

In the framework of

SESEI



In association with



Confederation of Indian Industry

3rd Indo-European Conference on Standards and Emerging Technology

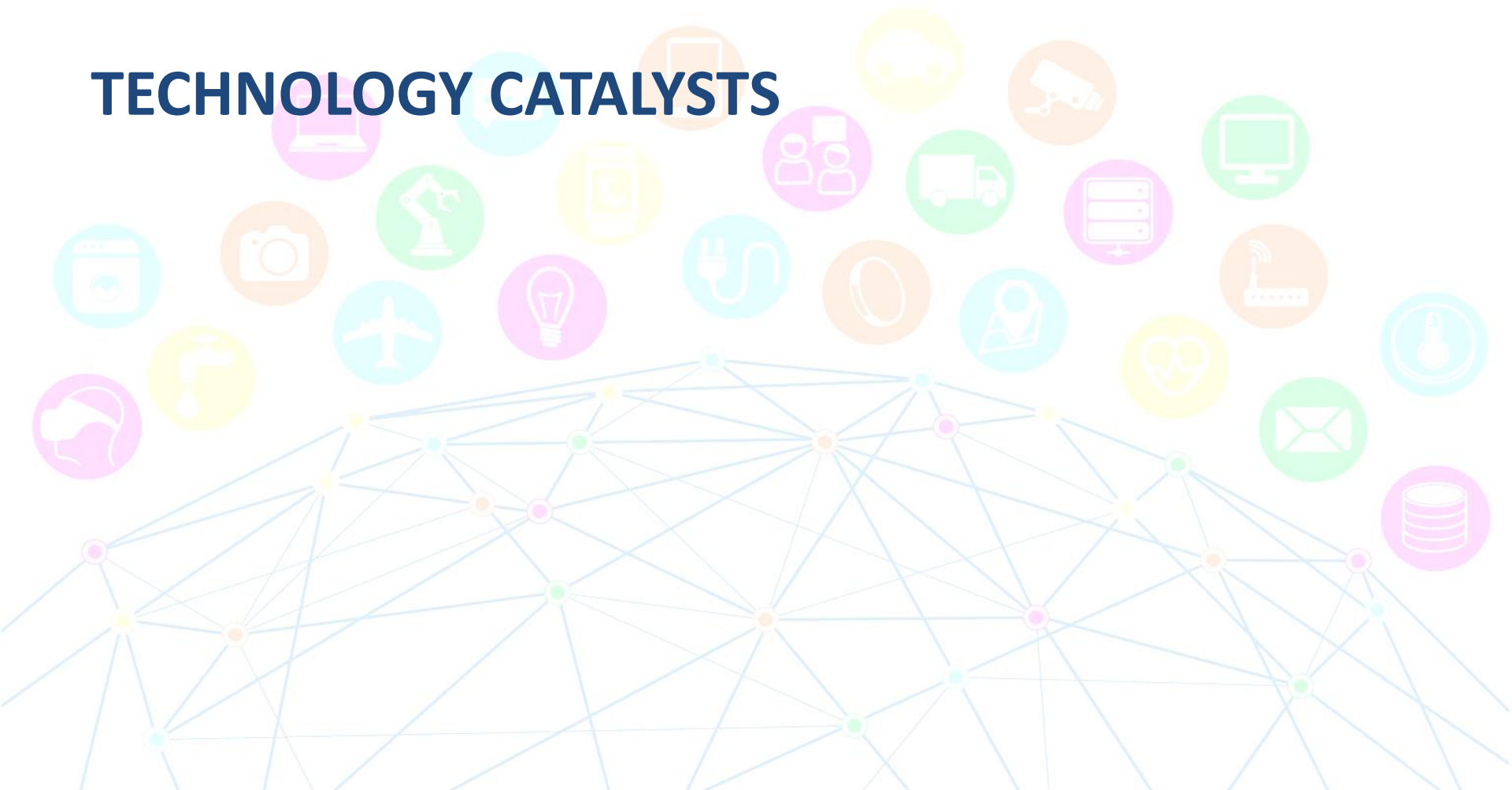
26th April, 2018 – New Delhi



PARADIGM SHIFT FOR UTILITIES

Presented by Alain Staron, SVP Digital

TECHNOLOGY CATALYSTS



Catalysts for Smart and Micro Grids



Cost of decentralized production

Capacity of decentralized storage

