



# Digital disrupts Gister & Sustainability

3X IoT onnections 2018-2025 (\*GSMA)

>5x Big Data

generated data from 33 ZBs today to 175 ZBsby 2025 (\*IDC, 2018)

6x Al

worldwide spending on cognitive and Al systems btw 2017 & 2022

(International data corporation)





## 4X Efficiency



## Digital builds a smart green future

>30% Digital Efficiency in buildings & industries

>70% Circularity
Energy Efficiency with steel recycling

X2 Electricity in final energy mix

Renewable Electricity
from Wind/Solar by 2040



#### A Digital Twin Platform

#### Design, Operate, and Automate

#### Automate

#### Intelligent Controllers

Microgrid
Nanogrid
Power Plant
Substation Automation
Remedial Action Schemes
Load Shedding & Restoration

#### Optimize

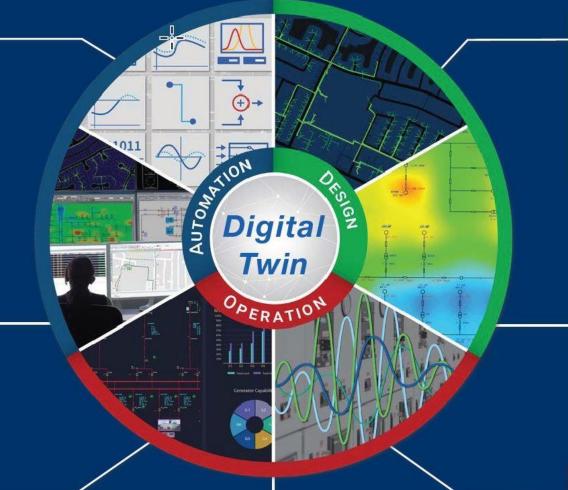
#### **Proactive Actions**

N-n Situational Intelligence
Volt / Var Optimization
Economic Dispatch
Switching Optimization
Automatic Generation Control
Fault Isolation & Service Restoration

#### Operate & Manage

#### Operational Awareness

Distribution Management
Switching Management
Outage Management
Load Management
Operator Training Simulator
Protection & Asset Management



#### Model

#### Intelligent Visualizations

Field Data Collection & Smart Data Entry
Wide Area Network Modeling Management
Multi-Dimensional Platform for Planning
Line & Cable Sizing, Capacity & Constants
Equipment Sizing & Capacity
Verified & Validated Manufacturer Libraries
Rulebooks & Warehouse

#### Simulate & Analyze

#### AC & DC Network Analysis

Unified Multi-Systems
Arc Flash & Safety Systems
Protection & Coordination
Dynamics & Transients
Design & Optimization
Auto-Run Study Wizard

#### Predict & Control

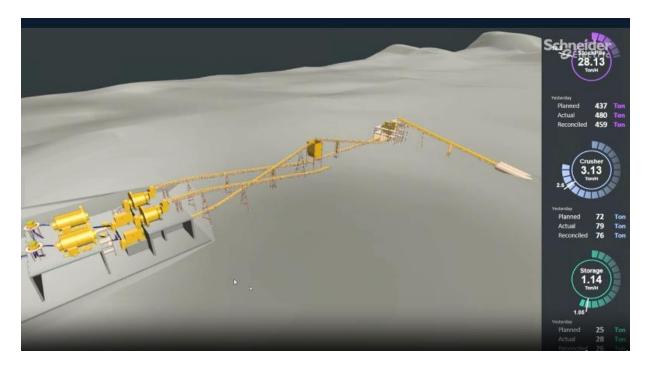
#### **Predictive Simulation**

AC & DC Network Analysis
Grid Code Compliance
Failure Mode Analysis
Reliability Centered Maintenance
Short & Long-Term Load Forecasting

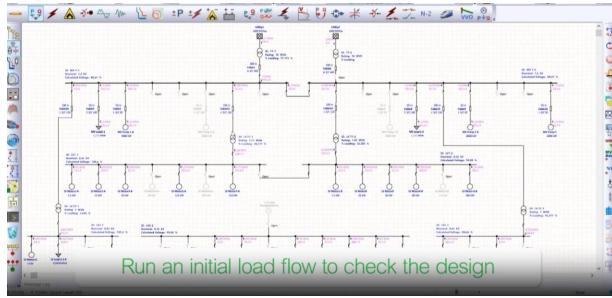
#### Monitor

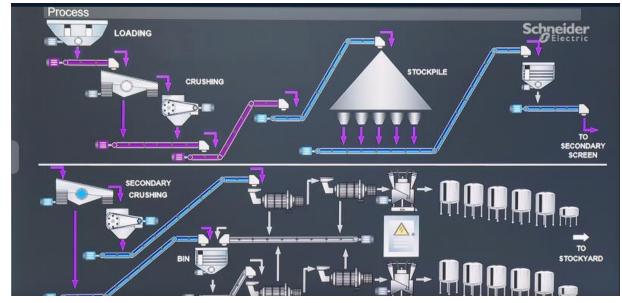
#### **Model-Driven Monitoring**

Power Management System Intelligent Electrical SCADA State Estimation & Load Allocation Energy Tracking & Accounting Sequence of Events Playback Cloud & Mobile Interfaces





