

# Monetising Decarbonization Data

The Journey of an Energy AI Startup to Success

Prepared for *Singapore International Energy Week (SIEW) 2020*

# EVERCOMM

Helping organizations(s) and government(s) to *identify, achieve and scale* available technologies and transit towards *net-zero operations*.

- Leveraging Big Data IoT & AI for Asset Performance Management
- Founded in 2013, incubated and invested by Nanyang Technological University (NTU Singapore)
- Accredited by Singapore Government, recognized as one of the digital pioneers by Singapore Committee on the Future Economy (CFE) and cited by various ministers in Singapore
- Recognized as Top 10 Renewable Energy Solution Provider in APAC by Energy CIO Insights, Top 25 Cleantech company in APAC by Cleantech Group, and Singapore Energy Award Recipient

## Accelerator Program Selected:

2017



2018



2020



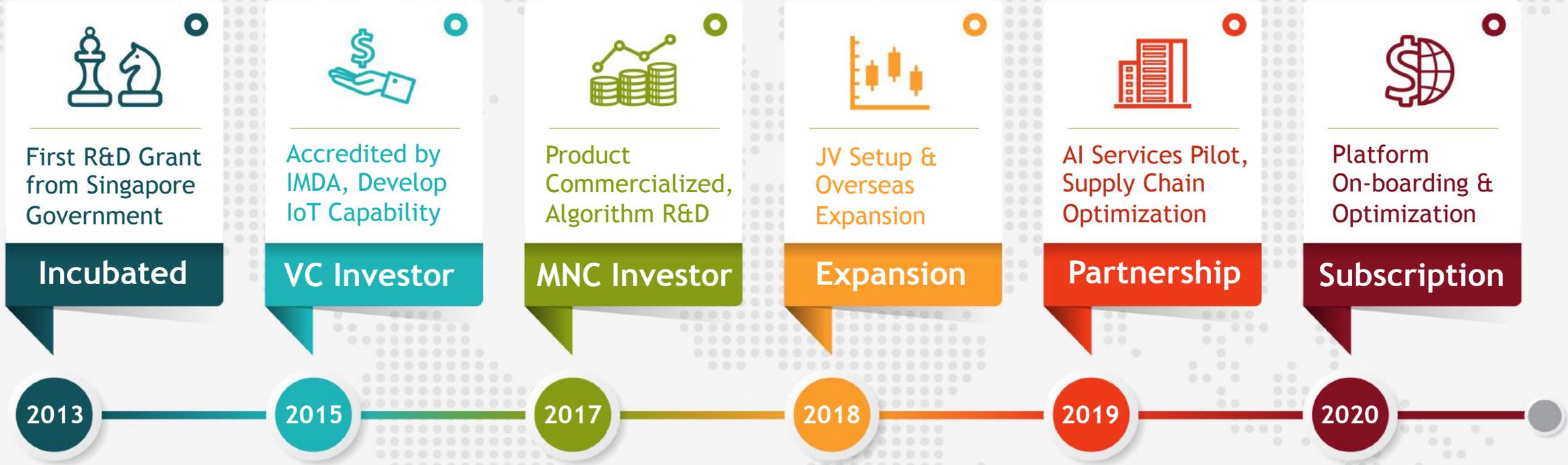
هيئة كهرباء ومياه دبي  
Dubai Electricity & Water Authority



