

# Electric Vehicle Charging Infrastructure, India, 2024–2030

Charging Infrastructure in India is Experiencing Transformational Growth Due to Upgrades to Fast Charging Points and Sophisticated Battery Technology

Global Automotive & Transportation Research Team at Frost & Sullivan

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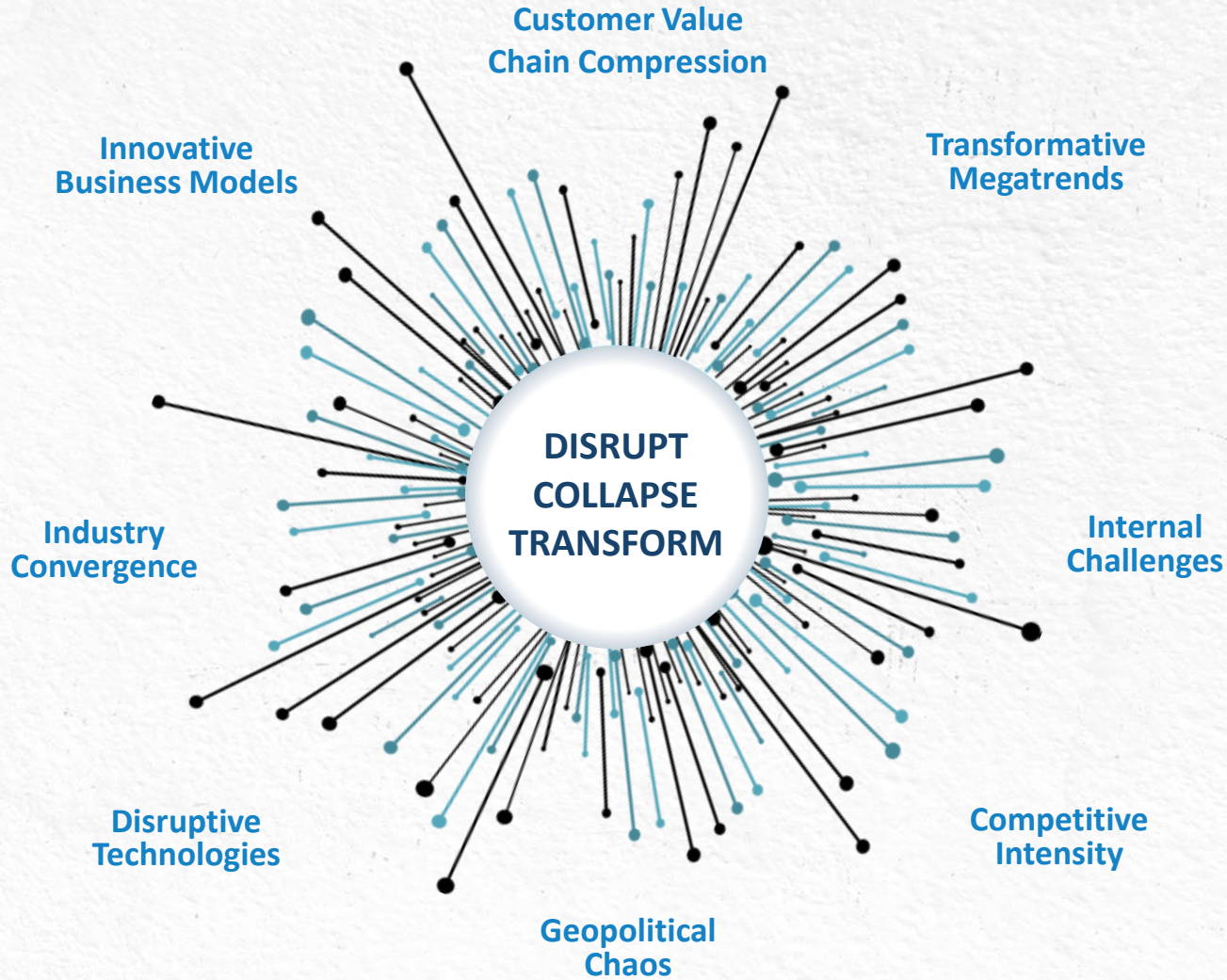


# Transformation in the Indian Electric Vehicle Charging Infrastructure Market

Is your company prepared to Survive and Thrive through the coming Transformation?

