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INDIA



**TATA POWER-DDL**

**TATA POWER DELHI DISTRIBUTION LIMITED**

A Tata Power and Delhi Government Joint Venture

# Policies and Regulations for the DIGITAL DISCOM

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# Digital DISCOM



The Digital transformation is enabling DISCOMs to..

- Automate & integrate across its work processes
- Move from Physical to Digital Touch points
- Data based monitoring, control, analysis
- Drive towards System based Decision making

Enabling greater operational efficiency, commercial health and customer engagement

# Enablers to this transformation ...



Development of cost-effective technologies such as IOT coupled with low cost communication is enabling large scale data collection



Digitization is essential as the grid becomes more complex with infirm supply (renewables, rooftop solar, etc.) and also infirm demand (electric vehicles)



More demanding customers exposed to the conveniences of digital transformation in other sectors such as retail, banking, etc.

# Digitalization in DISCOM

## Data & Analytics

Provides for Predictive Maintenance, planning and operational changes

## Connectivity

Enables broad structural changes and communication channel

Services to Consumers

Improved Collection efficiency, Customer experience

Reduced O&M Costs

Reduced Fuel Consumption and Costs

Improved Efficiencies

Reduced CO<sub>2</sub> Emissions

Reduction of Unplanned Outages

Improved System Stability

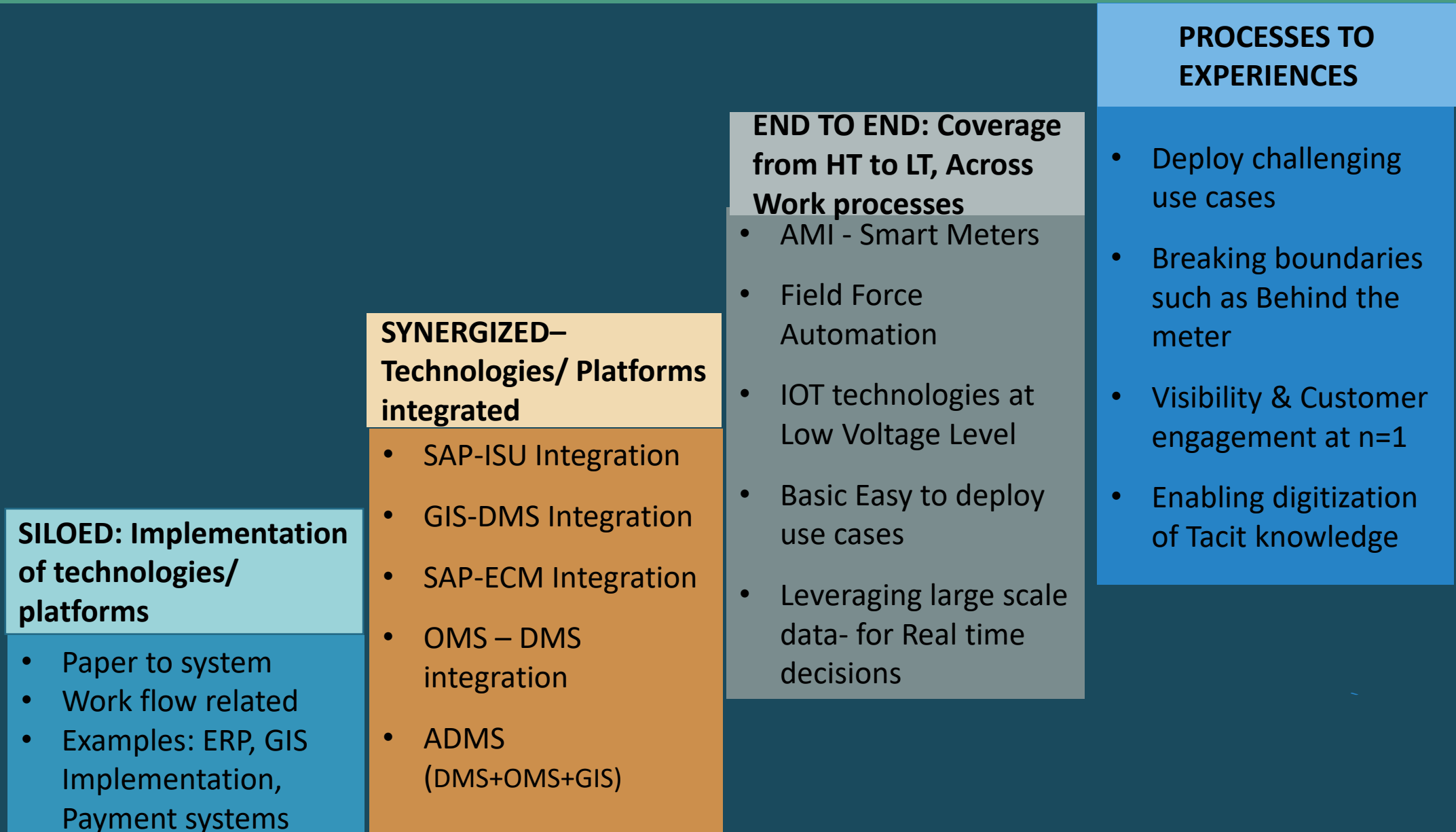
Extended Asset Utilization & Lifetimes

Reduced Investments Needs

Real Time Data Availability

Improved System Planning

# Digitization Maturity and Landscape





# Digitalization Perspective- What is next..

Remote management and  
real-time information



Big Data



Augmented Reality



Artificial Intelligence



Better Load Forecasting  
leading to grid stability



Machine Learning



Cloud Computing



Automation



Digital Twin



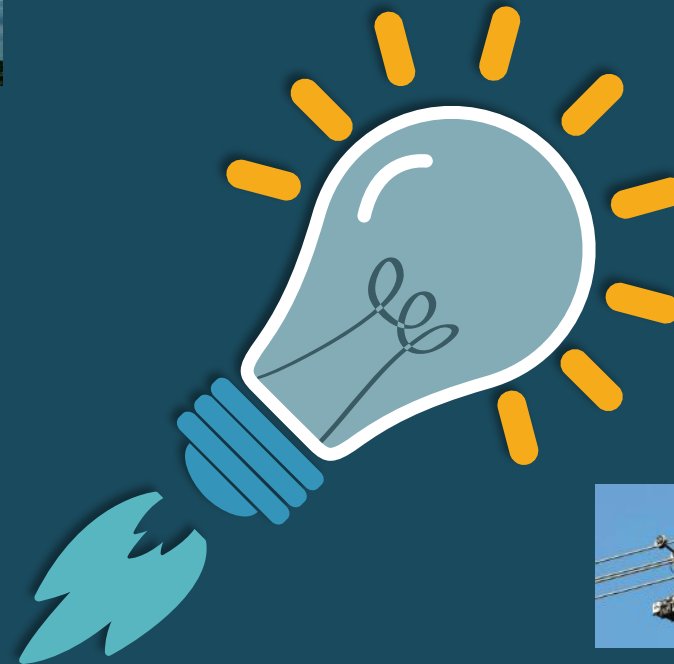
Robotics



Virtual Reality



Grid transformation from  
unidirectional to multidirectional  
Integrated network ensuring a  
smarter grid



Access to actionable  
intelligence, curbing theft and  
bringing transparency  
Enhanced safety and customer  
experience



# Enablers to accelerate Digitization

**Business  
Model**

**Interfaces**

**Economics**

**Opening up  
new Avenues**

**Enabling  
ecosystem**

# Business Model

## Current Scenario

Utilities prefer CAPEX to OPEX

RoE model of CAPEX investments

Opex norms based on historical spends

Pushes use of on-premise solutions

Prevents usage of cloud/ subscription based services

## Regulation/ Policies needed

Norms/ Guidelines for OPEX for digital solutions in lieu of shifting of CAPEX into OPEX

Sharing of gains due to saving in Revenue  
Requirement of Discom due to lower cost cloud based solutions which offer greater flexibility



# Interfaces

## Current Scenario

While Discom can digitize its operations, role of external stakeholders is essential