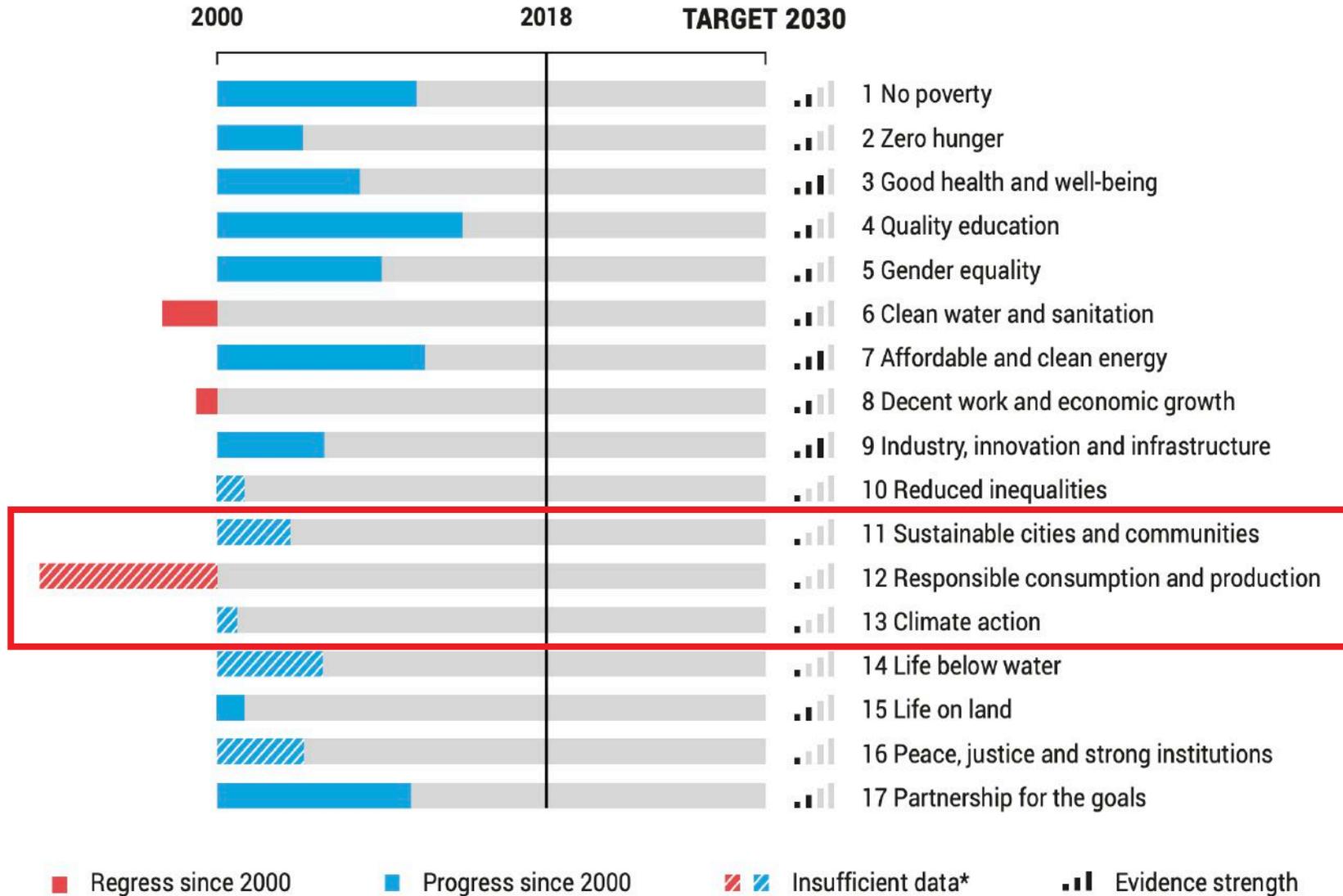
unreasonable**impact** Created with BARCLAYS



# Our Innovation Journey



# Global Challenges



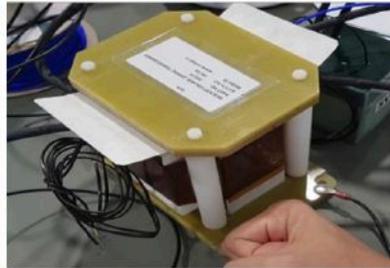
# Energy Complexity

## Urban Mobility



Carbon Capture/Storage  
 District Design  
 Urban Dynamics  
 District Cooling Network  
 Low Carbon  
 Data Centers  
 Transport System Design

## Digital Grids



Zero Energy Buildings  
 Virtual Power Plant  
 AC/MV / System Optimizer  
 EMS/BMS  
 Low Carbon Campus  
 Energy Harvesting  
 Low Power Devices

## Renewables Integration



Waste to Energy  
 Resource Recovery-Metals  
 E Waste  
 Low Energy Grade Waste  
 Building Materials  
 Municipal Solid Waste  
 Polymer Recycling



EV Charging Infrastructure  
 Flash Power Transfer  
 Power Trains For Traction  
 Range Extender Solutions  
 Vehicle To Grid Interaction  
 AI & Perception Systems  
 Comms & Control Systems  
 V2X Systems