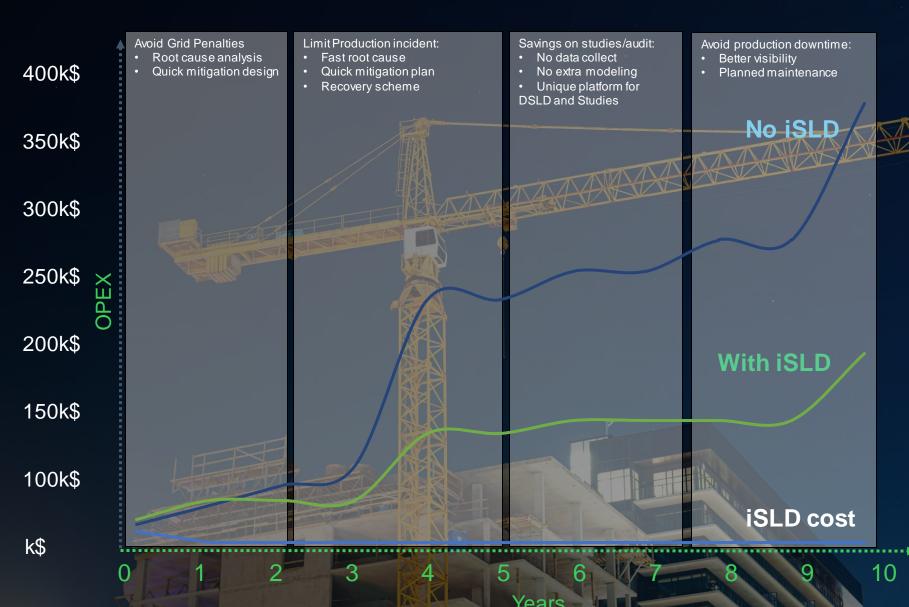




	Alarm State Runtime Status	7 Day Event History	Days until fallure	Warnings	Latest Alarm
Smart Mine 1	G 📕		1086		08/09/2020 08:49:21.179
Process	<u> </u>		586	369	08/09/2020 08:49:21.183
Crushing	<u> </u>		397		08/09/2020 08:49:21.184
C-XXX1 Crusher	<u> </u>		191	117	08/09/2020 08:49:21.185
C-XXX1 Crusher Sensor 1	<u> </u>				08/09/2020 08:49:21.186
C-XXX1 Conveyors	<u> </u>		103	52	08/09/2020 08:49:21.186
C-XXX1 Conveyor 1	<u> </u>		103		08/09/2020 08:49:21.186
C-XXX1 Screener			103	52	08/09/2020 08:49:21.186
C-XXX1 Screener Sensor 1	<b>O</b>		103		08/09/2020 08:49:21.187
SAG Mills	<u> </u>		125	89	08/09/2020 08:49:21.187
Cyclones	<b>G</b>		64	59	08/09/2020 08:49:21.187
─ Flotation			290	200	08/09/2020 08:49:21.187
( Vehicles	G O		210		08/09/2020 08:49:21.187
edictive Notifications				_	



#### Intelligent Single Line Diagram "iSLD" provides a step up in OPEX efficiency



#### Save up to 54% of OPEX:

- Audit/Calculations
- Plant downtime
- Data Collect
- Grid and authority compliance

