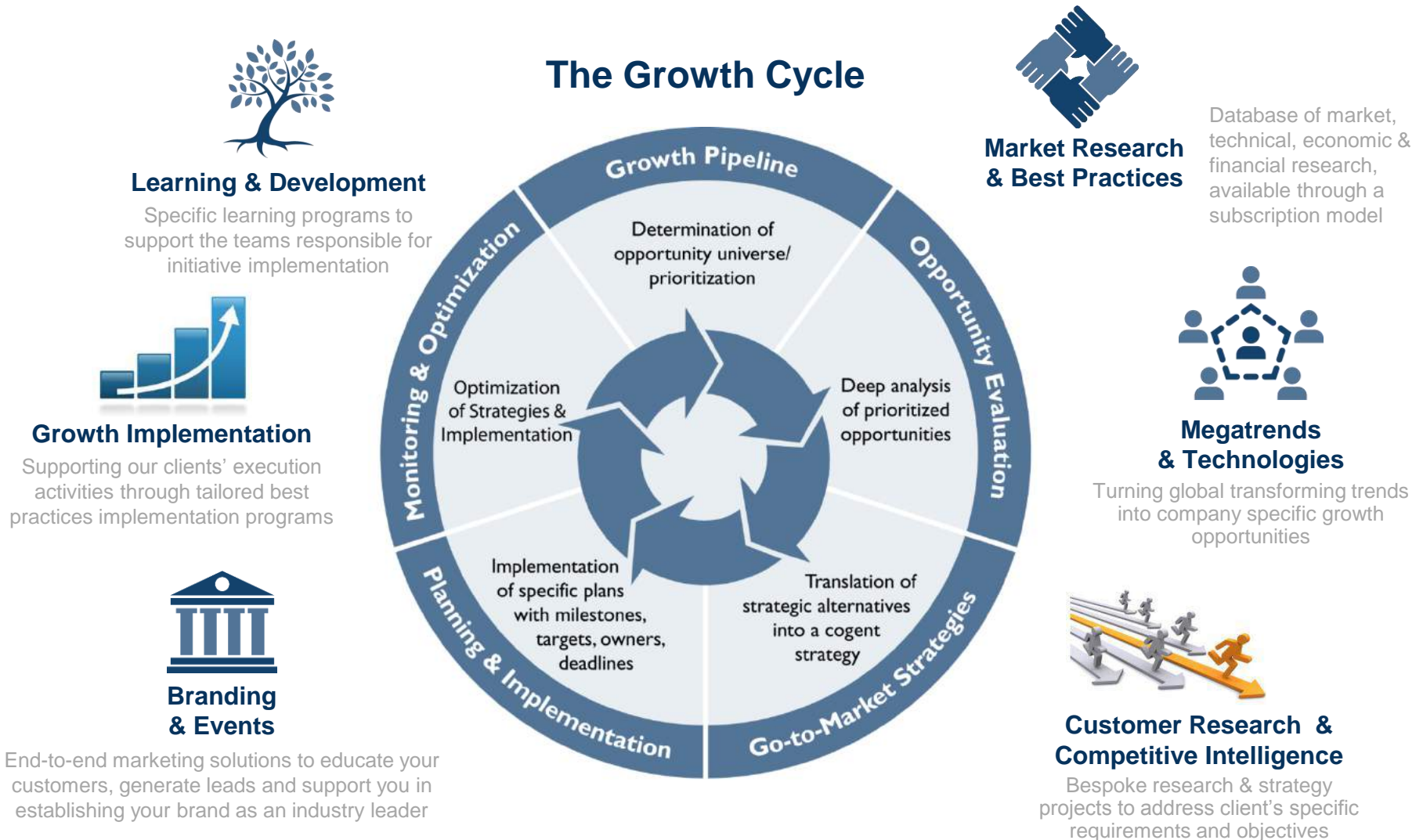
48 Offices in 35 Countries; Global reach, local expertise

- 55 years+ of experience
- 48 offices worldwide ⇒ global coverage & local expertise
- Sector-based organisation
- 1,500+ employees across the globe, of which >800 consultants & analysts