# Why is it Increasingly Difficult to Grow?

## The Strategic Imperative 8™: Factors Creating Pressure on Growth





# The Strategic Imperative 8™

## Innovative Business Models

A new revenue model that defines how a company creates and capitalizes economic value, typically impacting its value proposition, product offering, operational strategies, and brand positioning

## Customer Value Chain Compression

Customer value chain compression as a result of advanced technologies, internet platforms, and other direct-to-consumer models that enables reduction in friction and the number of steps in customer journeys

## Transformative Megatrends

Global forces that define the future world with their far-reaching impact on business, societies, economies, cultures, and personal lives

## Internal Challenges

The internal organizational behaviors that prevent a company from making required changes

## Competitive Intensity

A new wave of competition from start-ups and digital business models that challenge the standing conventions of the past, compelling established industries to re-think their competitive stance

## Geopolitical Chaos

Chaos and disorder arising from political discord, natural calamities, pandemics, and social unrest that impact global trade, collaboration, and business security

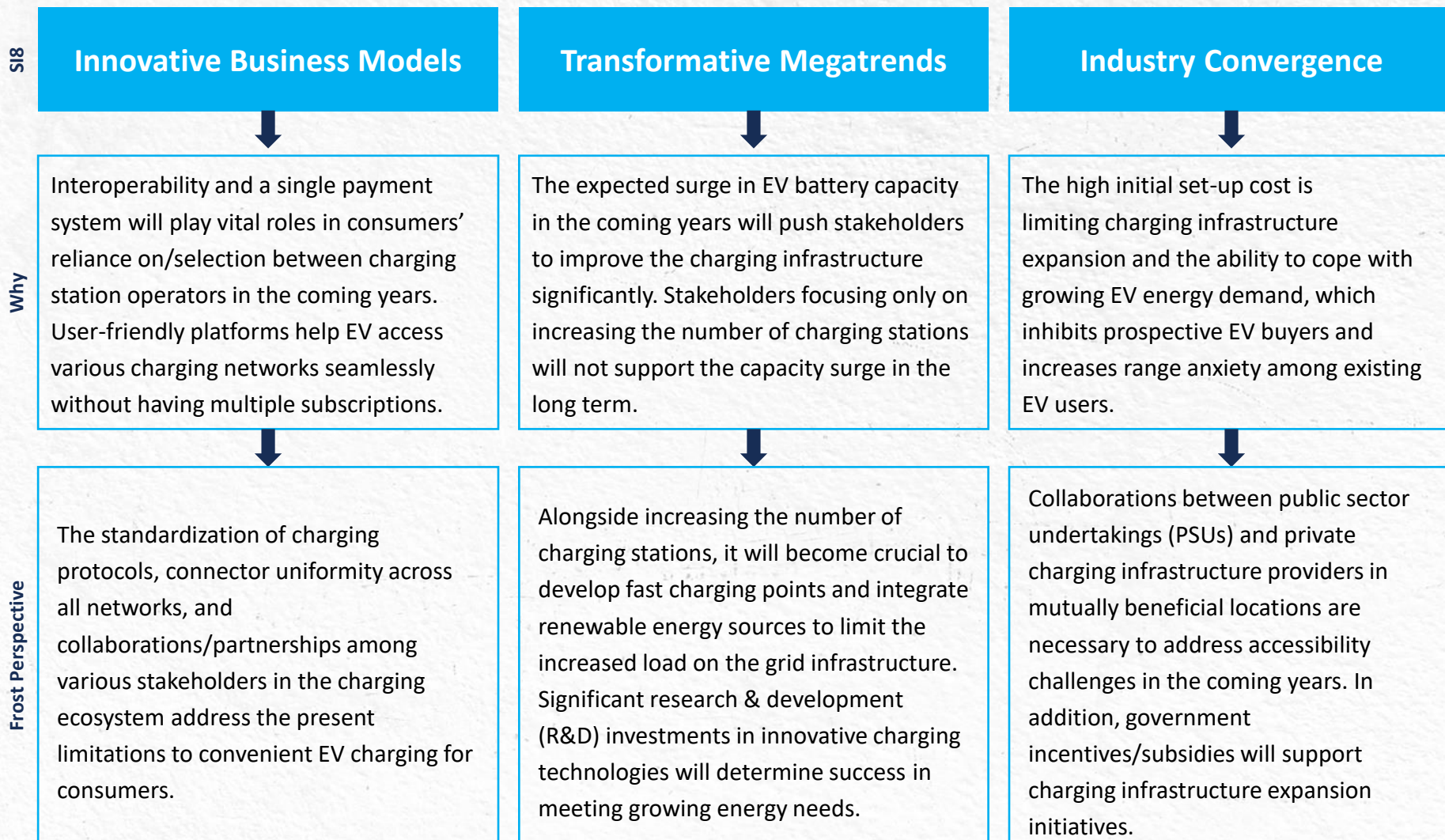
## Disruptive Technologies

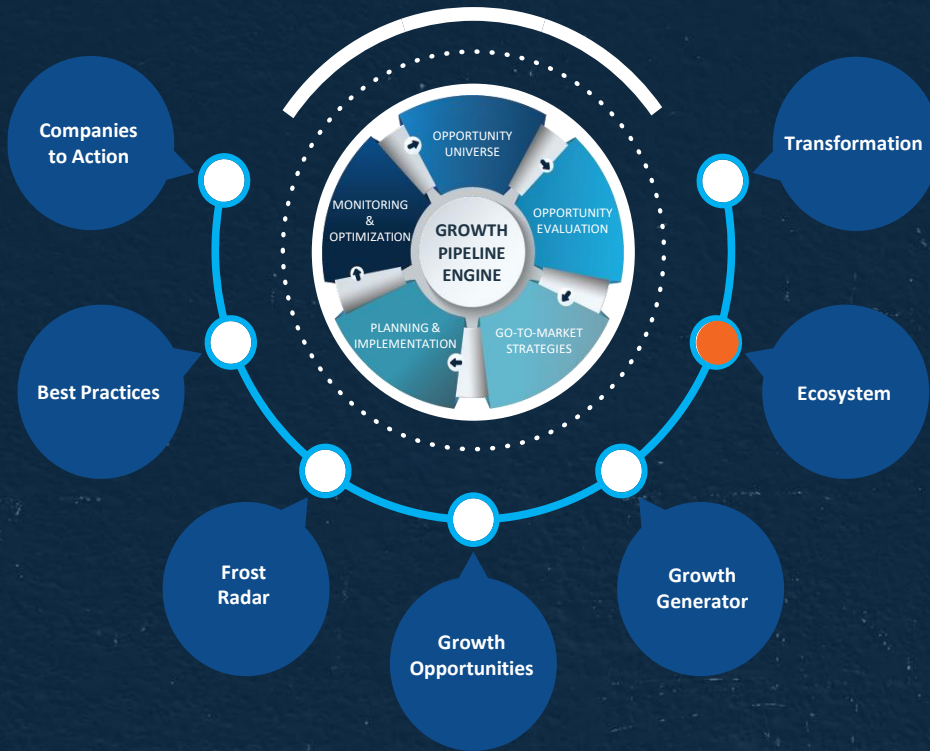
New, disruptive technologies that are displacing the old, and significantly altering the way consumers, industries, or businesses operate