## Carbon Reduction

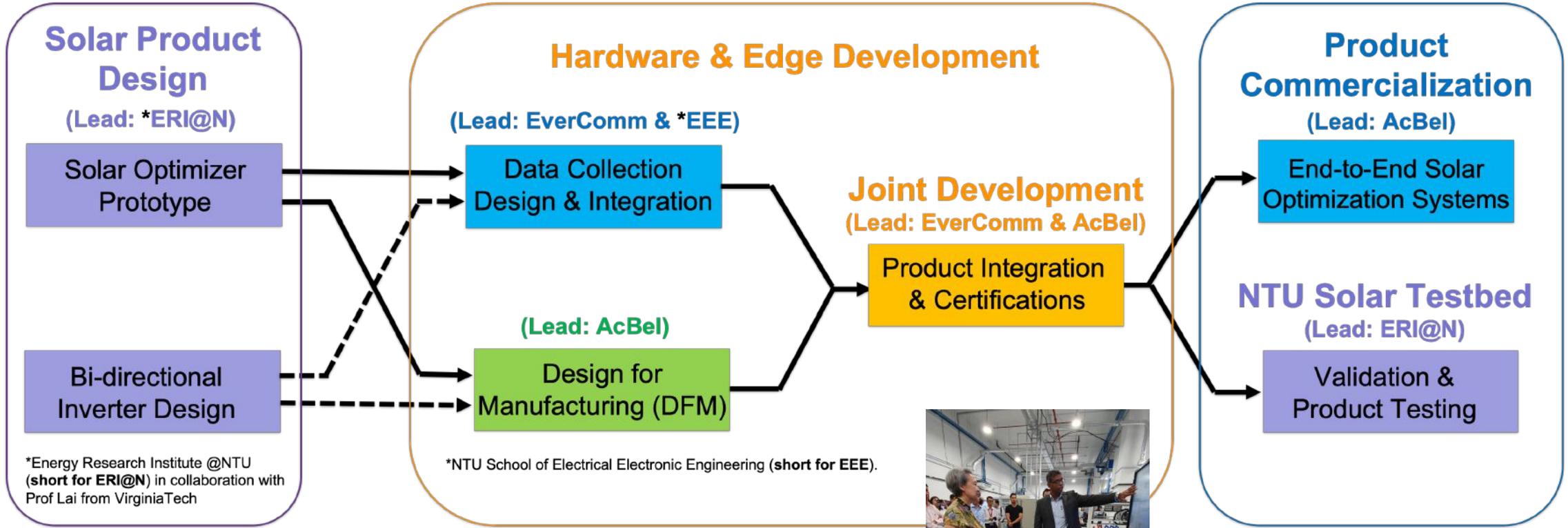
High Frequency Transformer  
 Multigrid Controller /Systems  
 Microgrid Power Devices  
 Modelling & AI  
 DAC Systems  
 DER's, Smart Metering  
 Fault Prediction Tools  
 Interoperability Systems

## Energy Efficiency

Multi Energy RE Systems  
 Solar, Wind, & Tidal  
 Advance Energy Storage  
 Hybrid Energy storage  
 DC Grid Systems  
 Power Devices

## Circular Economy

# Open Innovation Methodology



\*Energy Research Institute @NTU (short for ERI@N) in collaboration with Prof Lai from VirginiaTech

\*NTU School of Electrical Electronic Engineering (short for EEE).



Ho Ching, CEO of Temasek Holding



Energy Research Institute @ NTU



# Singapore Testbeds



## Renewable Energy Integration Demonstrator (REIDS)

### Singapore

5 microgrids for core electrical/ICT infrastructure operation / testing

RE Integration, Carbon Reduction, Green Building & Energy Efficiency, IoT.