Our Mission

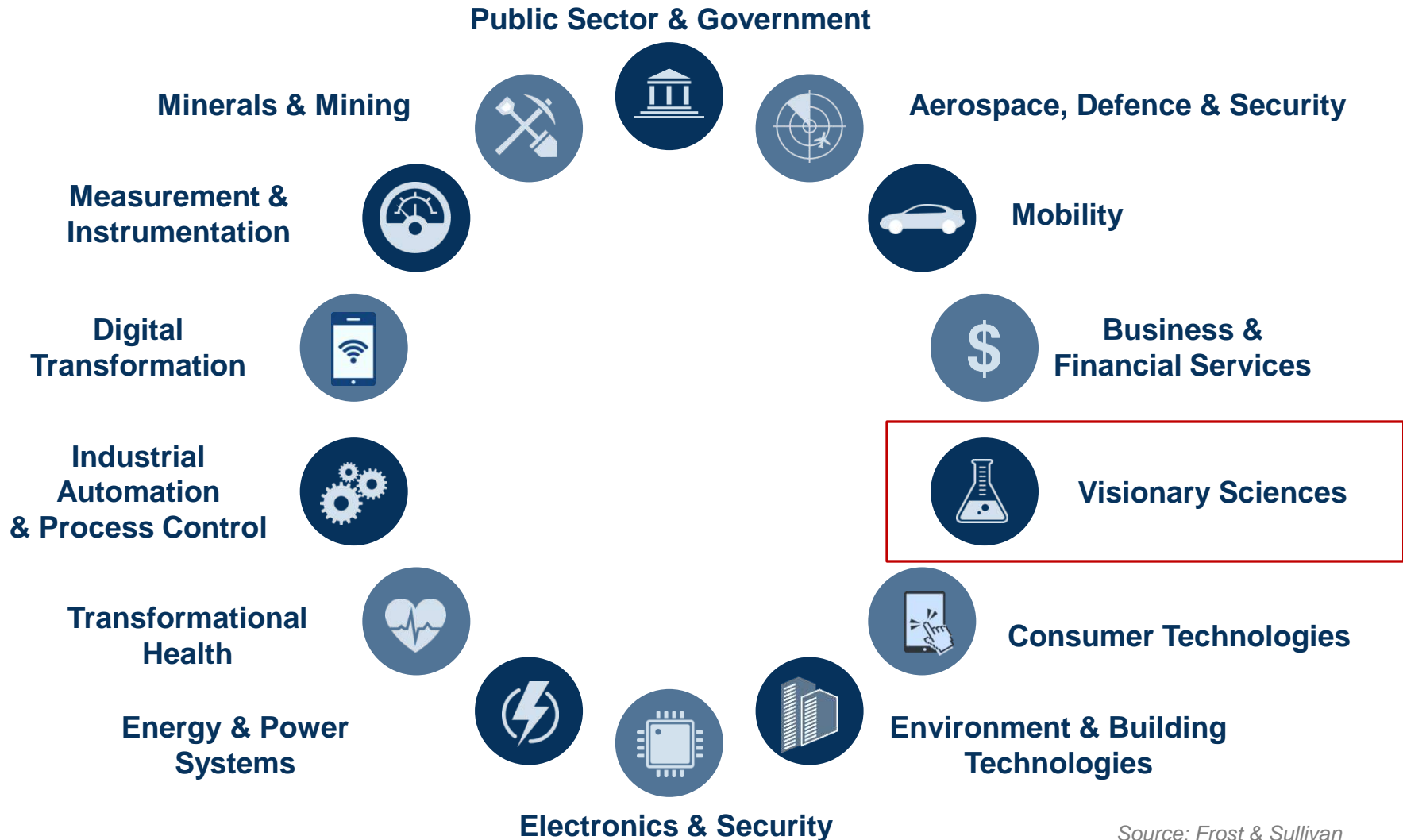
Support our clients to build and implement winning growth strategies, leveraging a unique blend of skills & assets



Source: Frost & Sullivan

Dedicated teams focused on 14 industries, at global & regional level

Unique capacity to identify & capture innovation opportunities



Source: Frost & Sullivan

Our industry focus covers a large number of chemicals, materials, markets & technologies

Plastics and Polymers	Coatings, Adhesives and Sealants	Packaging	Other Performance Materials	Specialty Chemicals	Food and Beverage Ingredients
 <ul style="list-style-type: none"> • Compounding • Thermoplastics • Masterbatches • AR Coatings • Reinforced Plastics • Engineering Plastics • Automotive Plastics • Composites • Plastic Additives 	 <ul style="list-style-type: none"> • Automotive • Architectural • Industrial • Powder Coatings • Additives • Elastomeric Coatings • Inkjet Inks • Laserjet • Pigments & Dyes • Pressure Sensitive Adhesives • Hotmelt Adhesives • Asian Paint Database 	 <ul style="list-style-type: none"> • Rigid Packaging • Flexible Packaging • Beverage Packaging • Pharma Packaging • Food Packaging • Shrink and Stretch Wrap Packaging • Aseptic Packaging • Retort Packaging • Caps & Closures • Packaging Additives 	 <ul style="list-style-type: none"> • Building and Construction Materials • Interiors-Deco • Advanced Materials for High Performance Applications • Laminates • Thermal & Sound Insulation • Exteriors-Sliding 	 <ul style="list-style-type: none"> • Fuel and Fuel Additives • Lubricants • Automotive Lubricants • Synthetic Lubricants • Water Management Chemicals • Oleochemicals • Biofuels • Pulp and Paper Chemicals • Textile Chemicals • Oilfield Chemicals 	 <ul style="list-style-type: none"> • Emulsifiers • Enzymes • Soy Ingredients • Starch-derived Ingredients • Flavors • Functional Foods • Antioxidants • Probiotics • Nutraceuticals • Products and Supplements • Animal Foods

Source: Frost & Sullivan

Dynamic and Attractive Growth Sectors of the Chemicals Industry

A Perspective from the VS Team and its focus on eight high growth potential areas



**Lightweighting &
EVs**



Smart Wearables



IoT / IloT



Smart Packaging



Bio-based Materials



**Renewables &
Energy Efficiency**



**Additive
Manufacturing
[3D Printing]**



Health & Wellness

Source: Frost & Sullivan

Compelling expertise, tools and processes for each stage of the Growth Cycle, tailored to each client's unique situation & needs



**Growth
Accelerating
Solutions**



**Growth
Partnership
Services**



**Growth Team
Membership**



**Growth Innovation
Leadership
Community**



**GIL
University**

Source: Frost & Sullivan

Top 13 Mega Trends we track on a continuous basis

A unique source of insights and best practice to fuel disruptive growth strategies

Mega Trends Universe*

CONNECTIVITY & CONVERGENCE

Big data
Augmented reality/
Virtual world
Connected living
Space jam
3D/4D printing

COGNITIVE ERA

Machine learning
Quantum computing
Blockchain

BRICKS & CLICKS

Digital kiosks
Interactive stores
New retail
logistics models
Integrated omni-
channel marketing

SMART IS THE NEW GREEN

Smart technologies
Smart products
Smart cities

SOCIAL TRENDS

Gen Y
Women empowerment
Heterogeneous
society
Middle class

NEW BUSINESS MODELS

Co-creation
Circular economy
Personalisation &
customisation
Value for money
Sharing

HEALTH WELLNESS & WELL-BEING

Mind, body, soul
E-health, m-health
Gene therapy
Non invasive surgery

URBANISATION: CITY AS A CUSTOMER

Mega corridors
Mega cities
Mega regions
Mega slums

FUTURE OF INFRASTRUCTURE

Transport infrastructure
Deep sea mining
Future of water
infrastructure
High-speed rail

FUTURE OF ENERGY

Availability of
resources
Energy harvesting
Smart grids
Renewable mix
Shale gas

FUTURE OF MOBILITY

Micro-mobility
Autonomous cars
Telematics based
insurance
Car sharing
Connected cars
Integrated mobility

