IS6F

India Smart Grid Forum

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TPWØDL

TP WESTERN ODISHA DISTRIBUTION LIMITED



TPSODL



Session Partner







SESSION – 4: LEVERAGING ASSET HEALTH INDEX DISTRIBUTION **USING MAXIMO (IBM)**

Speaker PLN, Indonesia



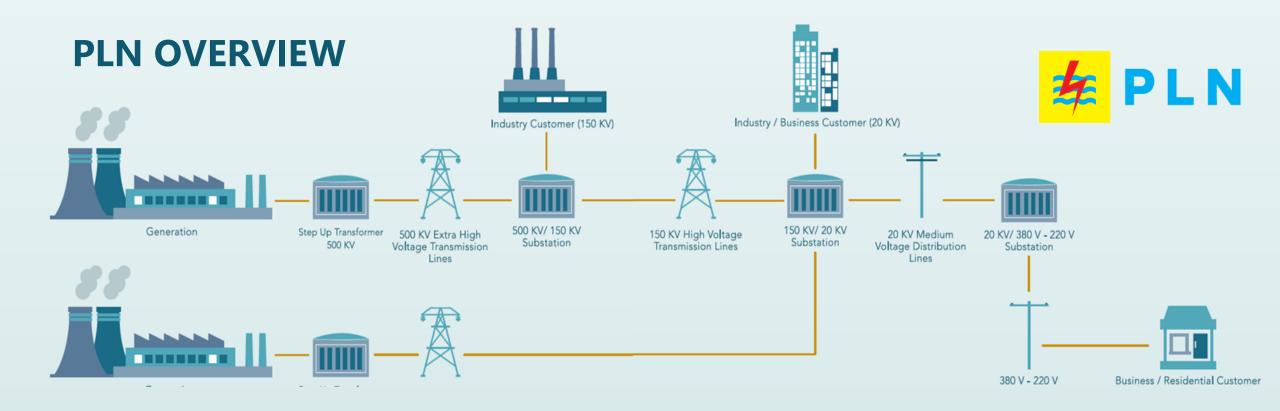


PLN, Indonesia





PLTS Pylau Messa, Nusa Tenggara Timur



INST GENERATING CAPACITY

66 gw

TRANSMISION LINE

64,8 THS KMS

DISTRIBUTION

598 THS KMS

CUSTOMERS

82 Million

PLN Transformation - Breakthrough

NEW-





- **Digital Power Plant**
- **Digital Procurement**
- **Digitally Enabled Distribution** Excellence
- **Dispatch Optimization**
- Investment Prioritization (Short Term & Long Term
- Optimize Primary Energy
- Anti Blackout
- 22 A M I

23 Centralized Planning NEW~



- Implement RJP 2019-24 (5 GW)
- **Launch Green Boosters**
- Launch Large Scale Renewables



- 11 Billing & Collection Optimization
- 12 Fiber Optics Rollout
- Electric Vehicles Infrastructure

14 Captive Power



- **Outage Management** (Notification & Yantek **Optimization**)
- 16 PLN Mobile Relaunch

Digital Breakthrough



- 17 Organization Structure
- 18 Streamline Subsidiary



Digitally Enabled Execution Machine



NEW -

21 Digitalization of Centralized **Payment**



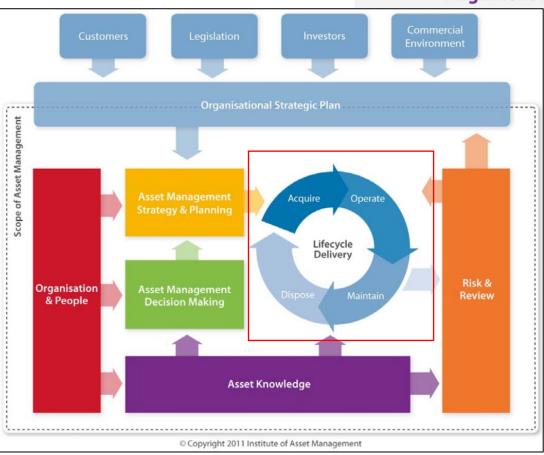
- 20 Regulatory, Sector Structure, and Tariff Optimization
- **Increase Use of Domestic Product (TKDN)**

NEW-

Implementation of AM based on IAM Principal



Alignment of the 39 Asset management Landscape Subjects with the six Subject Group



