



Creating Disruption

Dr Marcus Hellyer



Sir Richard Williams Foundation Conference
2021

The innovator's dilemma

















Sustaining innovation
(improves your core business)

versus

Disruptive innovation
(blows your core business away)

51.3% renewables

27 Mar, 1:00 PM AEST

Default ▼	Power MW	Contribution to demand	Average \$/MWh
Sources	23,347		-
 Solar (Rooftop)	6,143	26.3%	-
 Solar (Utility)	2,785	11.9%	-
 Wind	2,559	11.0%	-
 Hydro	495	2.1%	-
 Battery (Discharging)	0.5	0.002%	-
 Gas (Reciprocating)	62	0.3%	-
 Gas (OCGT)	0.03	0.0001%	-
 Gas (CCGT)	493	2.1%	-
 Gas (Steam)	81	0.3%	-
 Distillate	-0.03	-0.0001%	-
 Biomass	-1.7	-0.007%	-
 Coal (Black)	7,975	34.2%	-
 Coal (Brown)	2,755	11.8%	-
Loads	-518		
 Pumps	-442	-1.9%	-
 Battery (Charging)	-75	-0.3%	-
Net	22,829		
 Renewables	11,981	51.3%	



From the operator of Yallourn

“The energy market transition is real and it’s happening fast. I think it’s fair to say it’s happening faster than most people forecast.”

- EnergyAustralia’s managing director Catherine
Tanna

The energy sector



The defence sector

Monopoly
(Supply to government)



Monopsony
(Demand from
industry)

Observation 1

- Transitions can start for a variety of reasons that may not be economically motivated
- They reach a tipping point when the business case becomes economically compelling

Observation 2

- True disruptive innovation lies not in doing the same thing more efficiently
- It comes from doing something different

Observation 3

- Don't compare the performance of components of the system
- Compare the effectiveness of the entire system

Observation 4

- Small is beautiful
- Disaggregated systems can be very effective
- They can be more resilient than concentrated ones

Observation 5

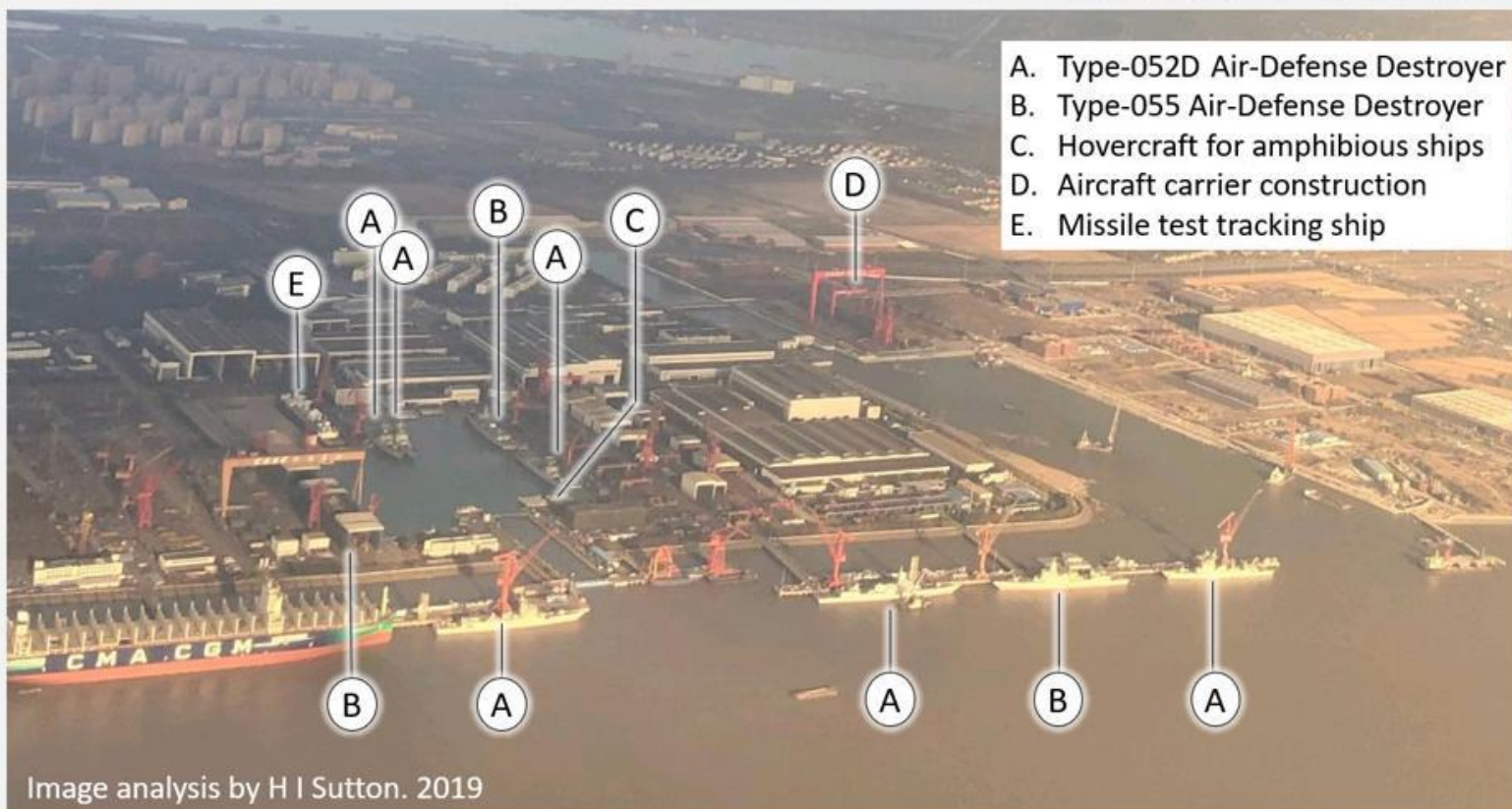
- You don't know where you are going
- That's not a bad thing
- Strategy is good – if your strategy is adaptable

Motivation for disruptive innovation



Chinese Navy (PLAN) warship construction, JN shipyard, Shanghai

December 13 2019 (31°20'47.29"N, 121°44'34.24"E)



To paraphrase ADM Gildray

- Can we continue to build \$3 billion ships to carry 32 VLS cells?
- We need to start harnessing the disruptive potential of disaggregated systems