INNOVATING TO ZERO

Zero accidents
Carbon neutral cities
Zero target by cities

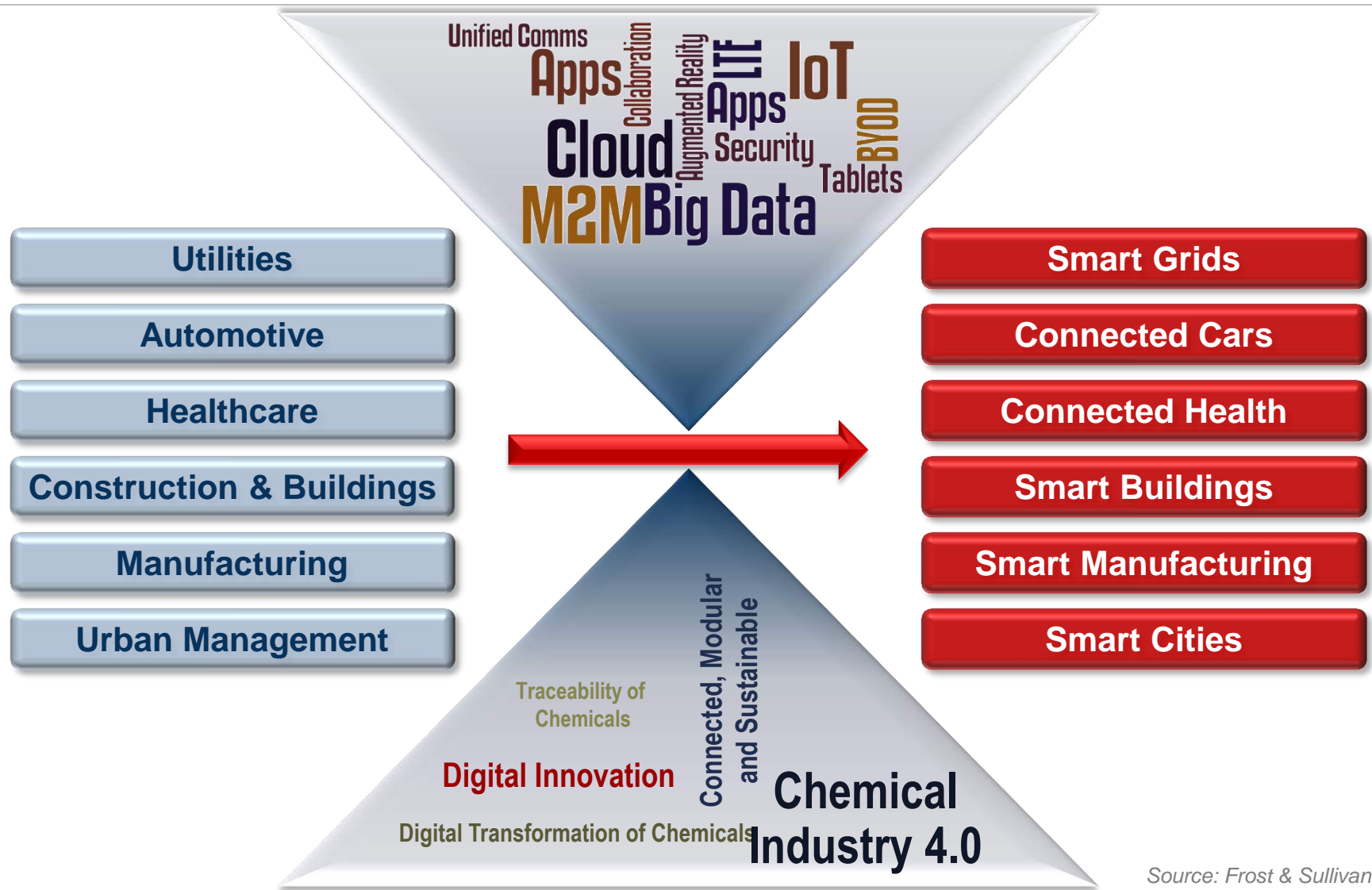
ECONOMIC TRENDS

Future of resources
Trade and policy
Next game changers

*sub trends
examples
only and not
exhaustive

Source: Frost & Sullivan

