

# Digital Acceleration – The PSU Perspective

# **POWERGRID Journey**

### Institutional framework – Power Sector



### Digitization Historical Initiatives

Digitization has been primarily through Central Initiatives Public Utilities Asset & Operation management – GENCOs

• Transmission by Grid Operation Requirements  $\rightarrow$  CTU

 Unified load dispatch and communication (ULDC) Scheme 1998-2008 > 1500 (now 3500) RTUs and > 30 RLDC/SLDC

Power Exchange and attended data for Market (Exchange) 2008-onward

State  $\rightarrow 16$ DISCOM  $\rightarrow 22$ • GIS Digitization in distribution sector was • ERP 23 39 optimization driven and gained Towns  $\rightarrow$  1588 • IT 24  $\rightarrow 46$ momentum with schemes like APDRP,  $\rightarrow$ 35 S/S→ 3936 • RT-DAS 21 1643 RAPDRP, IPDS and now RDSS Million • AMI XX XX

One nation-One Grid initiative precipitated Situation Awareness (SA) Requirement

- URTDSM (2013-2016): Phasor Measurement Units (>1800 PMUs)
  - State/ Regional and National Operator
- Enhance RE awareness REMC (2015 -18)  $\rightarrow$  14
  - Whether Forecast and RE footprint  $\rightarrow$  14+4

### Digitalisation – Decision Making

- Digitalisation cannot evolve without internal critical Mass
- Projects are initiative for Tooling in Digitalization, Business reengineering gives internal pull ("Catalyst")
- Organisation need to demonstrate clear positive benefits to stake holders ("Business Case")

Investment Approval

**Deploying Tools** 

Delivering planned project objectives.

Expanding value and buyin from other process owners

Promoting end use, Discovering Interfaces to be evolved Providing Add ons and transforming connected Systems

#### Digitalisation Initiatives of POWERGRID summarised as

#### $\checkmark$ Digitization of Data

✓ SAP for business transactions
✓ SCADA for Control & Protection
✓ ESS for Employees personnel & financial automation
✓ E-office for file movement

#### ✓ Digitalization of processes

- ✓ Automatic Fault Analysis System (AFAS) for accurate fault localization
- $\checkmark$  Logging of grid parameters via PMU and WAMS
- ✓ Recording Substation maintenance data through robotic inspections
- ✓ PALMS for asset lifecycle management
- $\checkmark$  PG-DARPAN for Transmission Line Patrolling
- ✓ Bill Tracking system
- ✓ Inspection Management system
- ✓ Digital Procurement to pay process etc.

#### Digitalisation Initiatives of POWERGRID summarised as .... Contd.

#### ✓ Digital Transformation models

- ✓ Remote Operation of Substations via NTAMC & RTAMC
- ✓ Use of GIS tools for proactive emergency response
- ✓ Creation of Digital Substations
- ✓ Creation of Chatbots for operational queries and self help
- ✓ Dashboards for decision making etc.

#### Impacts

- Improvement in efficiency and performance
- Optimization of human resources
- Reduction in manual interventions
- Real time visualization of substation assets
- Centralized real time monitoring of substations

## Digitalisation is Step-by-step and Continuous

#### Technology Deployment, internalization and Win-Win

**Digital Entity** 

Paperless in all Domain

Integrated

Values

Procure to Pay, Build to Retire, Design to Deliever

PALMS, On-Boarding Ext Services (GEMS)

Connect and Build

AFAS, PGDARPAN

Individual SAP, SCADA, ESS, E-office

Fault location detection through FPI

With the use of RMUs, switches

Radial feeder without backup and manual fault location identification, rectification and system restoration

With the use of AMI, OMS, PQM,PLM, GIS,SCADA

Real-time analysis & control of systems with FLISR

#### Digitalisation of the eco system requires

- Business Process Reengineering,
- Internal Partnerships,
- Build-up on as is
- Digitalisation first/ only as conviction

Together these are ultimate solution



## <u>and</u> Journey continues .....