## Industry Convergence

Collaboration between previously disparate industries to deliver on whitespace cross-industry growth opportunities

# The Impact of the Top 3 Strategic Imperatives on the Indian Electric Vehicle (EV) Charging Infrastructure Market





## Ecosystem

How is the complexity of Ecosystem impacting your Future Growth Potential?

# Scope of Analysis



Geographic Coverage  
**India**



Study Period  
**2020–2030**

Base Year  
**2023**

Forecast Period  
**2024–2030**



The objective of the study is to provide the status of EV charging infrastructure installations and future demand by regions.

## This report covers the following:

- Industry trends impacting the Indian EV charging infrastructure market
- Overview of charging infrastructure interoperability and business models
- Status and outlook of EV charging infrastructure
- Operating charging infrastructure analysis (charging stations/points by regions)
- Competitive environment (overview of main stakeholders)

## Note:

- Charging infrastructure information/data in the study are as of the 1st quarter of 2024.
- Data on charging stations/points include 2-wheeler (2W) and public charging infrastructure in India that is available for any passenger EV to recharge its batteries.
- The study's forecast for charging stations/points includes the number of charging stations/points available for consumer use in that particular year.
- Charging points refer to the number of vehicles that can simultaneously charge at a charging station using different plug-in points.



## Questions This Study Will Answer



01

What are the trends driving the penetration of EV charging infrastructure in the Indian market?