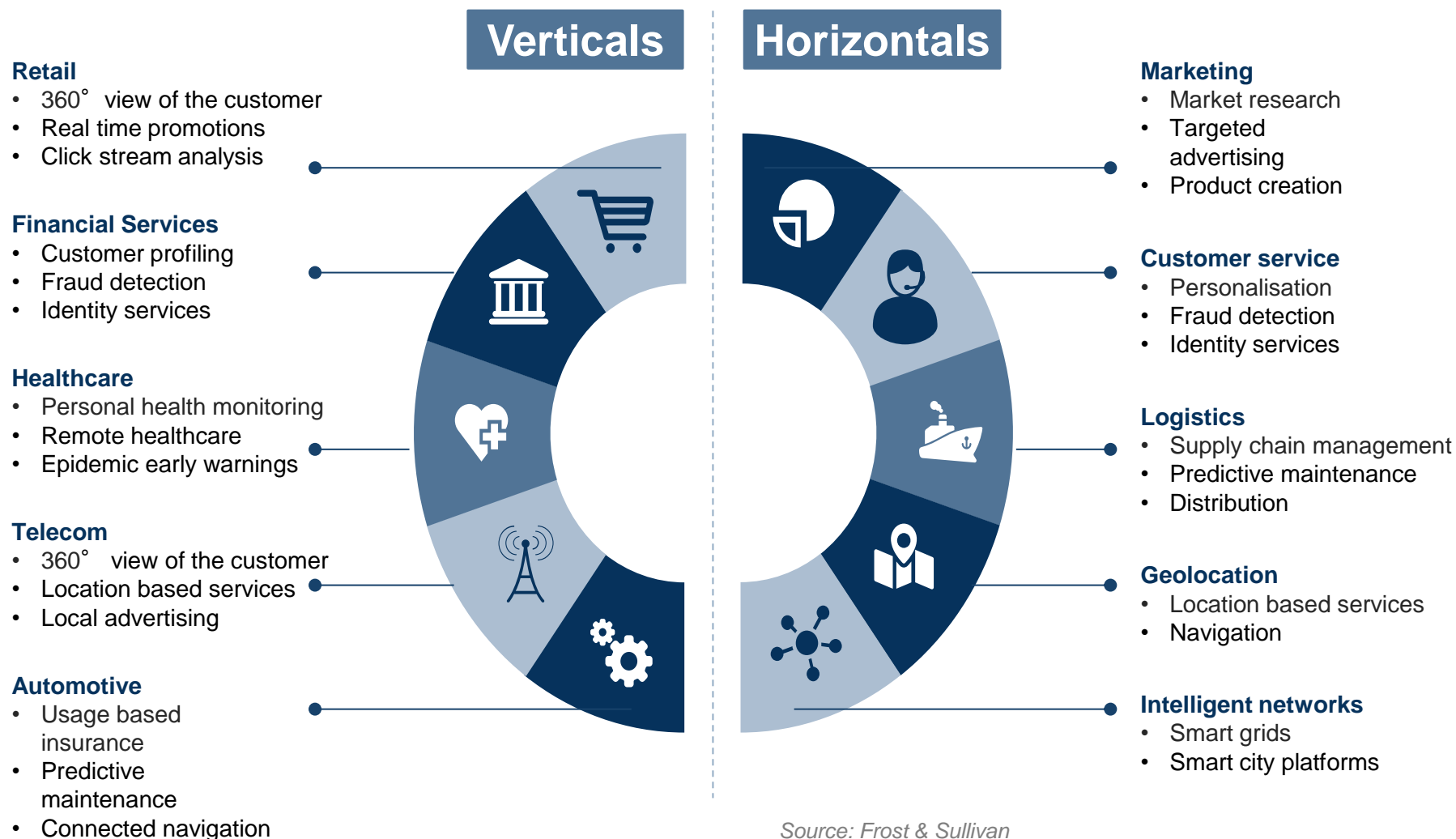
Leveraging our understanding of disruptive technologies and industries, to drive the digital transformation journey with our clients



Source: Frost & Sullivan

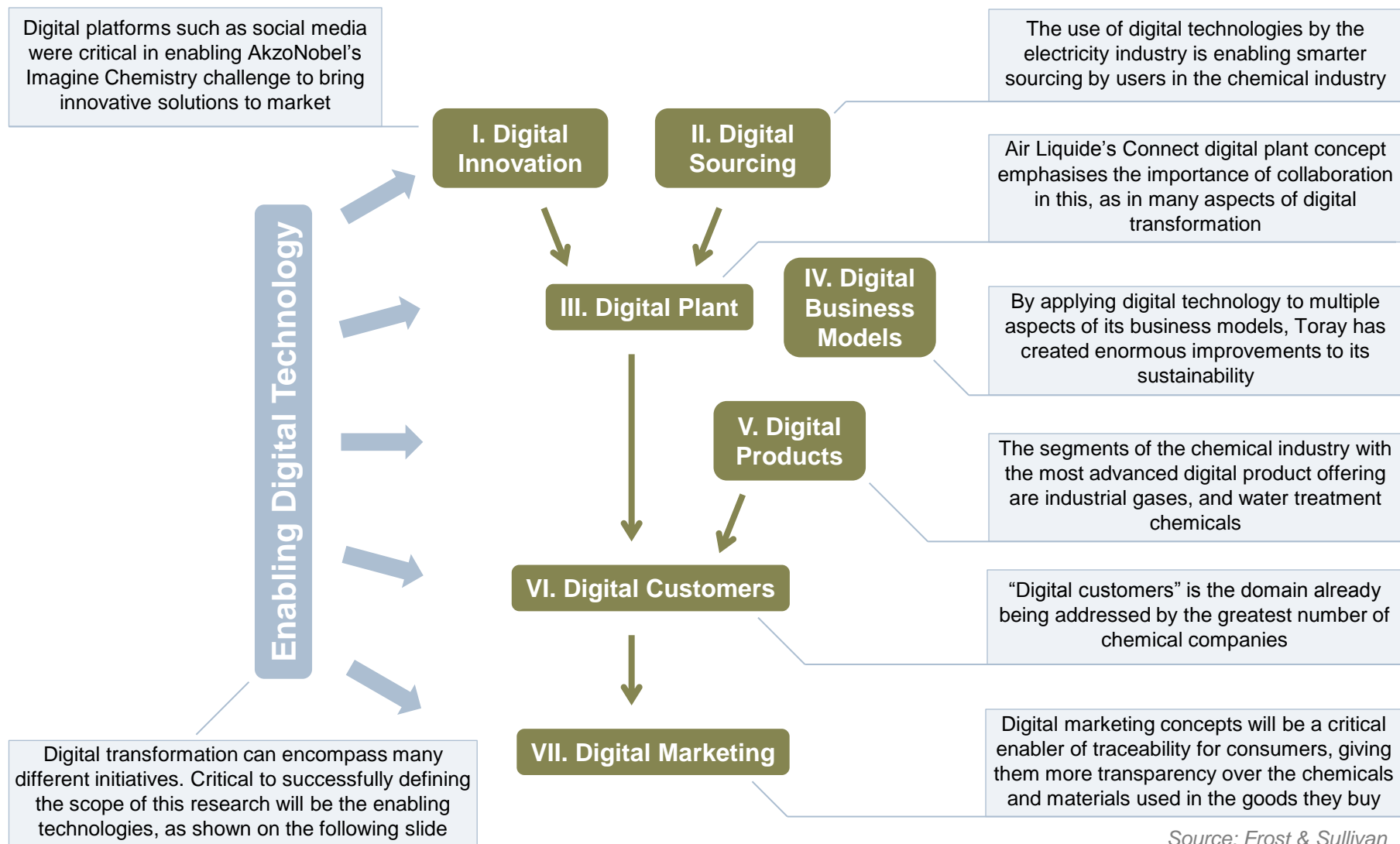
Digital Transformation Use Cases Across Industries

