

# Artificial Intelligence (AI): Reshaping the PV Industry with Smart Inverters

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*Yellow Door Energy*





# AGENDA

- About Yellow Door Energy
- Data Analytics
- AI Applied to Solar
- Case Studies



## OUR VISION

To power emerging economies  
reliably, efficiently and sustainably



5.5 MWp | Nestlé Middle East | Dubai, UAE



# OUR STORY



**2015**

founded in the  
UAE and Jordan



**110+ MW**

of commercial &  
industrial solar  
projects



**UAE  
Jordan  
Pakistan  
Saudi Arabia  
Bahrain**



**Your  
Sustainable  
Energy  
Partner**

# INTERNATIONAL SHAREHOLDERS



**\$112 billion**  
of assets in 2020



**\$22 billion**  
invested in 2020



**\$9.3 billion**  
of net operating income in 2019



**\$7.4 billion**  
of assets in 2019

Sources:

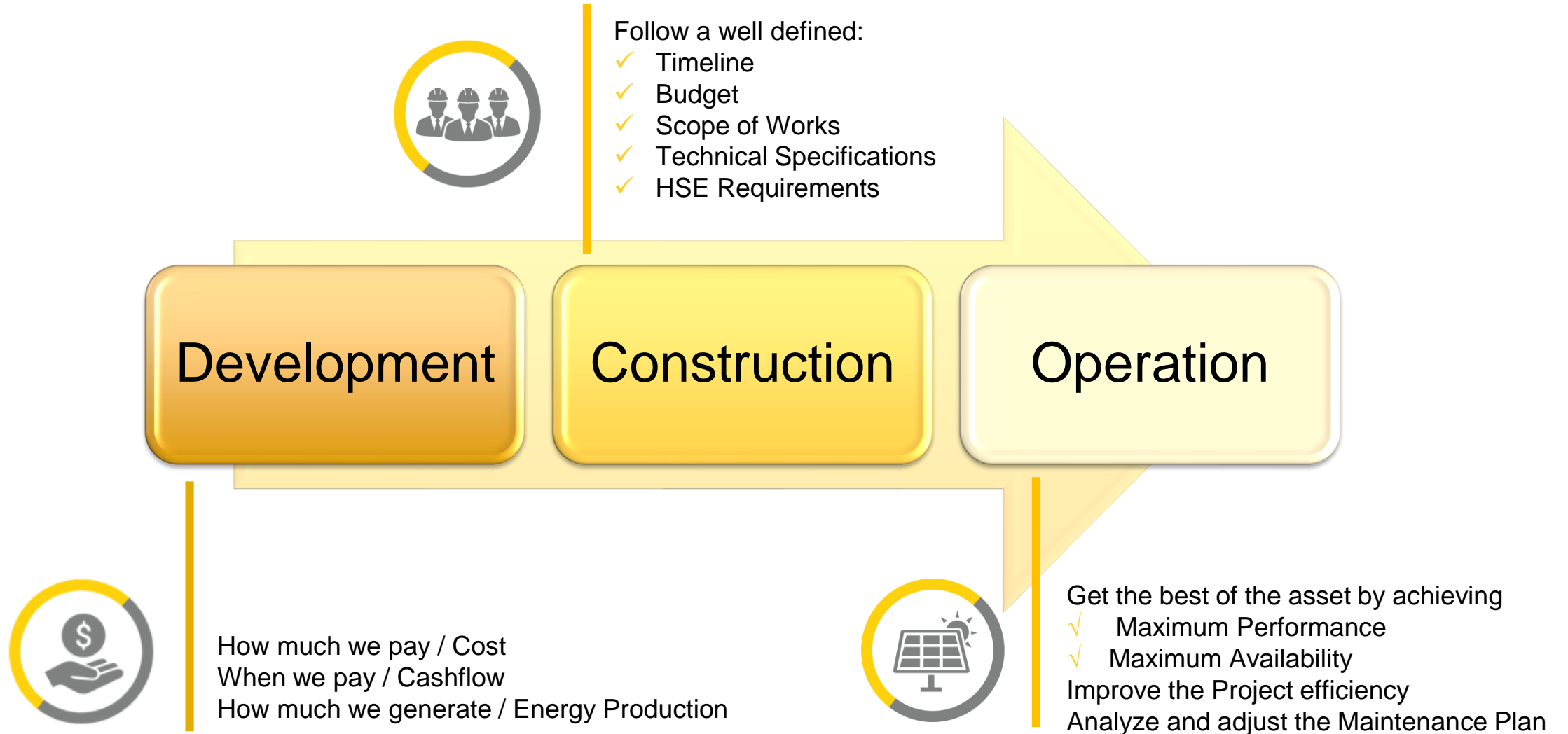
[https://www.ifc.org/wps/wcm/connect/corp\\_ext\\_content/ifc\\_external\\_corporate\\_site/annual+report/financials](https://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/annual+report/financials)