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02

What initiatives have major stakeholders adopted to move toward charging system interoperability?

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03

What is the status and outlook of the Indian EV charging infrastructure market?

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04

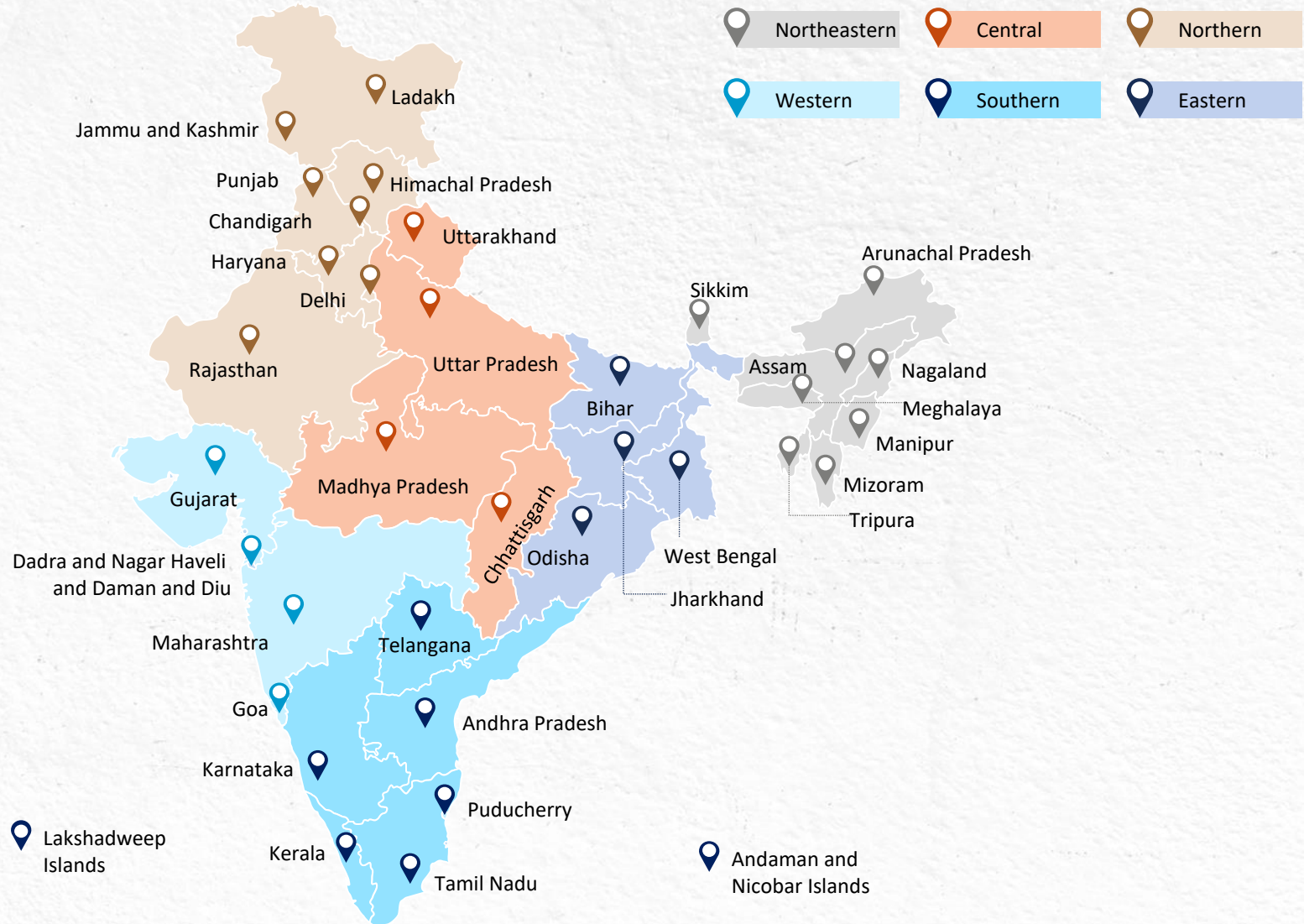
Which region in India lead the installation of charging infrastructure?

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05

Who are the leading charging station operators in the Indian charging infrastructure market?

# Regional Segmentation



# Definitions

## Charging Station

The charging station is the charging infrastructure that supplies electrical power to recharge EVs, such as 4-wheelers (4Ws), 2Ws, and buses.