Cross sector view of use cases and emerging horizontals of services



Digital Transformation will affect many aspects (domains) of the Chemicals Industry

The detailed exploration of each of these 7 domains is necessary for understanding DT



Source: Frost & Sullivan

Frost & Sullivan defines Digital Transformation in the Chemicals Industry through two clusters

These definitions will set the scope of coverage of our research

Universal enabling technologies

Big data analytics	Chemical companies taking a holistic view of the opportunities from big data analytics includes Eastman and Evonik
Cloud infrastructure	A wide range of digital initiatives in the chemicals industry are enabled by cloud infrastructure
Artificial Intelligence	Uses range from predictive demand forecasting, to analysing unwanted chemistry in plants *
Internet of Things	Sumitomo Chemical has developed a strong strategic plan to leverage IoT technology across multiple business domains
Augmented Reality	An integral part of a digital plant; it is also a critical component of many digital customers and can improve safety
Social media communication platforms	Digital marketing and much more besides: crowd-sourced production innovation; internal information-sharing etc.
Autonomous robotics	The biggest overall trend in disruptive technologies; robots have an important role in the chemicals industry too

1

Digital concepts specific to each of the 7 individual domains

Digital Innovation	Supercomputer virtual experiments
Digital Sourcing	Leveraging digital grid technology for access to more sustainable electricity
Digital Business Models	Digital procurement and e-commerce
Digital Plant	Many terms are used to describe the digitalization of chemical plants, including "Industry 4.0"
Digital Product	The digital product itself as a concept (data monetisation), to complement physical chemicals
Digital Customers	Chemical companies must have solutions to meet the needs of digital transformations in their end-markets
Digital Marketing	A well established phenomenon, but one that is allowing the chemical industry to better reach and inform its end-users

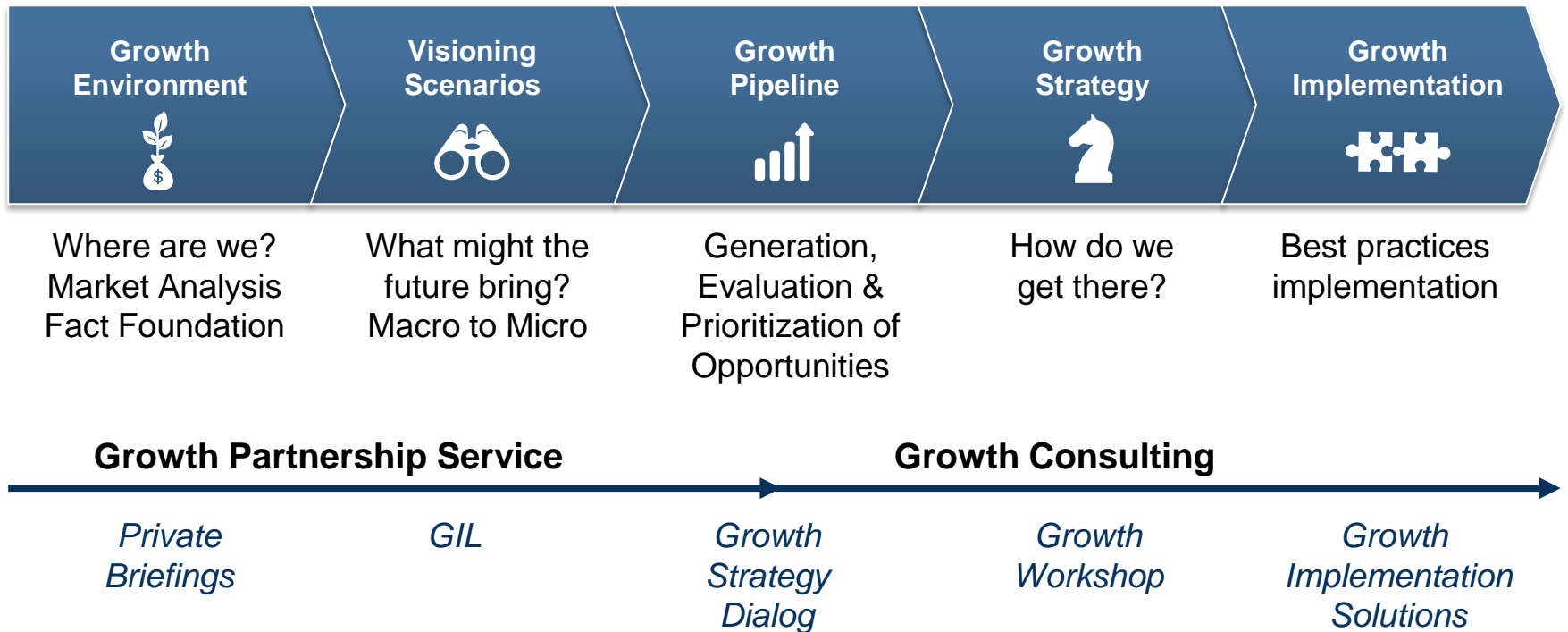
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Source: Frost & Sullivan

Client Engagement Model

Focus on renewable relationships, to deliver superior client value & monetization opportunities

Increasing levels of customization leading to higher revenues and “stickiness” with clients

