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Energy Series

Energy Data Analytics for Decision Making in Power Sector

November 28, 2023 – Part: I

Session: Program Plan

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South Asia Regional Energy Partnership (SAREP)

Context

Changes in power sector in the South Asian countries

Nepal
- Bi-later trades,
- periodically buying and selling through power exchanges, becomes net exporter

Bhutan
- Buying power during lean season and started selling through power exchanges, peak demand increased significantly
- Selling through bi-lateral route

India
- ~7-8% is being traded through exchanges, majority through long term
- Rapidly expending renewable portfolio
- Changes in the regulatory landscape

Bangladesh
- Bi-lateral trades, dependence changing from domestic gas to imported gas and coal based power
- Evaluating options for trading through exchanges

Sri Lanka
- Significant focus on renewable energy
- Discussions around cross border electricity trade

Enhance capabilities on:
- Generation forecasting
- Demand Assessment
- Power system planning and Operations
- Cost of purchase and sale
- Data Comprehension

Variation in Demand patterns

Variation in Generation

Increasing Renewable energy generation as well focus of clean energy

Rapid adoption on technologies

Market opportunities

Increasing complexities in power markets (market structure, policies and regulatory changes, newer products etc)

Infrastructure development (smart metering, operating data availability, enterprise information etc)

Increasing customer's expectations

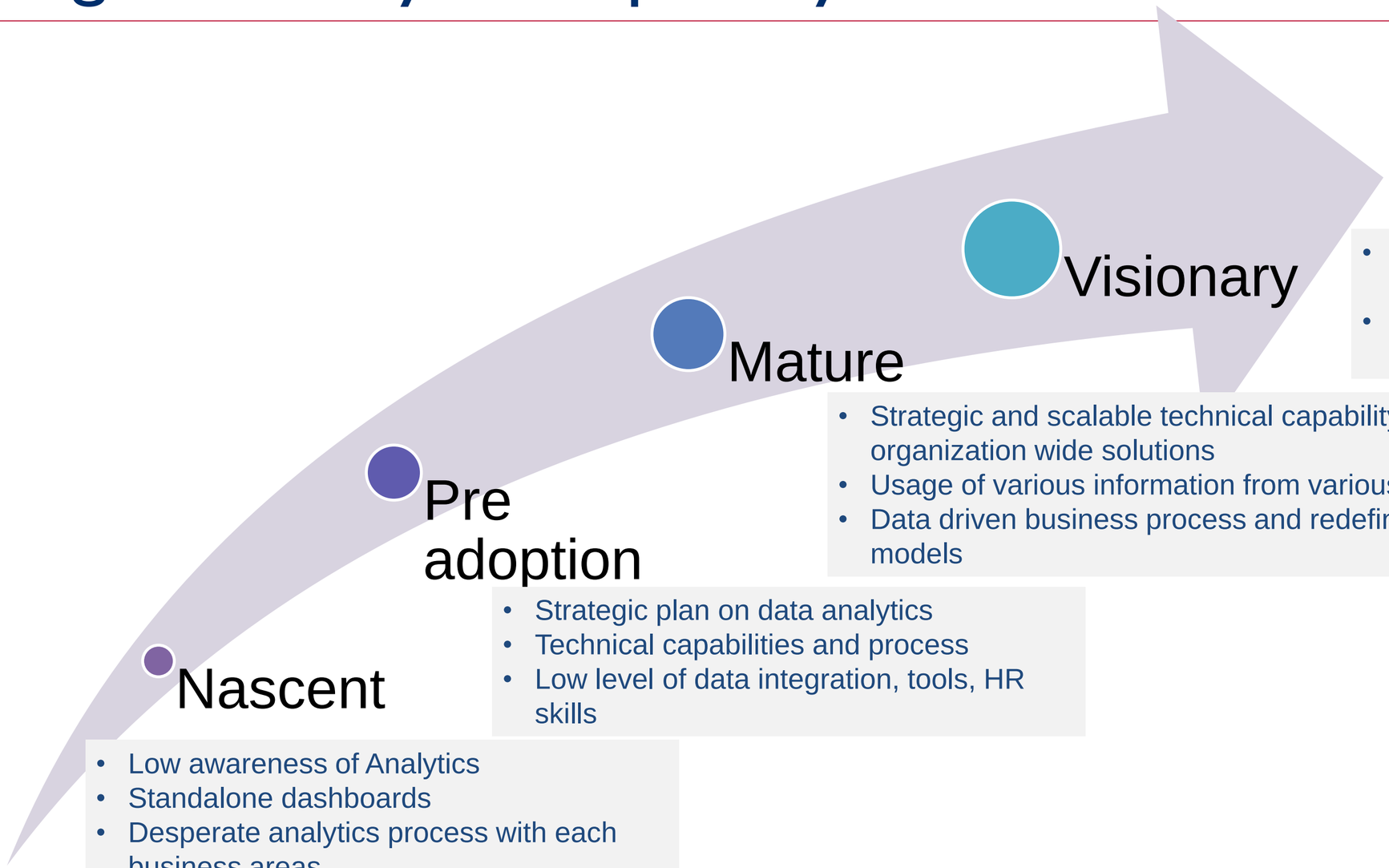
Key objectives of the Energy Series

- Enhance the **Institutional and Individual's capabilities** among policy makers, regulators, utilities, private sector organizations etc

- **Increase awareness** of practices, tools and technologies, practical use cases with benefits relating to Energy Data Analytics

- Create a **data driven decision making culture** in South Asia region

Stages of analytics capability



Nascent

- Low awareness of Analytics
- Standalone dashboards
- Desperate analytics process with each business areas

Pre adoption

- Strategic plan on data analytics
- Technical capabilities and process
- Low level of data integration, tools, HR skills