Discoms engage with Load Dispatch Centers (LDCs) & reconcile the schedule on a 15 mins basis

Discoms engage with generators on a monthly basis for power purchase bills

Discoms may need to modulate solar rooftop generation in case of overvoltage

## Regulation/ Policies needed

All interface meters (T-D interface) should be mandated by regulators to communicate with defined SLA so that remote real-time reading and settlement is possible (Deviation Settlement)

Engagement of Generators and Discoms on platforms such as Blockchain can enable faster settlement

Control of solar rooftop generation in case of extreme grid situations impacting power quality

# Cost benefit economics

## Current Scenario

Battery energy storage system will play a significant role at grid level as well as at community level as an ancillary services.

DISCOMs can utilize energy storage as the emergency backup in case of black out and for shifting peak load to off-peak times

Demand response taken at the customer level when the prices are on peak or in network congestion scenarios.

DISCOMs may increase the opportunities for DR to the customer by providing the real time data

## Regulation/ Policies needed

Battery storage for ancillary services which will help business case over & above benefits such as peak shifting

Separate tariff for customers for energy supplied during grid disturbances provided from a storage asset

Regulators to issue adequate tariff differential between peak and off-peak time (ToD/ToU tariff) which can be utilized by the consumers as well as DISCOMs

# New avenues

## Current Scenario

Several new opportunities for digitalization can be tapped but are to get clarity from regulators

- Leveraging data available with Discoms
- Peer to Peer Trading
- Blockchain for payment/ settlement
- Behind-the-meter

## Regulation/ Policies needed

Regulations with respect to Data Privacy and use of aggregated customer data

Use of customer data with consent can benefit both Discoms and Customers

Behind the meter applications wherein customer is giving access to needs regulated model to work

# Ecosystems

## Current Scenario

Push towards AMI/ Smart Metering is in place

One of the challenges is w.r.t. interoperability of communication (Radio Frequency, Narrow Band IOT, LoRA, 4G, etc.) – Forced to change meter when communication tech is changed

Limited players in each communication technology

Similar is the case with other digital technology solutions – ERP, Distribution Automation, etc.

## Regulation/ Policies needed

Given importance of AMI to the Future of the Digital DISCOM, standards w.r.t. inter-operability in terms of the manufacturers to have universal specification to support the different communication channels are essential

# Enablers to accelerate Digitization

**Business  
Model**

**Interfaces**

**Reflecting true  
Cost-benefit  
economics**

**Opening up  
new Avenues**

**Enabling  
ecosystem**

***Cost Reflective Tariff without creation of Regulatory Assets  
essential for financial health of Discom***

# Thank You