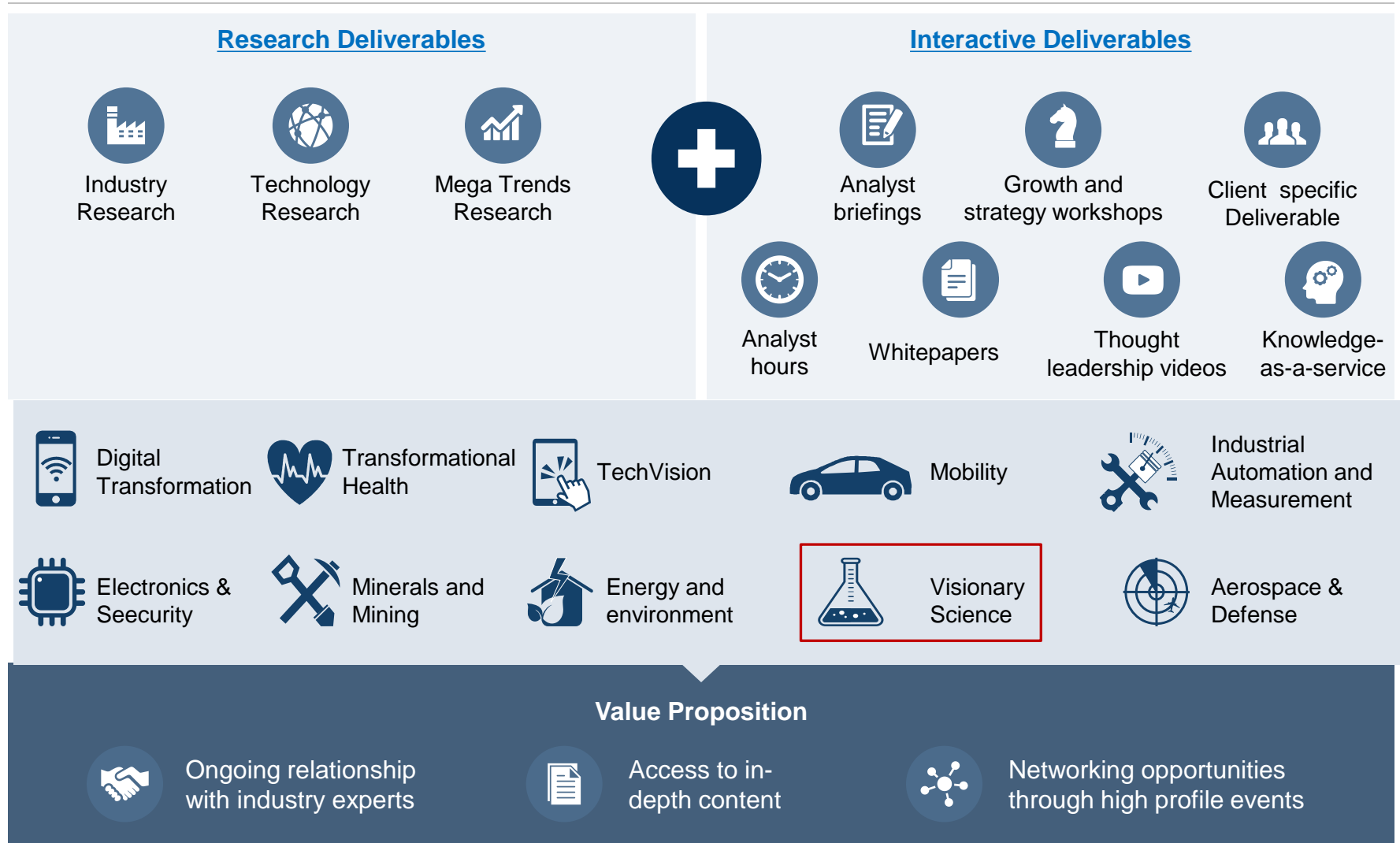


Driving Transformational Growth for our Clients
Though a structured process and global delivery platform

Source: Frost & Sullivan

Our Growth Partnership Services








A unique combination of high quality research & easy access to industry thought leaders



Source: Frost & Sullivan

Research deliverables are carefully designed








They cater to various business needs and strike balance between long term trends and short term insights

Deliverable		Description of Deliverable	Benefit to the subscriber
	Industry Research (Planned)	Proprietary 360research of growth opportunities includes market dynamics , forecast, competitor analysis , future outlook.	Provides strategic recommendations to address relevant growth opportunities, and accelerate growth.
	Mega Trends (Planned)	Deep-dive qualitative research into the long term strategic impact of key issues/trends on a given sector/industry.	Analyze effect on entire eco-system and uncovers opportunities in new business models, re-alignment of value chain etc
	Voice of Customer (Planned)	Customer-focused research capturing comprehensive on-ground insights	Customer preferences, priorities & expectations and actionable insights on your industry
	Tech vision (Planned)	Deep-dive global intelligence on R&D breakthroughs, disruptive technologies, innovative applications and transformative companies spread across nine technology clusters.	Keep tab on disruptive technologies in start-ups to Fortune 1000, labs and research institutes
	Growth Opportunities (Planned)	Powerful top-level research focused on growth opportunities emerging from disruption/ innovation	Create a growth pipeline based on strong market knowledge
	Growth Insights (Ad-hoc)	Deep-dive qualitative research into the strategic impact of key issues/trends on a given sector/industry.	Analyzes effect on market direction and stakeholders, based on recent developments
	Frost Perspective (Ad-hoc)	Concise, timely and focused insights into emerging events with strategic relevance/implications for the future direction	swift and actionable analysis that drives clarity in strategic decision making.