Group 1 - Strategy & Planning

- 1. Asset Management Policy
- 2. Asset Management Strategy
 - & Objectives
- 3. Demand Analysis
- 4. Strategic Planning
- 5. Asset Management Plannin

Group 2 - Asset Management Decision-Making

- Capital Investment Decision-Making
- 7. Operations & Maintenance Decision-Making
- 8. Lifecycle Value Realisation
- 9. Resourcing Strategy
- 10. Shutdowns & Outage Strategy

Group 3 - Life Cycle Delivery

- 11. Technical Standards & Legislation
- 12. Asset Creation & Acquisition
- 13. Systems Engineering
- 14. Configuration Management
- 15. Maintenance Delivery
- 16. Reliability Engineering
- 17. Asset Operations
- 18. Resource Management
- 19. Shutdown & Outage Management
- 20. Fault & Incident Response
- 21. Asset Decommissioning & Disposal

Group 4 - Asset Information

- 22. Asset Information Strategy
- 23. Asset Information Standards
- 24. Asset Information Systems
- 25. Data & Information Management

Group 5 - Organisation & People

- 26. Procurement & Supply Chain Management
- 27. Asset Management Leadership
- 28. Organisational Structure
- 29. Organisational Culture
- 30. Competence Management

Group 6 - Risk & Review

- 31. Risk Assessment & Management
- 32. Contingency Planning & Resilience Analysis
- 33. Sustainable Development
- Management of Change
- 35. Asset Performance & Health Monitoring
- Asset Management System Monitoring
- Management Review, Audit
 Assurance
- 38. Asset Costing & Valuation
- 39. Stakeholder Engagement

Asset Management Policy in PLN



1. Purpose

This document is PT PLN (Persero)'s policy on Asset Management. The purpose of this Asset Management Policy is to provide all PT PLN (Persero) Group employees and stakeholders clear communication about the organisations' commitment to applying good practice asset management to achieve the Organisation's Goals and Objectives. It also provides guidance in decision-making on Asset Management matters and fosters the desired culture for Asset Management in PT PLN (Persero).

This Policy is aligned with PT PLN (Persero)'s Vision, Strategic Plan, Corporate Focus Areas and Objectives, and plays a key role in PT PLN (Persero)'s Asset Management System. It is established and authorised by PT PLN (Persero)'s Board of Directors to demonstrate the company's commitment to Asset Management.

This is a live document. It is periodically reviewed and continually improved to ensure it is relevant and up to date.

2. Good Practice Alignment

This Asset Management Policy has been developed based on good practice resources that are internationally recognised, such as the Institute of Asset Management (IAM) and the Global Forums on Maintenance and Asset Management (GFMAM). It complies with ISO 55001:2014 clause 5.2 on requirements of asset management policy and ISO 55002:2018 clause 5.2 on guidelines of asset management policy.

3. Corporate Alignment

This Asset Management Policy is aligned in supporting the achievement of PT PLN's Corporate Strategy and Objectives and therefore needs to interface with relevant corporate documents and policies such as:

- 3.1 Organizational Policy No. 141.P/DIR/2021, No. 162.P/DIR/2021
- 3.2 Risk Policy No. 0071.P/DIR/2021
- 3.3 Financial Policy No. 011.E/DIR/2007, No. 0036.P/DIR/2016, No. 0299.P/DIR/
- 3.4 Asset Information Policy SPLN K7.002: 2012, No. 0431.K/DIR/2013, No. 007.P/DIR/2014, No. 0449.P/DIR/2014, ITMP
- 3.5 Procurement Policy No. 022.P/DIR/2020, No. 069.P/DIR/2021
- 3.6 O&M Policies:
- Generation: SPLN K1.001-1:2013
- b. Transmission: No. 520 K/DIR/2014
- Distribution: No. 017.E/DIR/2014, No. 018.E/DIR/2014
- 3.7 Asset Disposal Policy No. 1233.K/DIR/2011, No. 149.K/DIR/2013
- 3.8 Waste Disposal Policy No. 036.K/DIR/2009

4. Scope

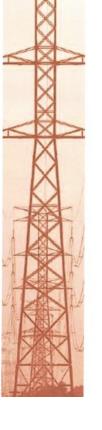
The scope of this Asset Management Policy covers