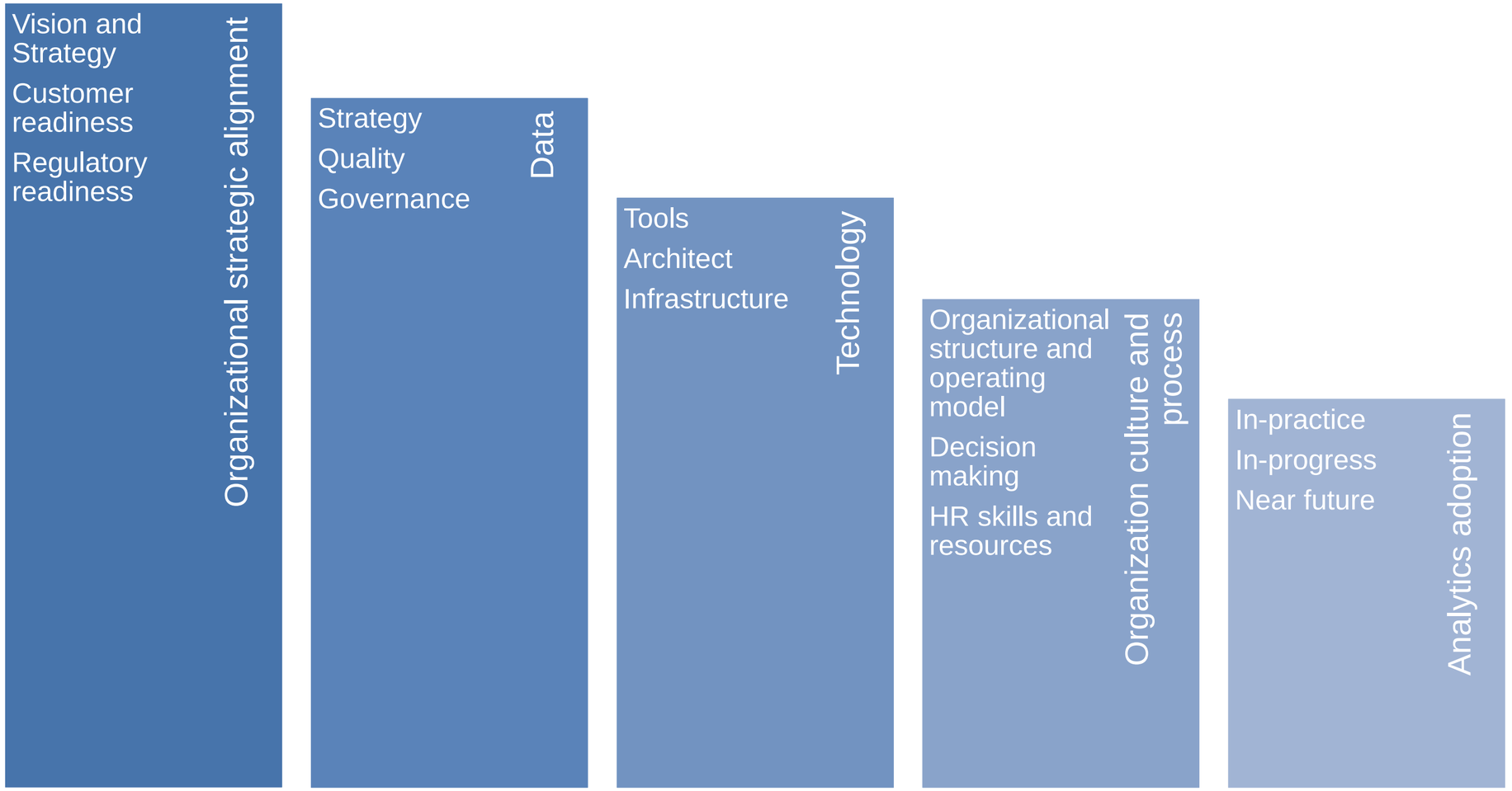
Mature

- Strategic and scalable technical capability for organization wide solutions
- Usage of various information from various departments
- Data driven business process and redefine operating models