<https://www.apicorp.org/investor-relations>

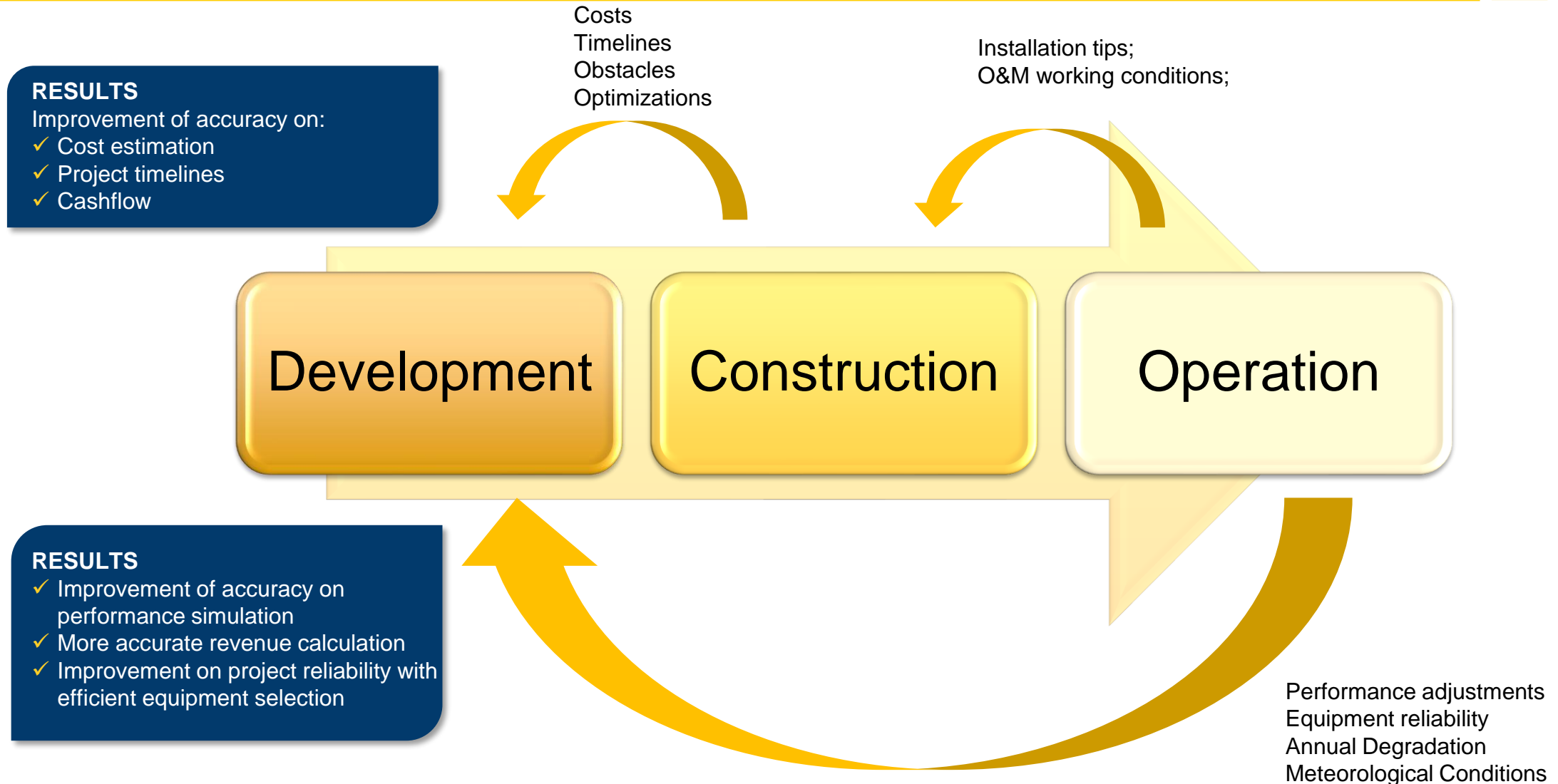
<https://www.simcorp.com/en/client-stories/equinor-asset-management>