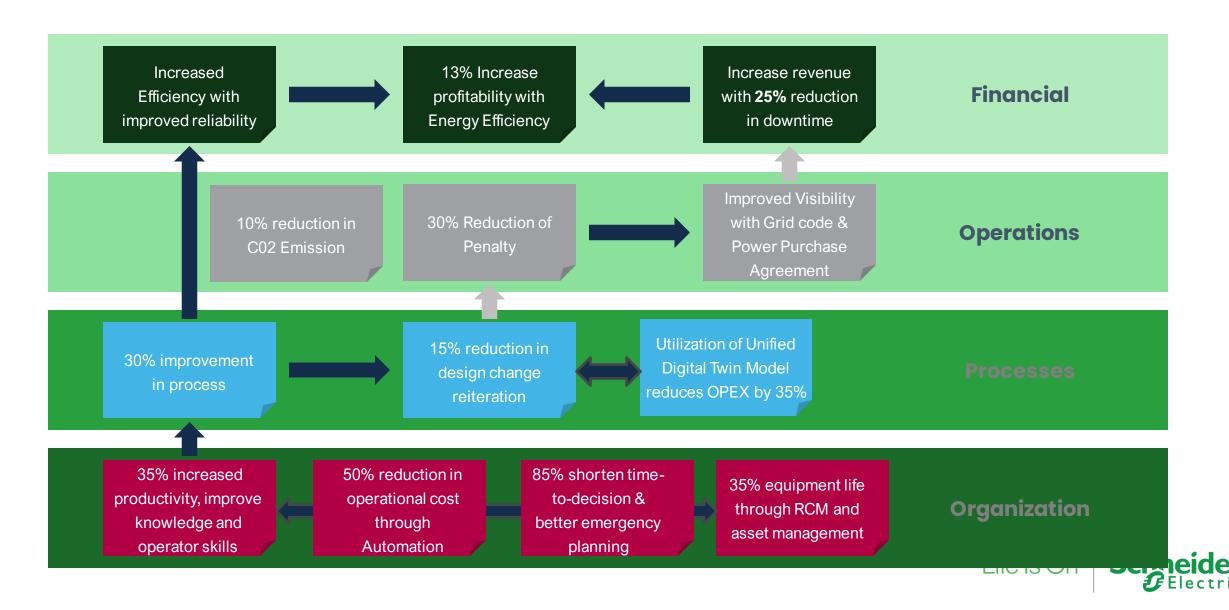
#### **Open doors for extra savings:**

- Modernization optimization
- Improve runtime connecting iSLD to real time data
- Carbon footprint reduction
- Energy Efficiency

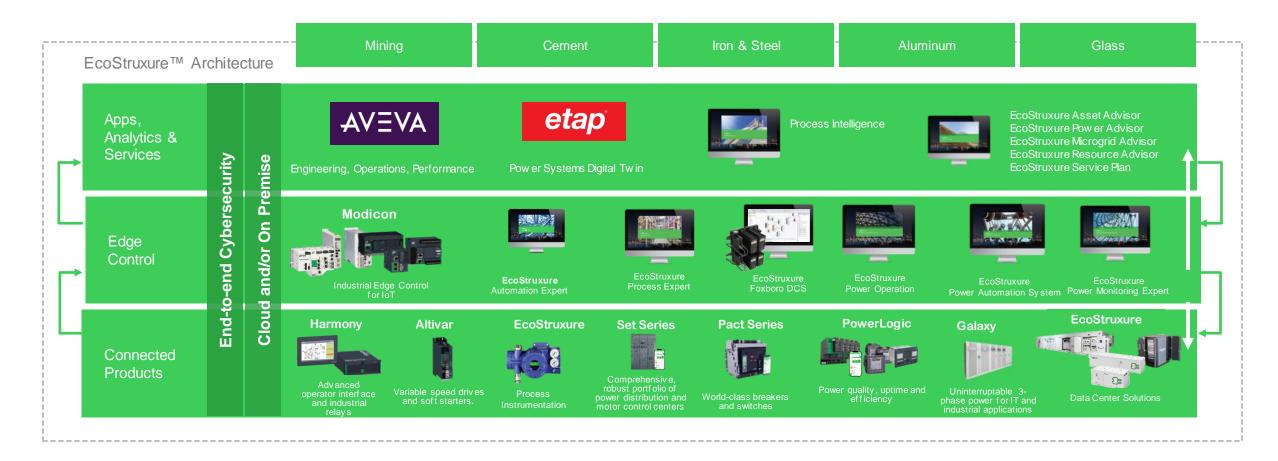
**Build a trusted partnership** with SE power systems expertise consulting team