- 4.1 All of the PT PLN (Persero) physical assets that it owns and those of subsidiary companies.
- 4.2 All of PT PLN (Persero) employees, contractors, and service providers and
- 4.3 All activities and functions associated with the Asset Management of PT PLN (Persero)'s assets such as Corporate Planning, Human Capital Management, Business Regionals, Mega Projects & NRE, Finance & Risk Management, Commerce & Customer Management & Primary Energy.
- 4.4 The assets covered by this policy are:
 - a. Generation plant assets owned by PT PLN and subsidiaries
 - b. Transmission and Distribution assets
- c. Land and Buildings
- d. Control and Communication Systems
- e. Mobile Fleet
- f. Human Assets
- g. Asset Data and Information

5. Corporate Vision & Strategic Plan

PT PLN (Persero) aims to be the leading electricity company in Southeast Asia and the number one customer choice in energy solutions. To achieve this vision, PT PLN (Persero) will implement the following strategic plans which should be supported by a good practice Asset Management.

- 5.1 Providing quality, reliability based on customer-segment's requirements.
- 5.2 Running the business that comply with the relevant legislations, including Environmental, Social, and Governance (ESG) Regulations.
- 5.3 Optimising cost, risk and performance/benefit in decision-making process.
- 5.4 Improving Human Resource competencies.
- 5.5 Implement good practise asset information system through technology advancement aligned with digital transformation program
- 5.6 Technology advancement to support energy transition.
- 5.7 Maintaining ROIC to ensure business sustainability.
- 5.8 Implement good practise electricity planning.





ASSET MANAGEMENT POLICY



Corporate Vision

PT PLN (Persero) aims to be the leading electricity company in Southeast Asia and the number one customer choice in energy solutions.

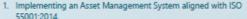


Role of Asset Management

Asset Management supports the achievement of the Corporate Vision by integrating all functions in PT PLN (Persero) that have a role in carrying out Asset Management activities.

Policy Statement

PT PLN (Persero) is committed to implementing good practice Asset Management and demonstrates this commitment by:



- 2. Providing safe and reliable electricity by complying with all
- 3. Making integrated risk management a key criterion in all asset management decision making and activities, through practicing the Four-Eyes Principle (4EP).
- understand the performance of assets and the Asset Management System and to support decision-making and strategic planning.
- 5. Monitoring and reviewing the performance of assets and the Asset Management System and seeking continuous
- staff involved in Asset Management are clearly defined and
- delivering efficiencies in the works program.
- 8. Undertaking decision-making based on good quality and complete asset management data and information.
- 9. Implementing Asset Management Strategies that support the achievement of PT PLN (Persero)'s Corporate Strategic Plan and





- legislative and regulatory requirements.
- 4. Improving the quality and completeness of asset data to better
- 6. Ensuring that the role and responsibilities of all PT PLN (Persero)
- 7. Using whole of lifecycle approach to managing assets and
- 10. Ensuring that capital investment will add value to the business i the future and contribute to sustainability of PT PLN (Persero)







Bob Saril

Haryanto W.S.



Darmawan Prasodio CEO

To achieve our Corporate Vision and be a sustainable and profitable business, PT PLN (Persero) is committed to implementing good practice Asset Management.

This Asset Management Policy is endorsed by the Board of Directors, and it applies to all PT PLN (Persero) Group employees and relevant stakeholders who work with our

PT PLN (Persero) is committed to reviewing this policy, so that it remains fit for purpose while reflecting the evolving requirements of all our customers and stakeholders. "