## Supply Chain City

### Singapore

Sustainable Design, IoT , Big data and AI, E-mobility

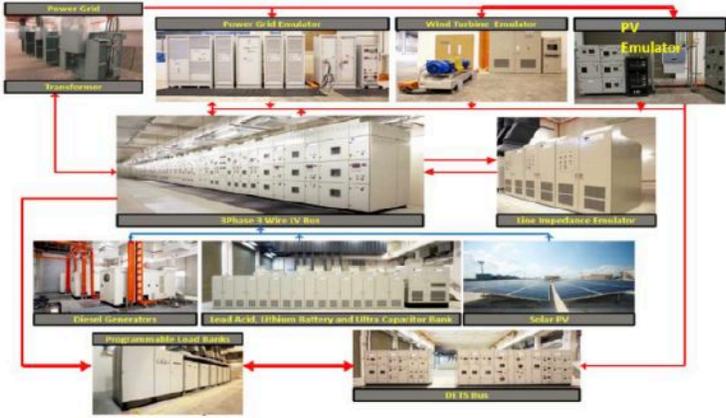
## Experimental Power

### Grid Center (EPGC)

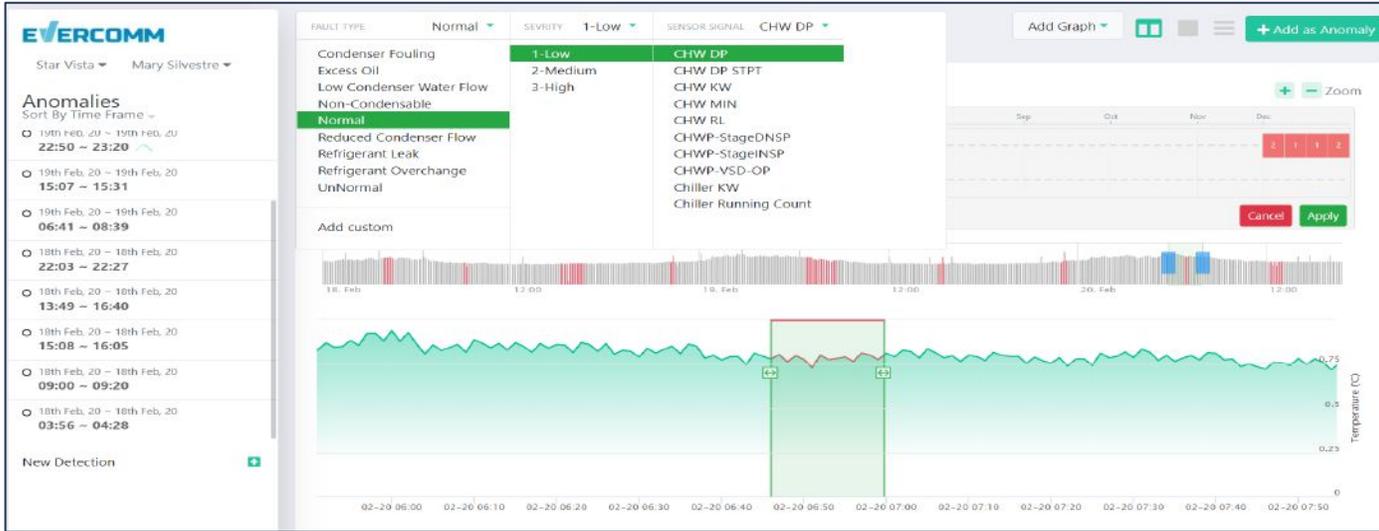
### Singapore

40 Million \$

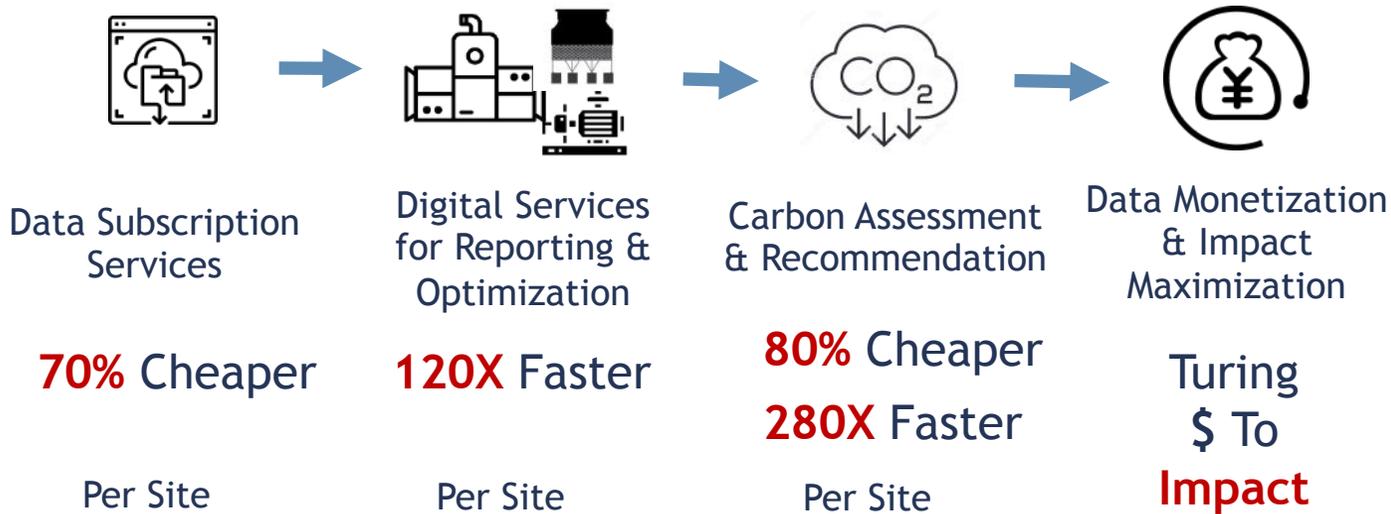
RE Integration, Green Building & Energy Efficiency, Sustainable Design, Digital Twin, IoT, big data & AI.