## Charging Point

The charging infrastructure has multiple charging points to serve/charge more than 1 EV at a time.

## Slow/Moderate Charging

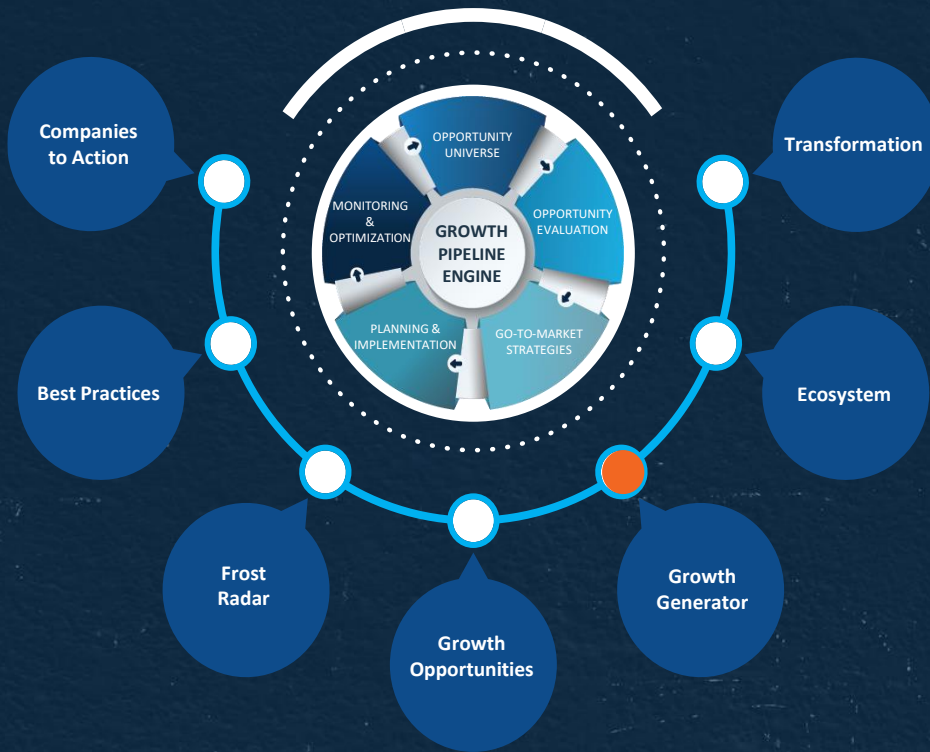
The slow/moderate chargers that use alternating current to charge EV batteries have Level 1 and 2 EV charging speeds.

## Fast Charging

Level 3/direct current chargers are fast chargers that can charge EVs in minutes (within an hour).

## Megawatt-hour (MWh)

A single MWh equals 1,000 kilowatts of generated electricity per hour and measures energy consumption.



# Growth Generator

What are your organization's Growth Aspirations?