upported by Members of Board of Directors

CFO & Risk Management

Dir of HCM E. Haryadi Dir of Corp Planning

Rudy H. Prastowo

Dir of Primary Energy Wiluyo Kusdwiharto Dir of Mega Project & NRE

Dir of Commercial &

Reg Business Dir of

Reg Business Dir of

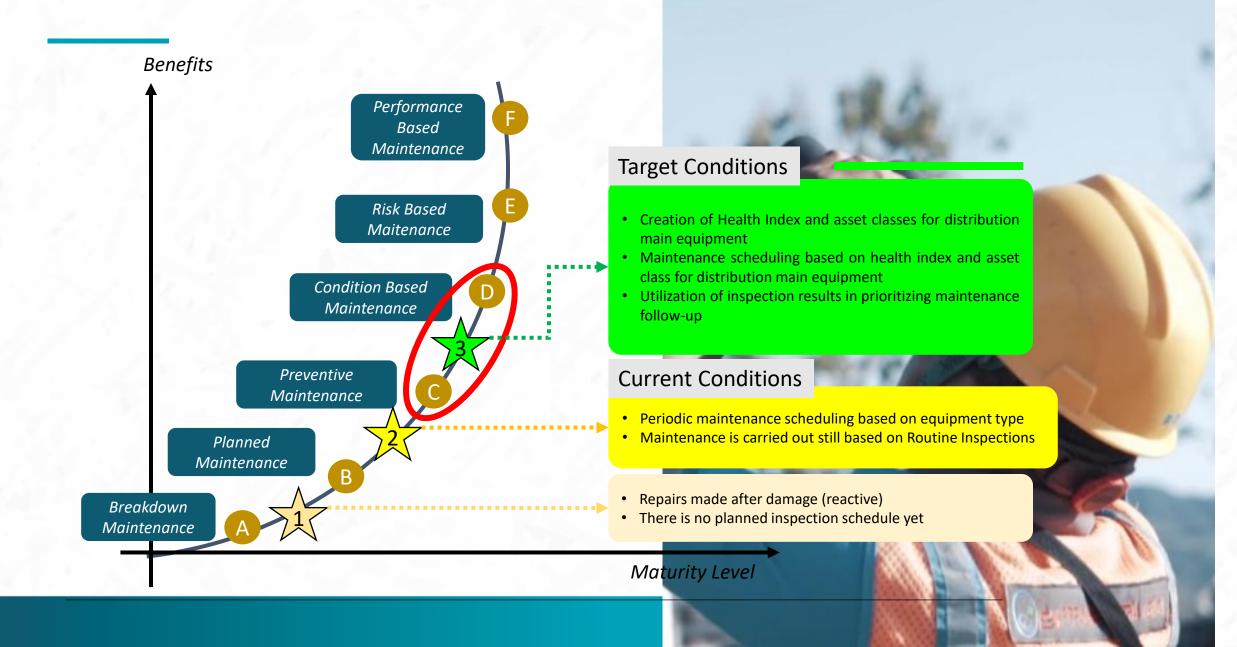
Sumatera, Kalimantan

Adi Lumakso

Sulawesi, Maluku, Papua, Nusa Tenggara Reg Business Dir of Jawa, Madura, Bali

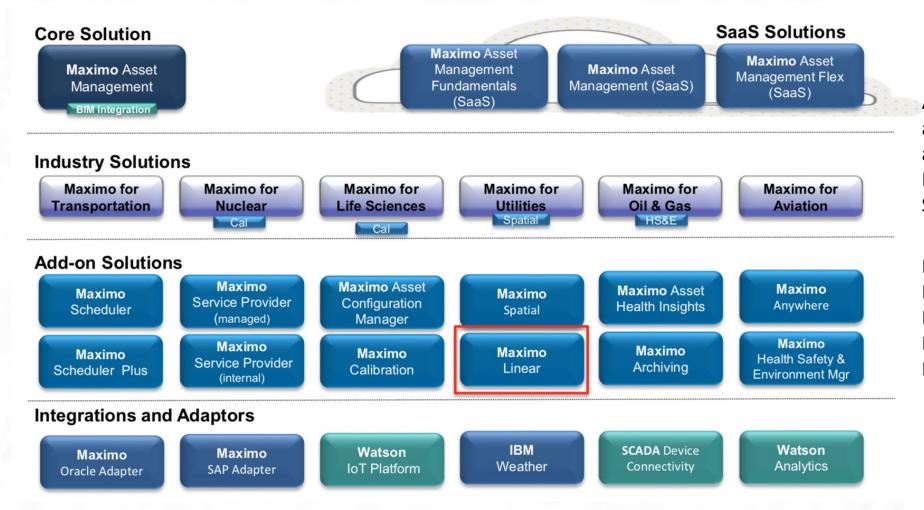