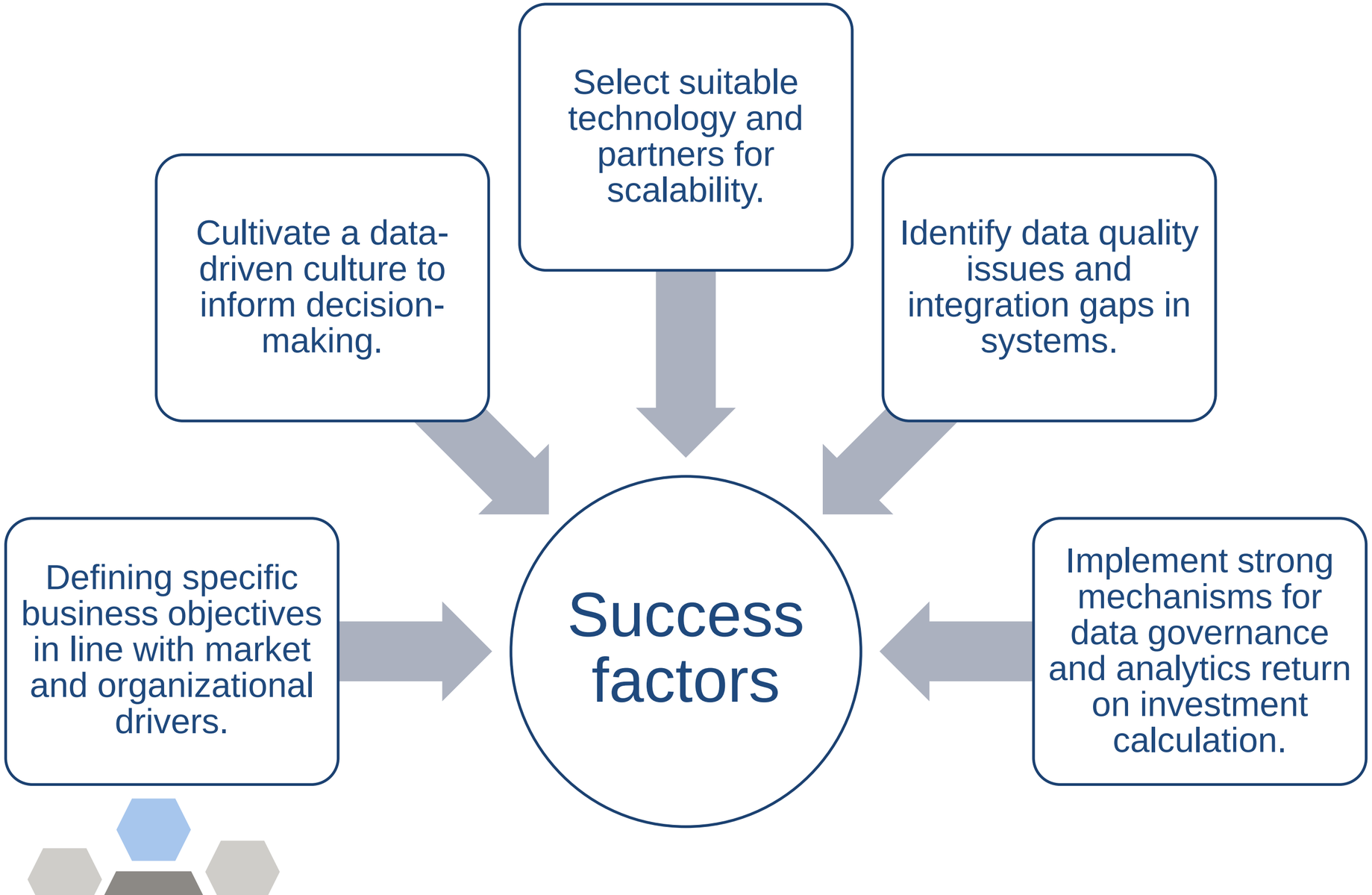
Visionary

- Generate significant business value from analytics
- Uses automated and advanced machine learning technologies