# Growth Drivers

## EV Charging Infrastructure: Growth Drivers, India, 2024–2030

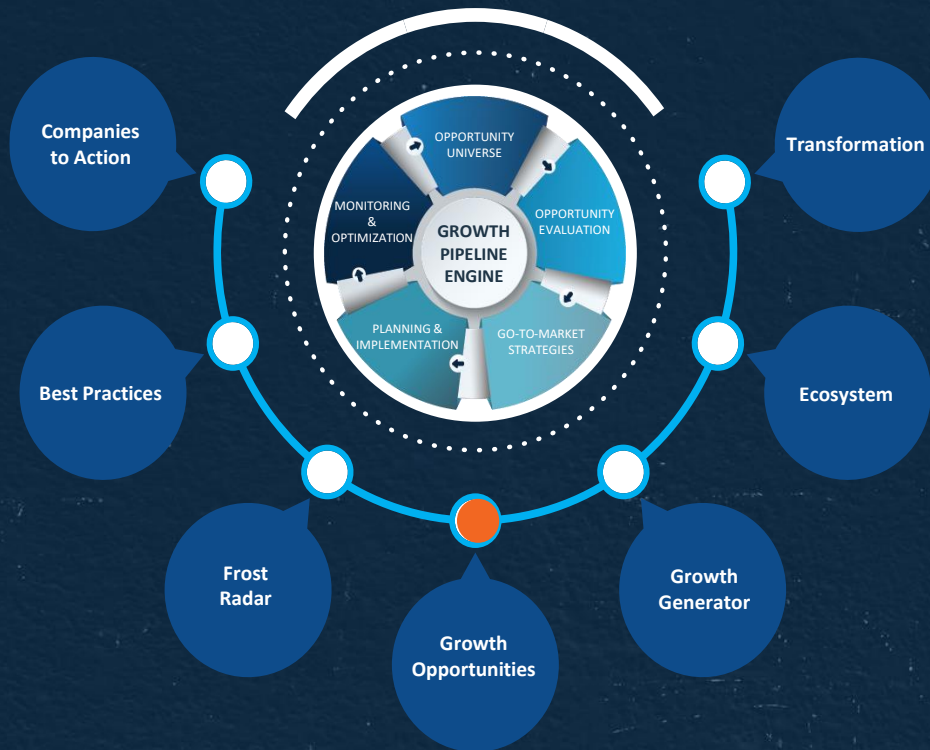
Driver	1–2 Years	3–4 Years	5–7 Years
<p><b>Incentivized Private Sector Investment</b></p> <p>The Government of India (GOI) has allocated USD 9.43 M (INR 800 crore) to oil companies to set up charging stations through the Faster Adoption and Manufacturing of Electric and Hybrid Vehicles in India (FAME) scheme.</p>	High	Medium	Medium
<p><b>Increasing Adoption of EVs In Fleets</b></p> <p>Corporate companies and fleet operators are incorporating EVs to save costs.</p>	Medium	Medium	Medium
<p><b>Renewable Energy Integration</b></p> <p>Usage of solar power or any other renewable energy sources in charging stations results in additional incentives from the government.</p>	Medium	Medium	Low
<p><b>Technology Advancement</b></p> <p>The growth of vehicle-to-grid services will enable charging solution operators to scale up with existing limited power infrastructure.</p>	Low	Medium	High
<p><b>Diverse Station Types</b></p> <p>Relevant charging stations (e.g., slow chargers in residential areas and fast chargers on highways) will ensure consumers can access infrastructure.</p>	Low	Medium	High

# Growth Restraints

## EV Charging Infrastructure: Growth Restraints, India, 2024–2030

Restraint	1–2 Years	3–4 Years	5–7 Years
<p><b>Inadequate Power Grid</b> The growing demand for power in India and the inclusion of new EV charging stations aggravate the strain on the grid.</p>	High	Medium	Medium
<p><b>Interoperability Complexity</b> Limited synergies between different charging stations/platforms will reduce user convenience.</p>	Medium	Medium	Medium
<p><b>Geographic Diversity</b> Differentiated charging infrastructure is necessary to justify the investment because of variations in population density, terrains, and travel patterns.</p>	Medium	Medium	Low
<p><b>Multiple Agencies' Involvement in Setting Standards</b> Disjointed agencies (e.g., Bureau of Indian Standards [BIS], Central Electricity Authority [CEA], and ARAI) are responsible for creating charging standards, which will complicate the process.</p>	Low	Medium	High
<p><b>Lack of Awareness</b> The capital involved in setting up charging stations is holding back small and medium-sized enterprises/resident associations from realizing the benefit of EV charging infrastructure.</p>	Low	Medium	High

F R O S T &amp; S U L L I V A N



## Growth Opportunity Universe

What Growth Strategies have you embraced to maximize your Growth Potential?

# Growth Opportunity 1: Fast Charging Infrastructure

Opp. Size in 5 Years	\$100 M–\$500 M	Relevant End-User Industries for this Growth Opportunity						Applicable Regions
		Manufacturing	Mobility	Metal & Mining	Energy & Environment	Chemicals & Materials	Information & Communications Technologies	Central & East Europe
Timeline for Action	1 to 3 Years	Electronics & Semiconductors	Agriculture, Food & Nutrition	Govt and Public Sector	Construction	Education	Healthcare & Lifesciences	South Asia
		Consumer	Aerospace	Hospitality	Retail	Defense	Banking & Financial Services	Western Europe
								CIS
GO Base Year	2023							North America
								Latin America
								Africa
								Middle East
								Asia-Pacific

Frost & Sullivan has identified 10 Growth Processes that serve as levers for determining and evaluating new Growth Opportunities.