<https://www.mitsui.com/jp/en/ir/data/highlight/index.html>

# BACKGROUND | THE PROJECT LIFE CYCLE

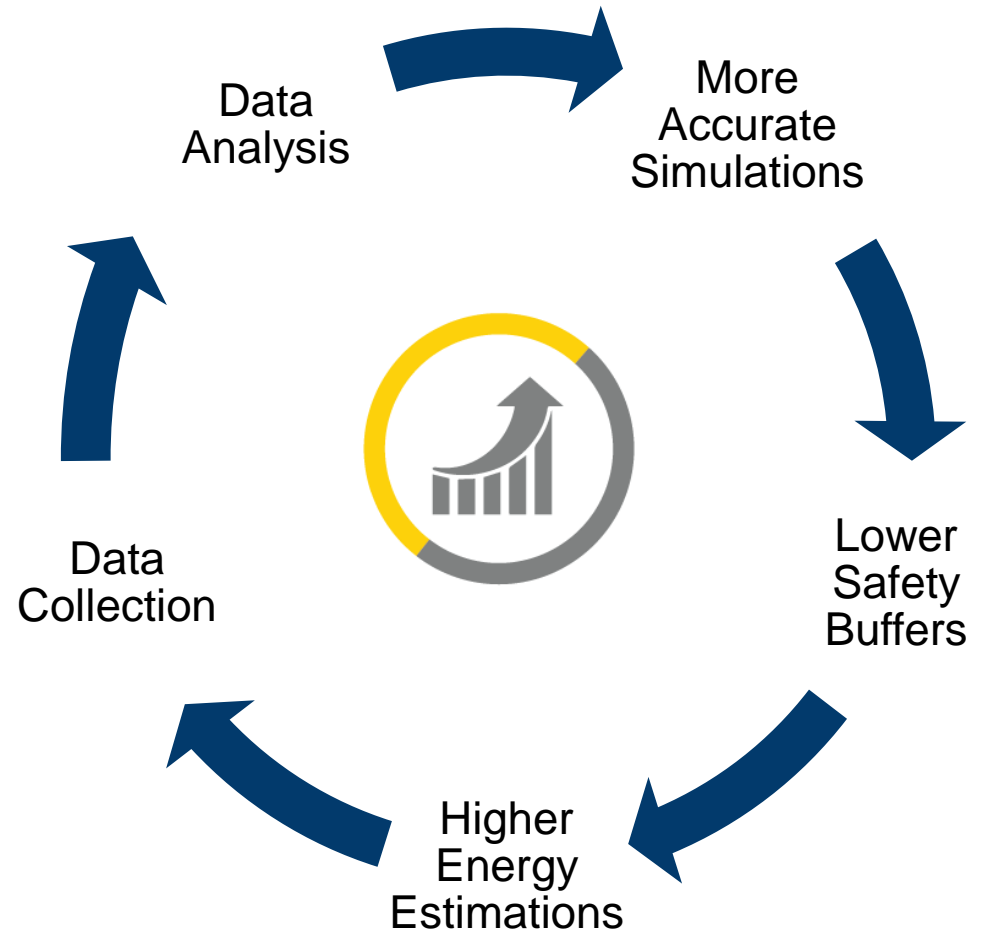


# DATA ANALYTICS | IMPORTANCE OF ACCURACY



Why just a **Cost** driven competitiveness?

What about **Revenue**? Can we do anything about it?





## The Asset Manager

is a Key stakeholder on Project's Performance and profitability.

*Is it just monitoring the Power Plant and see if we are above the promised?*

**NOT AT ALL**, is much more than that, with the support of Data Analytics!

- ✓ Understanding its behaviour, feel it;
- ✓ Know it inside out: weakness and strong aspects;
- ✓ Get the maximum of it, through revamping or optimization, or adjust maintenance plans to reduce downtimes, increasing the availability;
- ✓ Predict potential problems;
- ✓ Analyze and reset meteorological data sets

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# WHAT CAN ARTIFICIAL INTELLIGENCE GIVE US?



- Today we can manually do all the data analytics to optimize plant performance
- However, that would take a lot of time and resources
- Artificial intelligence can do it for us in a more efficient way, with less time and resources

5.5 MWp | Classic Fashion | Al Mafraq, Jordan



# EXAMPLES OF AI APPLICATIONS



1.2 MWp | Jabri Restaurant | Al-Satl, Jordan

- ✓ Trigger the cleanings based on soiling levels, meteorological conditions, cost and past results;
- ✓ Identify potential problems that had occurred in the past, based on internal or external conditions;
- ✓ Define the most efficient Maintenance Plans to reduce energy curtailment;
- ✓ Adjust and offset meteorological data sets;
- ✓ Energy forecasting (hour/day/week)

# CASE STUDIES | PROJECT PERFORMANCE



# 105%



**Unilever Middle East**  
1.0 MWp  
Dubai, UAE  
Ground Mount PV  
2 Years of Operation  
105% actual performance vs.  
expectation



# 101%



**All YDE UAE Projects**  
Rooftop PV  
Solar carport  
Ground Mount PV  
1-2 Years of Operation  
101% actual performance vs.  
expectation



# IN SUMMARY



DATA ANALYTICS with ARTIFICIAL INTELLIGENCE allow us to:

- ✓ Get better and more accurate performance guarantees;
- ✓ Get the maximum of the asset, generating more clean and cheaper energy to our customers
- ✓ Add of a second layer of monitoring, with strict supervision of our O&M providers
- ✓ Increase the efficiency of our assets and consequently improve competitiveness





## Thank you!

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