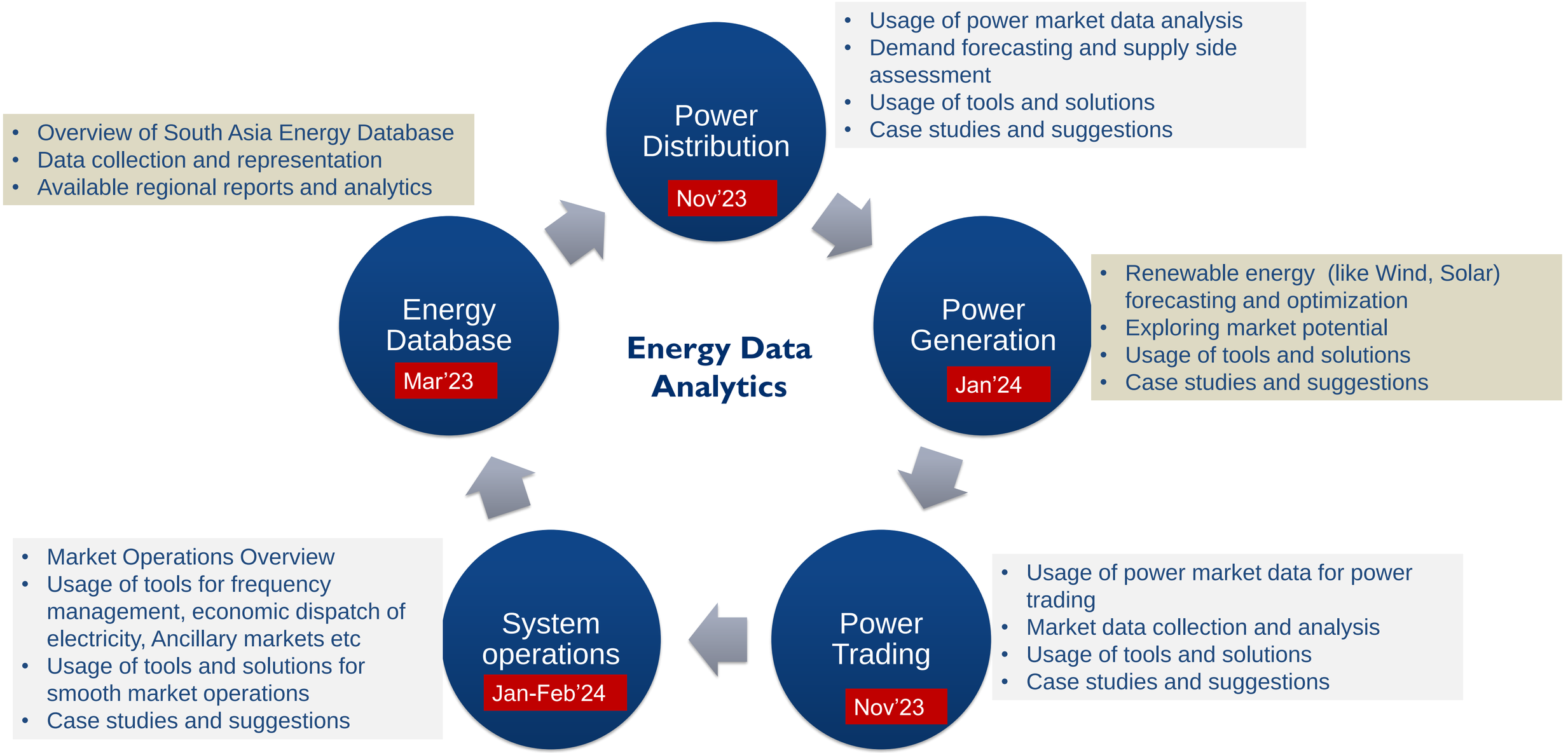
Analytics maturity capability framework



Critical success factor



Plan under this Energy Series



- Usage of power market data analysis
- Demand forecasting and supply side assessment
- Usage of tools and solutions
- Case studies and suggestions

- Renewable energy (like Wind, Solar) forecasting and optimization
- Exploring market potential
- Usage of tools and solutions
- Case studies and suggestions

- Usage of power market data for power trading
- Market data collection and analysis
- Usage of tools and solutions
- Case studies and suggestions

- Market Operations Overview
- Usage of tools for frequency management, economic dispatch of electricity, Ancillary markets etc
- Usage of tools and solutions for smooth market operations
- Case studies and suggestions

- Overview of South Asia Energy Database
- Data collection and representation
- Available regional reports and analytics

Key aspects relating to the Program

- Please enter your **questions in the** designated **Q&A text boxes**, and the speaker will address them towards the end of the session.
- **Presentations** will be **circulated** in a week’s time.
- **Separate registrations** will be required for subsequent sessions, however intimation to all the registered participants for Part-I will be provided

Today's agenda

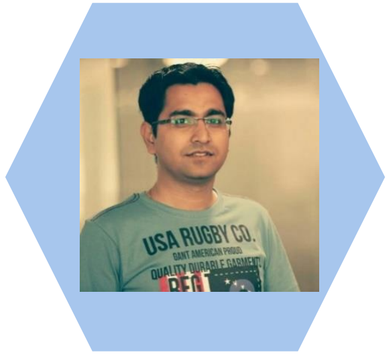
Technical Session 1: Trader's perspective		
14.10-14.50pm (40 minutes)	Context setting on usage of energy data analytics for power markets analysis: • Concept of Energy data analytics for electricity trading • Power Market data collection, sanitization, and analysis for decision making • Usage of various tools/technologies for taking trade decisions • Business case and case study of implementing data analytics • Suggestions for the electricity buyers/sellers of regional countries	Practitioner from PTC India
14.50-15.00 (10 minutes)	Q&A round	
Technical Session 2: Discom's perspective		
15.00-15.45 (45 minutes)	• Usage of Data analytics for power market analysis by Distribution entity, • Demand forecasting, supply side projections, market data analysis, optimization of schedule variation, • Usage of tools and solutions, • Practical use cases with key benefits, and • Suggestions for the regional distribution countries	Practitioner from BSES Delhi
15.45-15.55 (10 minutes)	Q&A round	
Conclusion		
15.55-16.00 (5 minutes)	• Knowledge Assessment of participants for part-I • Conclusion of Part-I	

Speaker’s profile for Part:1

Rajesh Cherayil

Chief Strategy Officer

PTC India Limited



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Thank You

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References

1. Paper “A Practical Approach for Power Utilities Seeking to Create Sustaining Business Value with Analytics”, Cognizant 20-20 Insight, September 2019