Overview & Maturity Maintenance Methodology In PLN



Maximo Portfolio Solution 2018 to PLN

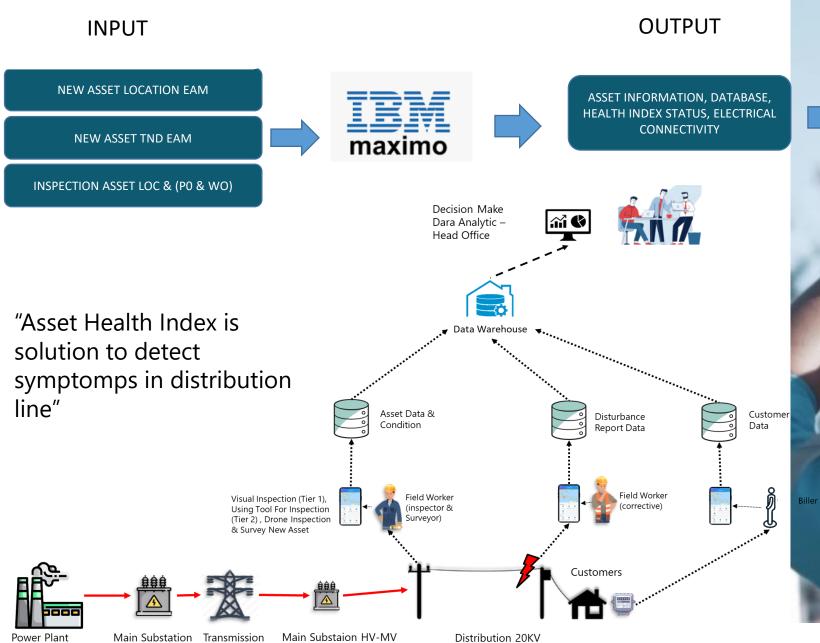




According to recommendations and portfolio solutions from IBM and Maximo, PT PLN (Persero) use Maximo Linear and Maximo Spatial for asset data collection.

PT Indonesia Comnets Plus (Sub Holding PLN) in this case is the Implementor of the Distribution EAM application from IBM Maximo.

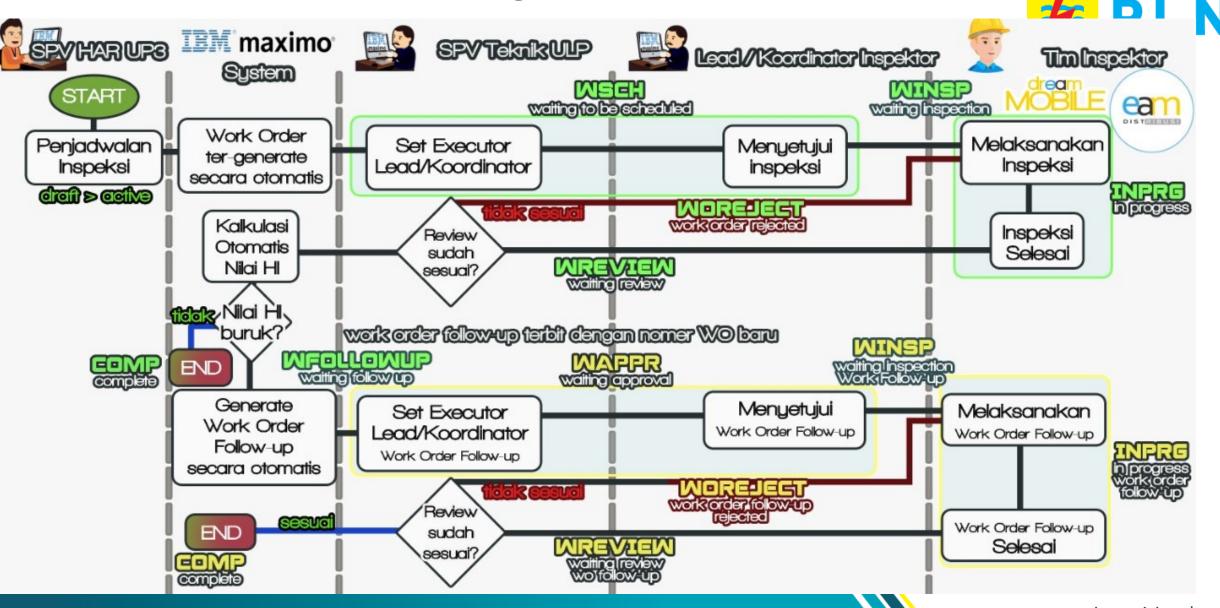
ASSET REGISTER AND TRANSACTION IN MAXIMO