Source: Frost & Sullivan

Interactive deliverables

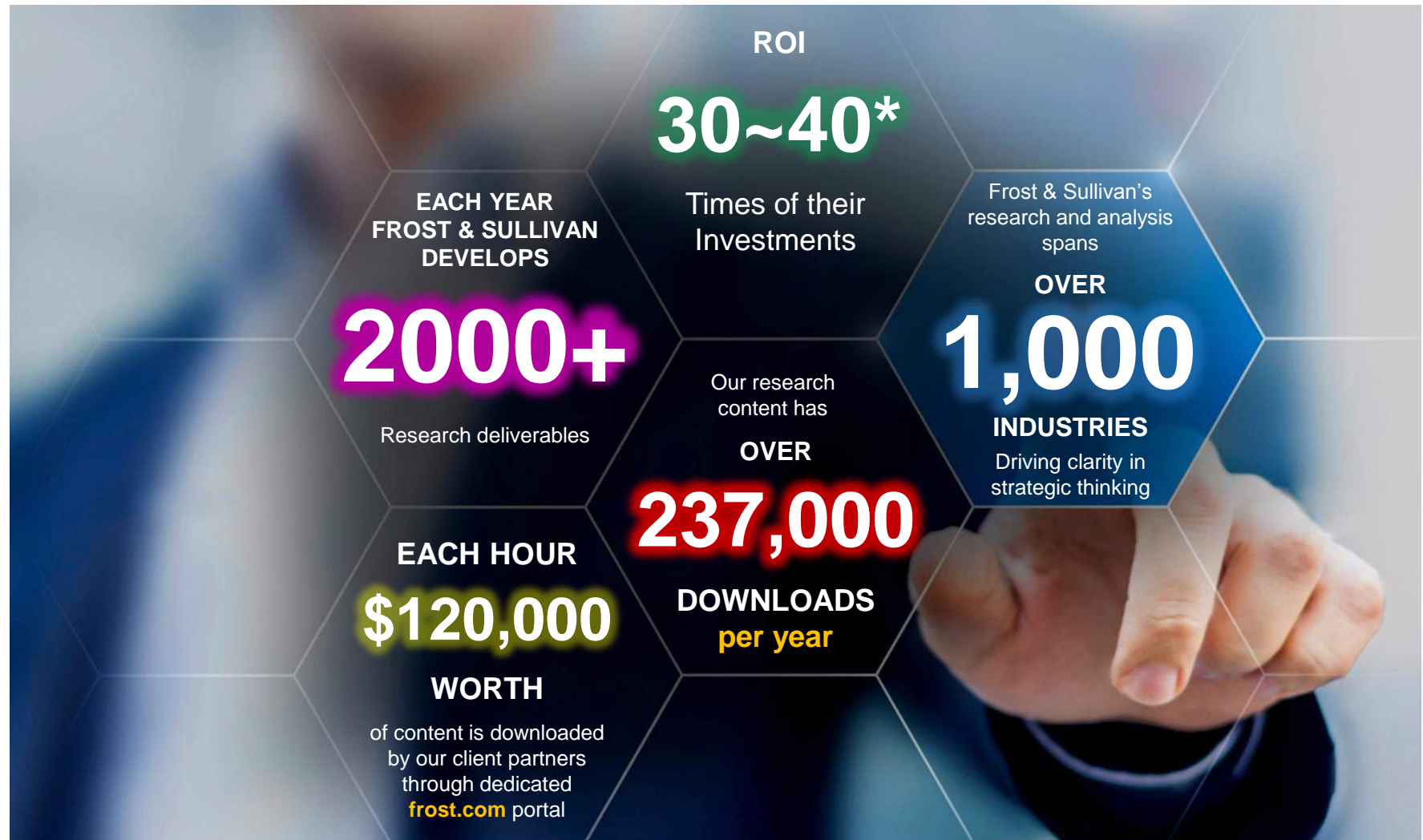
They are designed to meet specific client needs and provide immense value from the subscription

Deliverable		Description of Deliverable	Benefit to the subscriber
	Analyst Hours	Interaction with industry expert/ author of the report for clarifications / queries	Quick insights on key issues, enrichment by analyst's perspectives
	Analyst Briefing	Online briefings and Webinars by senior analysts	Update you on latest research highlight the top trends and their impact on industry
	Growth Workshops	Collaborative sessions between client teams/ analyst teams	Understand, analyze and help you prioritize your growth options
	Whitepapers	Marketing document or video to showcase your innovation / solution	Position your innovation, breakthru's to your prospective clients, partners and stakeholders
	Thought leadership videos	Video showcasing F&S analysts and industry leaders explaining emerging trends	To communicate the latest trends within your company or channel partners without distortions
	Knowledge as a service	Dedicated analysts providing short turn around, research / analysis deliverables on demand	To create quick insights, management meeting summary presentations
	Client specific Deliverable (CSD)	Customized but non-exclusive research services that provide specific information	Get tailor made deliverables at marginal extra price as part of annual service

Source: Frost & Sullivan

Invest in the Future With Frost & Sullivan Research

Average Return on Investment 30~40 times achieved by GPS subscribers



* based on a sample of leading customers

Our Growth Consulting Approach

Our unique approach to growth consulting means we deliver projects with high impact for your organisation

Traditional approach



“Boiling the ocean”

- Lack of focus leads to everything needing to be analysed



Process driven

- Tend to have a standard process driven approach which is not adaptive to corporate clients needs



Strategy driven

- Best work on defining strategies but lack of understanding of technologies behind the scene



Lack of ownership

- Lack of engagement from key stakeholders on a day-to-day basis leads to a consultant-led model



Generalists

- Diverse teams which learn as they go and not industry experts

Frost & Sullivan approach



Hypothesis-led analysis

- We are able to use experience and logic to inform likely areas where benefits can be added



Value driven

- Clients expectations at the center of a flexible process which evolves along project key findings



Technology driven

- A dedicated team conduct a thorough review of technologies to build a bottom-up strategy