# Growth Opportunity 2: Renewable Energy

<b>Opp. Size in 5 Years</b> Over \$1 B	<b>Relevant End-User Industries for this Growth Opportunity</b>						<b>Applicable Regions</b>	
	Manufacturing	Mobility	Metal & Mining				Central & East Europe	
	Energy & Environment	Chemicals & Materials	Information & Communications Technologies				South Asia	
<b>Timeline for Action</b> Over 5 Years	Electronics & Semiconductors	Agriculture, Food & Nutrition	Govt and Public Sector				Western Europe	
	Construction	Education	Healthcare & Lifesciences				CIS	
	Consumer	Aerospace	Hospitality				North America	
<b>GO Base Year</b> 2023	Retail	Defense	Banking & Financial Services				Latin America	
							Africa	
							Middle East	
						Asia-Pacific		

Frost & Sullivan has identified 10 Growth Processes that serve as levers for determining and evaluating new Growth Opportunities.



# Growth Opportunity 3: Dynamic Wireless EV Charging Infrastructure

<b>Opp. Size in 5 Years</b> Over \$1 B	<b>Relevant End-User Industries for this Growth Opportunity</b>			<b>Applicable Regions</b>
	Manufacturing	Mobility	Metal & Mining	Central & East Europe
	Energy & Environment	Chemicals & Materials	Information & Communications Technologies	South Asia
<b>Timeline for Action</b> Over 5 Years	Electronics & Semiconductors	Agriculture, Food & Nutrition	Govt and Public Sector	Western Europe
	Construction	Education	Healthcare & Lifesciences	CIS
	Consumer	Aerospace	Hospitality	North America
<b>GO Base Year</b> 2023	Retail	Defense	Banking & Financial Services	Latin America
				Africa
				Middle East
			<b>Asia-Pacific</b>	

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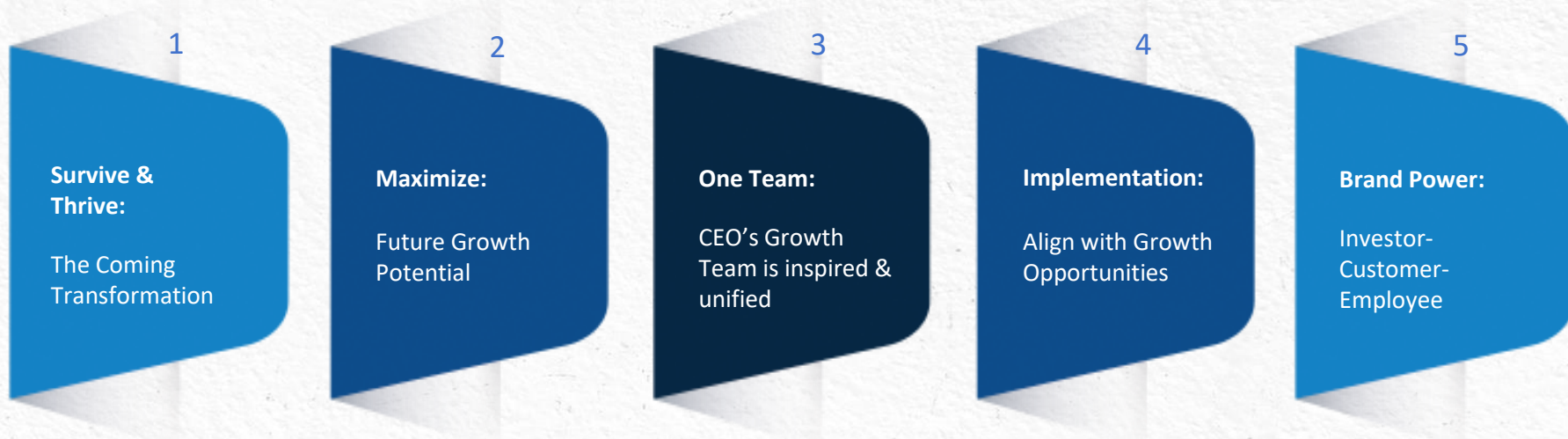




## Appendix & Next Steps

How does your organization identify and prioritize Growth Opportunities?

# Benefits and Impacts of Growth Opportunities



**Which of these benefits would be most important to your Investor-Customer-Employee?**



# Next Steps



**JOIN:**  
Growth Council

**APPLY:**  
Companies to Action

**ENGAGE:**  
Growth Dialog

**PARTICIPATE:**  
Growth Council Think Tank

**Does your current system support rapid adaptation to emerging opportunities?**

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