EVALUATION



Workflow in Maximo Engine



Document Report Sampling & Severity Level Health Index



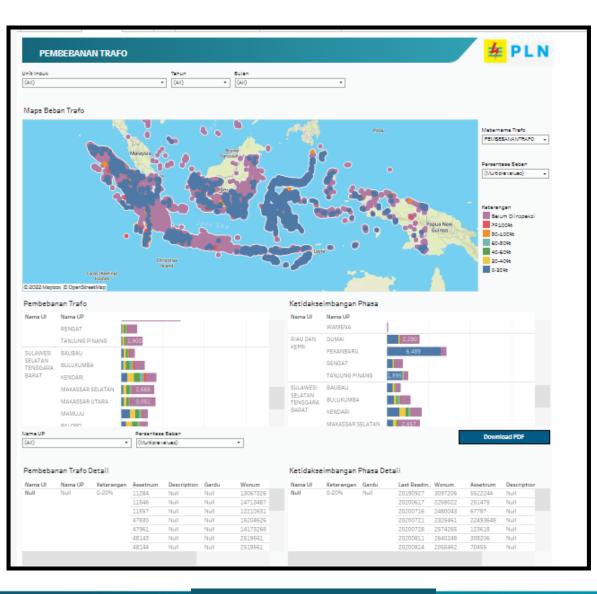


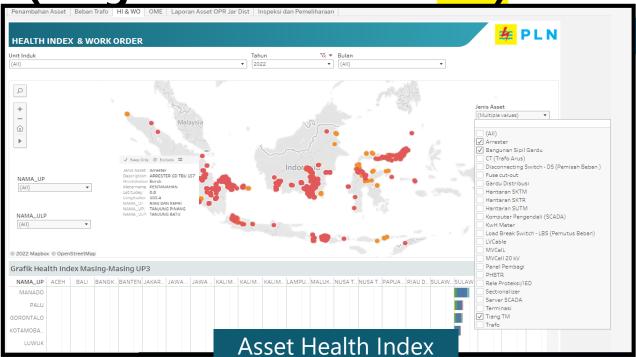


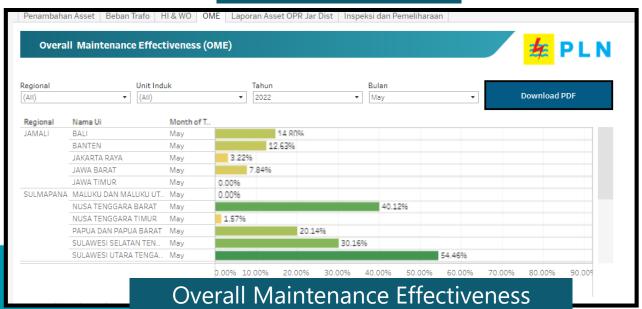
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30	T-0	Tegangan Pangkal (T-0)	Jan 30, 2020 12:55:17	225.8 V	1		
40		Beban Puncak Phasa - R	Jan 30, 2020 12:54:35	21.5 A	1		
50		Beban Puncak Phasa - 8	Jan 30, 2020 12:54:42	21.5 A	1		
60	BEBAN-T	Beban Puncak	Jan 30, 2020 12:54:53	15.21 A	1		