Steering group meetings drive the process

- We ensure stakeholders are appraised of key messages beforehand



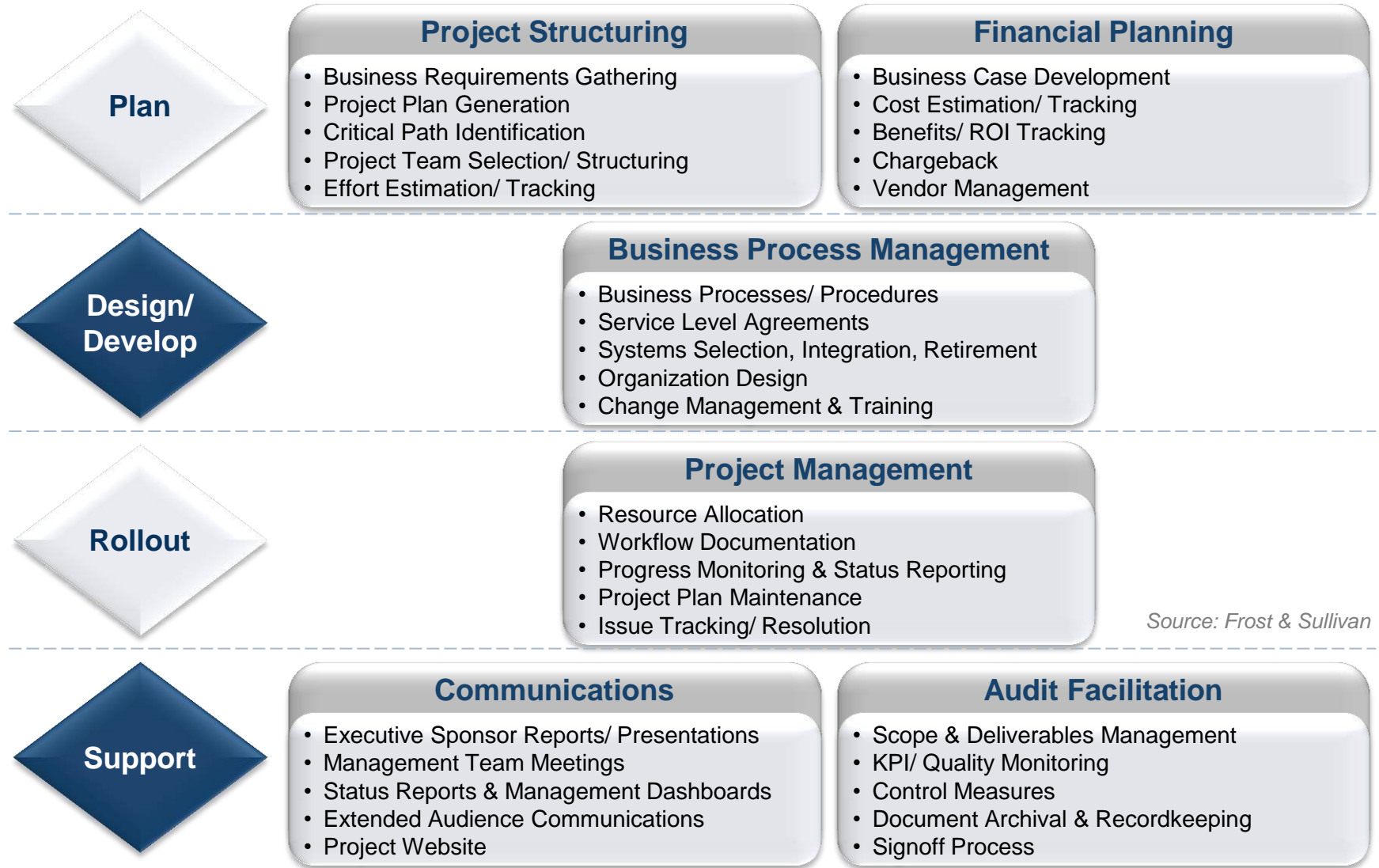
Industry experts, not generalists

- Our analysts and consultants have industry experience and are dedicated to their industry

Source: Frost & Sullivan

The Growth Implementation Solutions (GIS) Team

Our Growth Implementation Solutions team can support in the full implementation of project findings



Source: Frost & Sullivan

M&A Specialist Advisory Team

We have a specialist advisory team working in financial services with capabilities at all stages of the M&A process

M&A Strategy Support

- Help you align M&A activity as part of growth strategy
- Work with you to decide where to invest and where to divest
- Prioritize growth opportunities
- Develop tailored M&A programmes based on previous experience

Acquisition Screening

- Develop investment thesis
- Enhance deal flow by screening targets based on set criteria
- Develop a road map to approach targets

Commercial Due Diligence

- Full CDD: markets, operations, modelling & valuation
- Strategy & business plan review
- Insights through world-class diligence to prove or disprove the deal thesis
- Realistically assess synergies

Merger Integration

- Review business case
- Develop road map for integration
- Short list of critical actions
- Rigorous follow-through on long list of integration tasks
- Management support to ensure the to-do list gets completed

Divestitures

- Assess divestiture options & timing
- Prepare the businesses for sale (includes building the exit story)
- Transaction support in the sale process
- Buyer evaluation
- Vendor due diligence



Typically “financier” activity



Typically “corporate” activity

Source: Frost & Sullivan

The Customer Research (CR) Team

We also support clients with hybrid projects combining industry and in-house consumer research expertise delivering “voice of the customer” projects

All our customer research projects are conducted using a hybrid approach combining our industry expertise with our in-house customer research expertise



Source: Frost & Sullivan

Illustrative examples of our recent experience's shows we have supported clients with a wide range of challenges


Experience	Company Type	Results
Broad scope bio-based plastics technology roadmapping and end market opportunity evaluation, incorporating consumer research	Top 10 Global Chemicals Company	Supported the client in its strategic planning and identified partners to enable it to further develop its business
Comprehensive growth and key trends tracker for all client's end markets, over 70 different markets in total, including live model enabling user to adjust forecast based on macro economic indicators	Top 20 Global Chemicals Company	Comprehensive and consistent metrics provided to Corporate Strategy department who then rolled it out to all business units and regions to facilitate business planning activities
European Talent Development Programme for Middle Managers	Top 50 Global Chemicals Company	Identification of top talent within the company and development of them to aid succession planning and ensure successful transition to next generation of Top Management
Ongoing strategic support including global strategic roadmap for one BU and review of business operation and development of growth strategy for three North America business units	Top 60 Global Chemicals Company	Along with several strategic recommendations, we gave the client a set of early warning indicators to track, which would allow them to understand as early as possible when key threats to the market might emerge
Attractiveness ranking of five potential investment areas related to Chemicals, Materials and Food and identification of potential acquisition targets	Top family-owned German Technology Company	Enabled company to focus on just two key areas and identified small pool of potential targets from a long list of over 100, 2 of which the company decided to pursue

Source: Frost & Sullivan

Illustrative list of our Clients – some examples



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