Life Is On

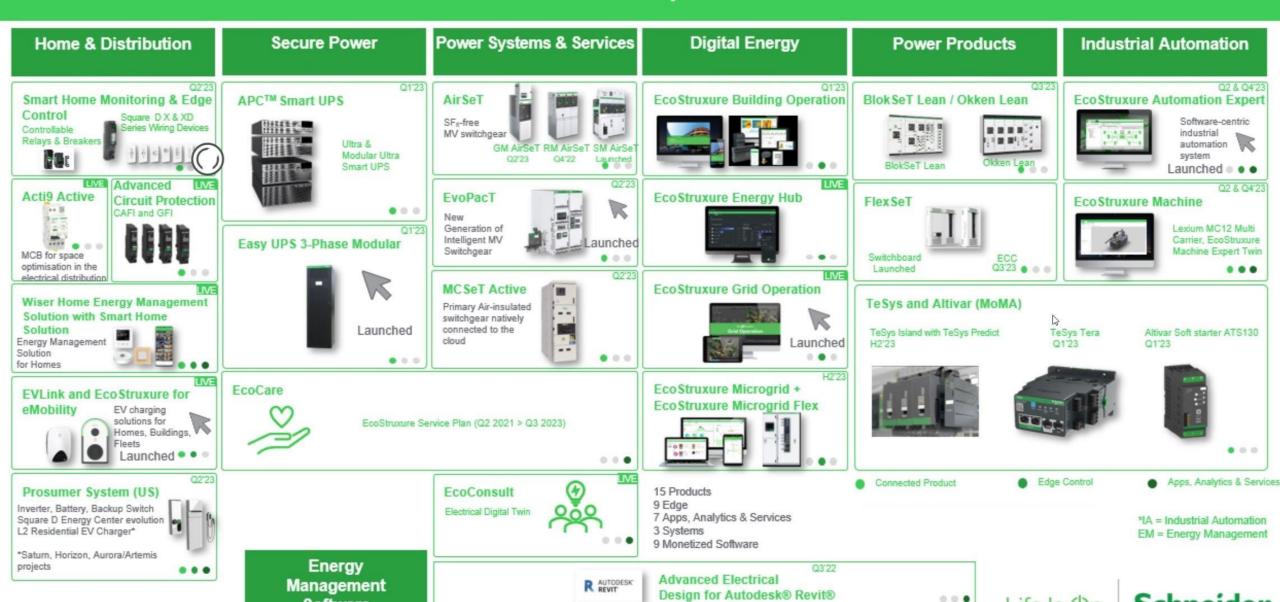
#### Indirect Savings – Efficiency & Productivity



#### Eco € truxure Stack



#### 23 Hero Offers in 2023 | 20 EM, 2 IA, 1 EM+IA



Life Is On

Software

## Asset management demands a new approach to maintenance practices

#### Corrective

#### Run to fail

- I can only react when failures happen
- I cannot prevent downtimes
- I need to replace my equipment more often
- Urgent intervention is expensive: higher man rate, higher travelling fees, less negotiation levers...

#### Preventive Timebased

#### **Fixed** maintenance cycles and tasks

- I can hardly anticipate failures and mitigate risk
- Attempting to prevent more downtimes is time consuming & costly (on site actions)

#### Preventive Condition-based

#### **Dynamic** maintenance cycles and tasks

- I prevent asset failure & downtimes
- I optimize my maintenance cycles & tasks

#### Predictive Maintenance

#### Just-in-time maintenance tasks

- I predict asset failure & downtimes
- I minimize my maintenance actions: just enough to avoid failure occurrence

Past practices Service Plan Future Practice











## Empower all to make the most of our energy and resources, bridging progress and sustainability for all

We play on both sides of the equation

Leading by example in our ecosystem



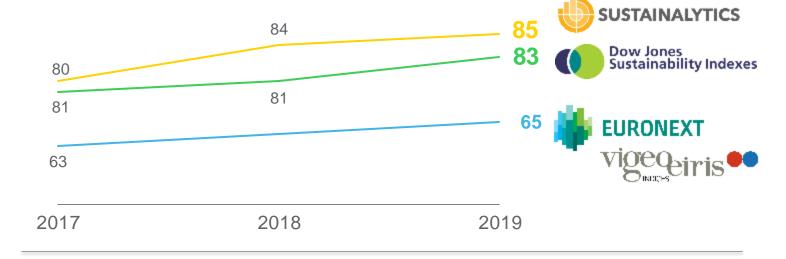
Being part of the solution for our customers



#### Sustainability Recognition



### 2021's most sustainable corporation in the world





MSCI ESG RATINGS 9 years in a row





## Leadership with deep domain expertise

<u>20</u>

of the oil & gas companies

9

of the 10 largest mining, metals & minerals companies 127

of the top brands within **food & beverage** 

**₹40k** 

water & wastewater installations in 120 countries

√J Mil+

**buildings** including 3 of the top 5 **hotel** chains and approx. 40% of the world's **hospitals**  **10** 

of the world's top electric **utilities** 

4

of the top 4
hyper-scale
cloud providers

**数8** 

of the top 10 packaging machine builders

**10** 

of the biggest automotive companies globally

of the top 4
semiconductor
manufacturers
recognized us as
2018 Preferred
Quality Supplier

**\$10** 

of the world's largest airports

#### How can we help!





#### Hersch Joshi

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