Asset							
Health Index	Status	Tier Inspection	Condition	Actions	Time Scales		
3	Good	Tier 1	-Safe distance (Right of way) is 2,5 m from tree, bamboo, kite, building, etc '-Pole does not tilt '-Normal Sagging and not stretchy in conductor '-Arrester does not leak '-Fuse Cut Out does not crack '-Grounding installed well '-Arm tie, traves, isolator, top ties, look good physically and are not damaged	Waiting For Regular Inspection in Time Base Maintenance	Usually inspected every 3 to 6 months		
		Tier 2	For Infrared Termography to Ambient 'at<10C For Connector, Fuse Cut Out, Termintaing, Arrester For Ultrasound Detector '-0-20 dB For Connector, Fuse Cut Out, Termintaing, Arrester	Waiting For Regular inspection times frequency multiplier (based on asset class)	The initial schedule changes depending on the condition of the asset's health index and asset class		
2		Tier 1	No Level Conditions	Waiting For Regular Inspection in Time Base Maintenance	Usually inspected every 3 to 6 months		
	Fair	Tier 2	For Infrared Termography to Ambient '10<\Delta\tau20C For Connector, Fuse Cut Out, Termintaing, Arrester For Ultrasound Detector '-20 <db<30 arrester<="" connector,="" cut="" for="" fuse="" out,="" td="" termintaing,=""><td>Waiting For Regular inspection times frequency multiplier (based on asset class)</td><td>The initial schedule changes depending on the condition of the asset's health index and asset class</td></db<30>	Waiting For Regular inspection times frequency multiplier (based on asset class)	The initial schedule changes depending on the condition of the asset's health index and asset class		
1	Poor	Tier 1	-Safe distance (Right of way) is under 2,5 m from tree, bamboo, kite, building, etc '-Tilted Pole '-Sagging below standar and stretchly in conductor '-Leak Arrester '-Cracked Fuse Cut Out '-Grounding not installed well '-Arm tie, traves, top ties are damaged '-Tilted pin/post/tension isolator	Repair and Waiting For Regular Inspection in Time Base Maintenance			
		Tier 2	For Infrared Termography to Ambient '20< \Delta t<40C For Connector, Fuse Cut Out, Termintaing, Arrester For Ultrasound Detector '-30< dB<35 For Connector, Fuse Cut Out, Termintaing, Arrester	Repair and Waiting For Regular inspection times frequency multiplier (based on asset class)	The initial schedule changes depending on the condition of the asset's health index and asset class		
0	Bad	Tier 1	-Safe distance (Right of way) is under 2,5 m from tree, bamboo, kite, building, etc '-Tilted Pole '-Sagging below standar and stretchly in conductor '-Leak Arrester '-Cracked Fuse Cut Out '-Grounding not installed well '-Arm tie, traves, top ties are damaged '-Pin/pos/tension Isolator is broken, cracked, flashover	Replace and Waiting For Regular Inspection in Time Base Maintenance			
		Tier 2	For Infrared Termography to Ambient '>40C For Connector, Fuse Cut Out, Termintaing, Arrester For Ultrasound Detector '->35 dB For Connector, Fuse Cut Out, Termintaing, Arrester	Replace and Waiting For Regular inspection times frequency multiplier (based on asset class)	The initial schedule changes depending on the condition of the asset's health index and asset class		

Dashboard Asset Health Index (Single Source Of Truth)





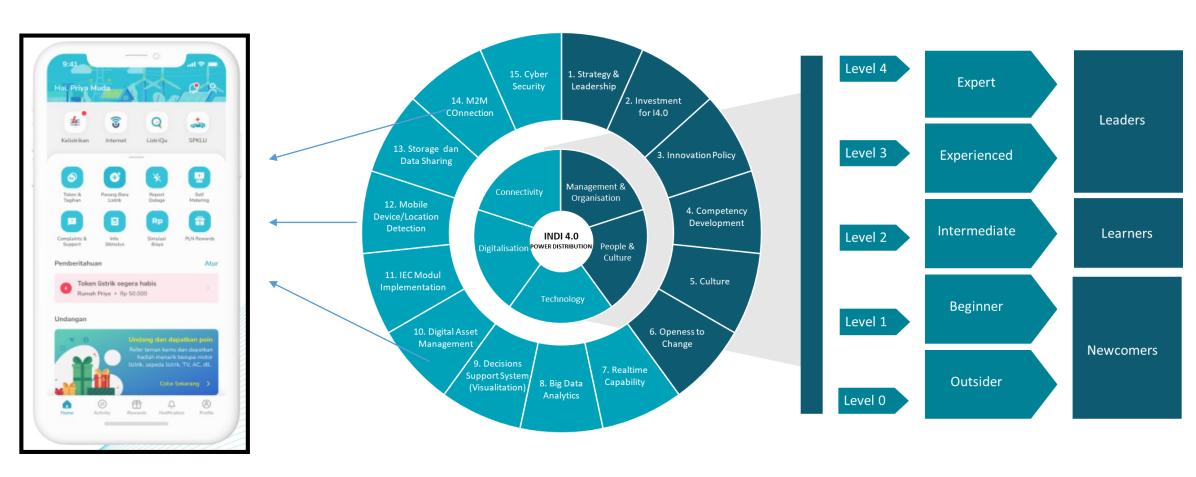


Transformator Load

Digital Distribution Maturity Level (INDIST4.0)



I4.0 Index in Power Distribution



5 Pillar, 15 Field include technology and non technology index, and 20 Questions





Thank You