# New Business Model: Subscription



## Value Proposition



End-use	Technical Potential (%)	
	BAT	Emerging/NG Technologies
Steam boilers and steam systems	9.7%	0.4%
Hot water systems	7.0%	-
Furnaces / kilns / ovens / dryers	12.5%	5.2%
Cooling and refrigeration	17.9%	1.0%
Pumps	11.7%	0.1%
Fans/blowers	8.5%	0.1%
Other machine drives	5.1%	0.1%
Compressed air systems	17.3%	-
Process specific	9.4%	14.1%
ACMV	32.0%	0.1%
Lighting	29.4%	-
Other	-	-
System	1.2%	2.5%
<b>Overall reduction in sectoral energy use</b>	<b>13.1%</b>	<b>5.7%</b>

Singapore Industrial Energy Efficiency Technology Roadmap, Singapore National Research Foundation. \*BAT stands for Best Available Technology

# Decarbonization Platform

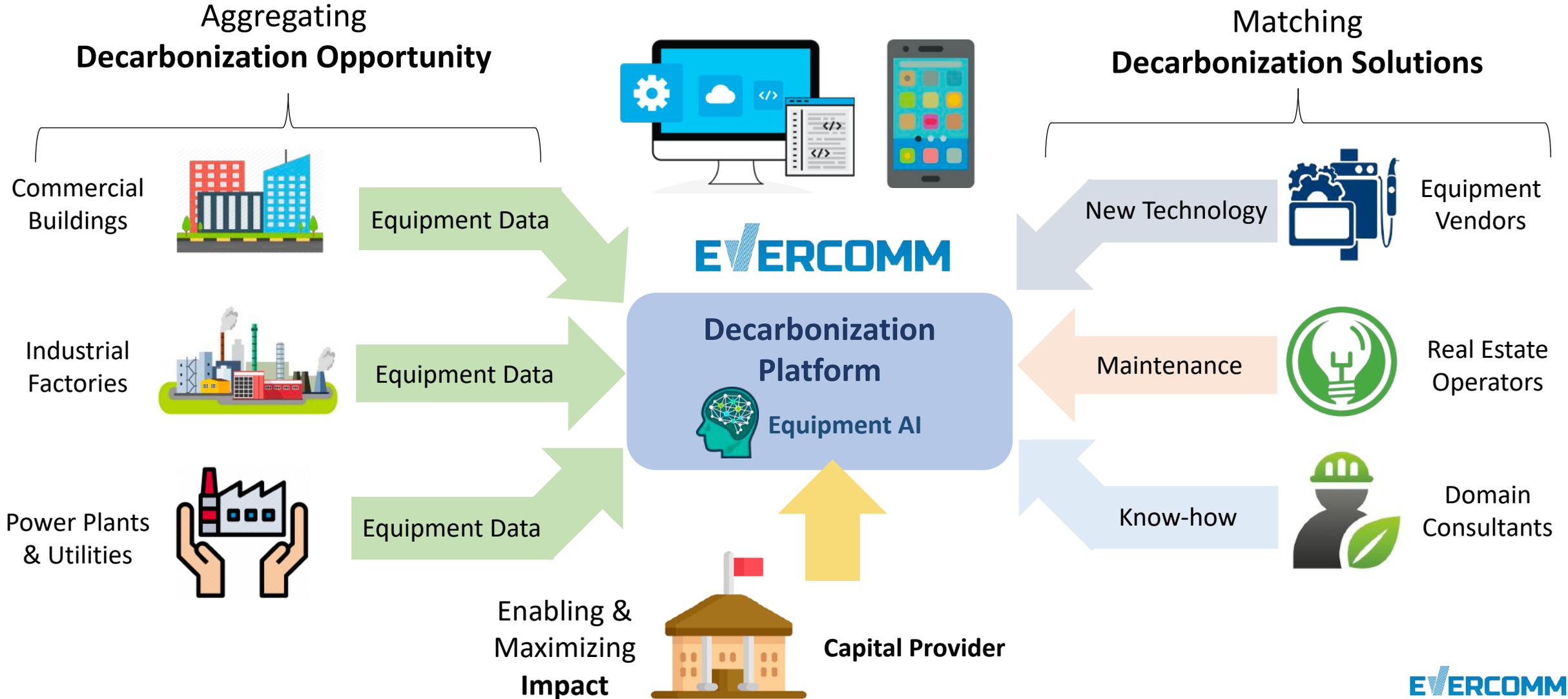
Partners:



United Nations Development Programme



NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE



# Data Life Cycle & Monetization

Raw Data

Processed

Tokenized



*Reducing Carbon Footprint & Wastage*

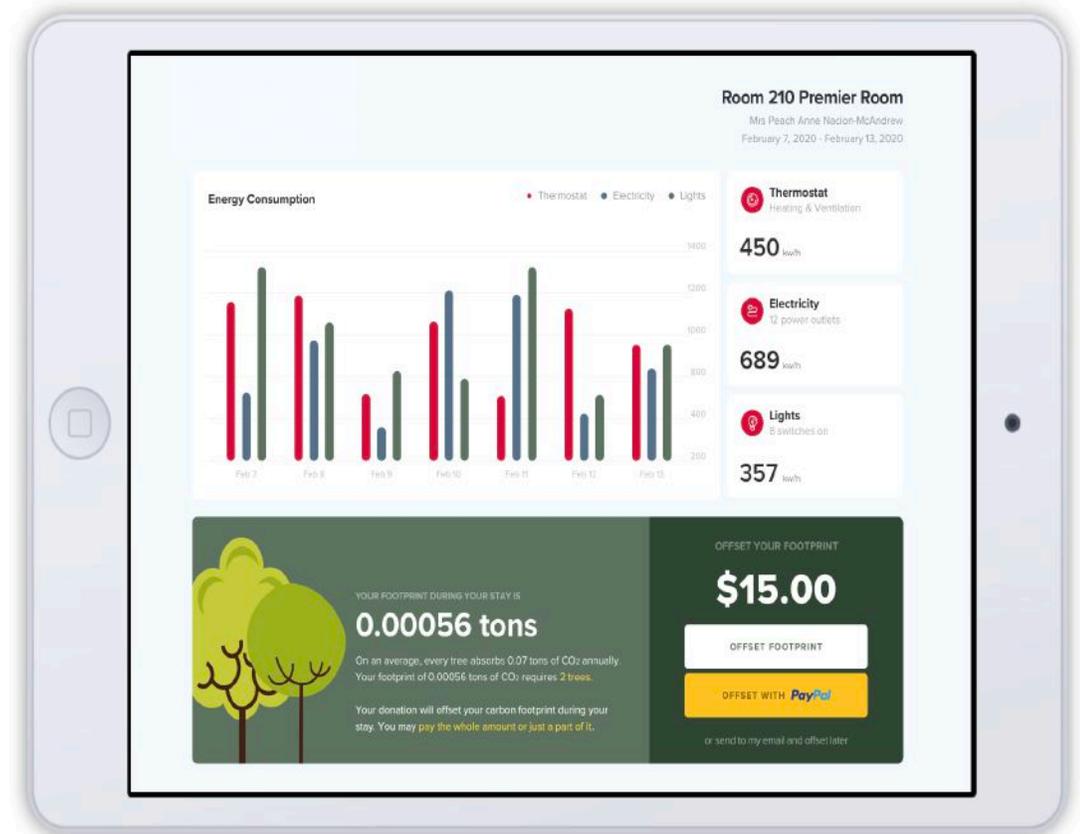
*Productivity & Predictive Maintenance*

*Carbon Credits & Avoidance Certificate Trading*

Equipment

Manpower /Vendor

Customer/ Government

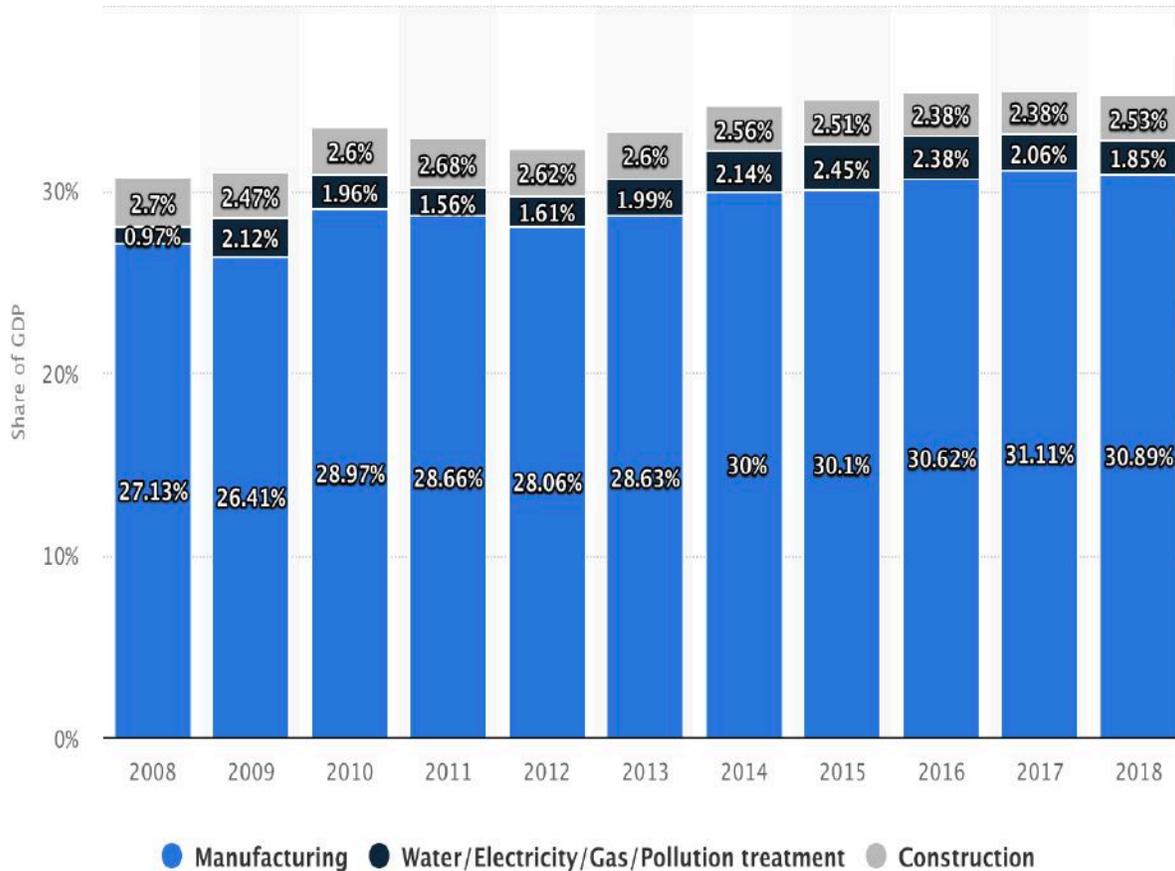


# Singapore Ecosystem Support



# Green Manufacturing in Taiwan

## Taiwan Manufacturing Revenue To GDP



Source: Department of Statistics, Taiwan

Partnership with **New Taipei City Government** to aggregate 20,000 factories' energy demand

**EVERCOMM**



Mr. Hou You Yi, New Taipei City Mayor, Visit EverComm in Singapore

# USING AI TO SIMPLIFY COMPLEX ENERGY USE PROBLEMS



Evercomm Singapore provides Asset Performance Management (APM) solutions for energy-intensive enterprises. The core focus of their product is to harness IoT and machine learning technologies to simplify energy complexity and daily operations. The AI-driven APM dramatically reduces integration cost and time, enables real-time analytics correlating sensor data and equipment profiles, and extracts critical operation insights along with indexing equipment performance at scale. The company's holistic energy management approach (combining both energy supply and demand) is co-developed with the Energy Research Institute at Nanyang Technological

University under the Smart Multi-Energy System (SMES) initiative. Evercomm also works with United Nations, country leaders, and large conglomerates to build and train the pipeline of human resources that is needed in order to fill the necessary roles that sustainability and industry digitization require.

# THANK YOU!

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