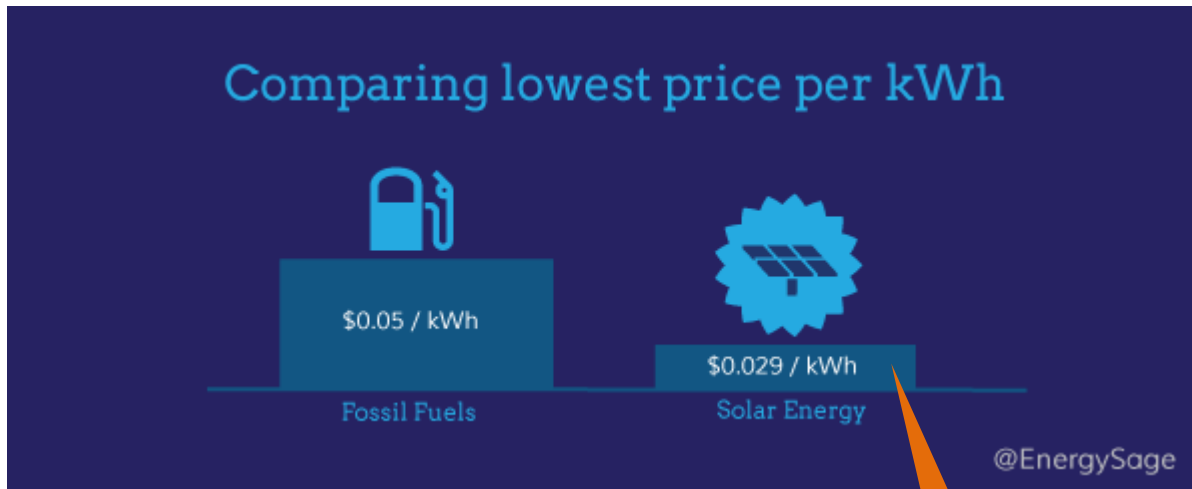
Empowerment of decentralized actors

TECHNOLOGY CATALYSTS

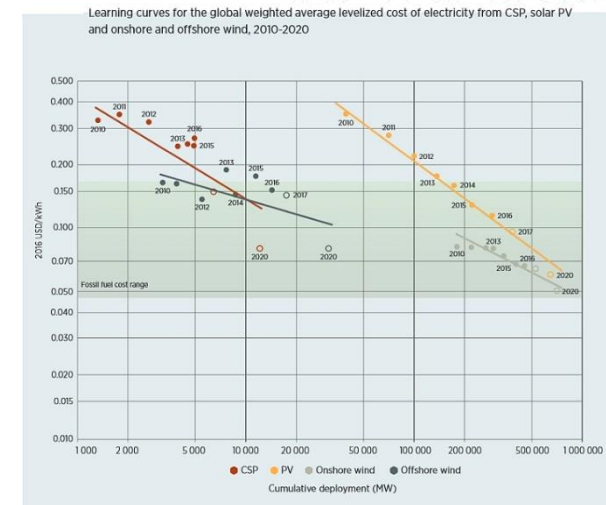
Production



Cost of renewable energy production



2016

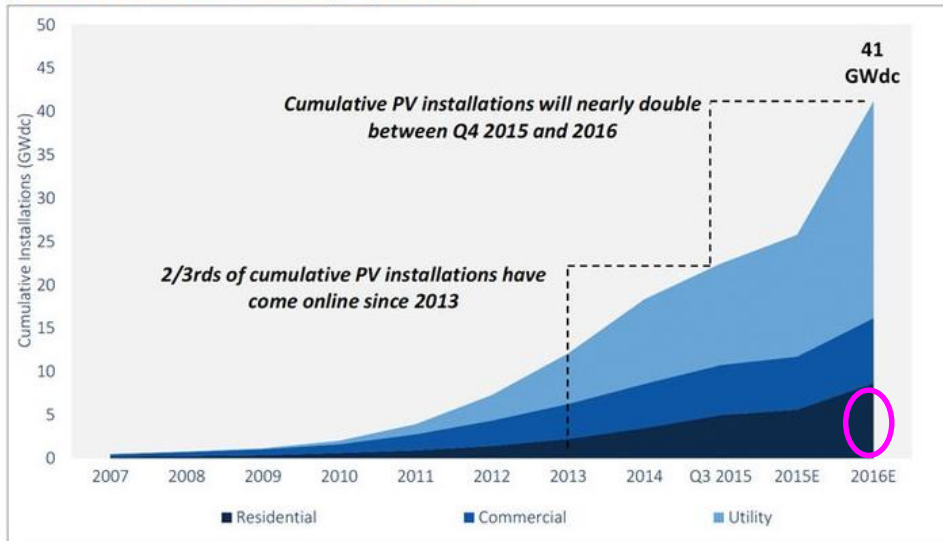


Source: IRENA Renewable Cost Database; IRENA Auctions Database; GWEC, 2017; WindEurope, 2017; MAKE Consulting, 2017; and SFE, 2017.

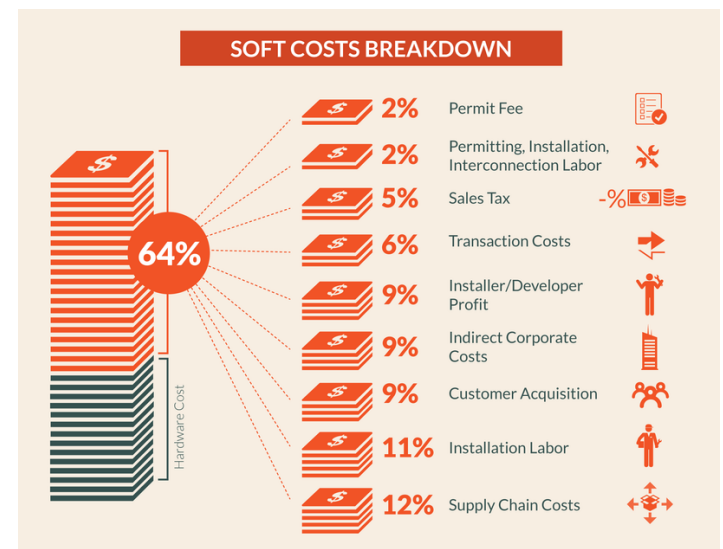
- Sweihan, Abu Dhabi: 0.0242 US\$/ (kWh) – 2017
- Rajasthan, 2.62 rupees / kWh – 2017
- Average IRENA: <0.05US\$ in 2020 (eq. Moore Law: -35% cost when doubling installed capacity)

Moving to Decentralized Production

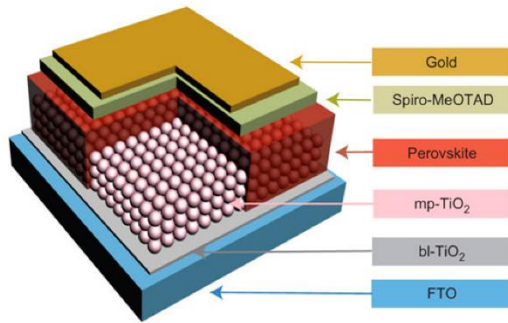
Figure 1.2 Cumulative U.S. PV Installed Capacity, 2007-2016E



- Consumer installations grow // Utilities (US)
- Additional Soft Costs to be “soften” by Regulation ?



Next steps ? efficiency : x 5 Techno, /5 Design ...

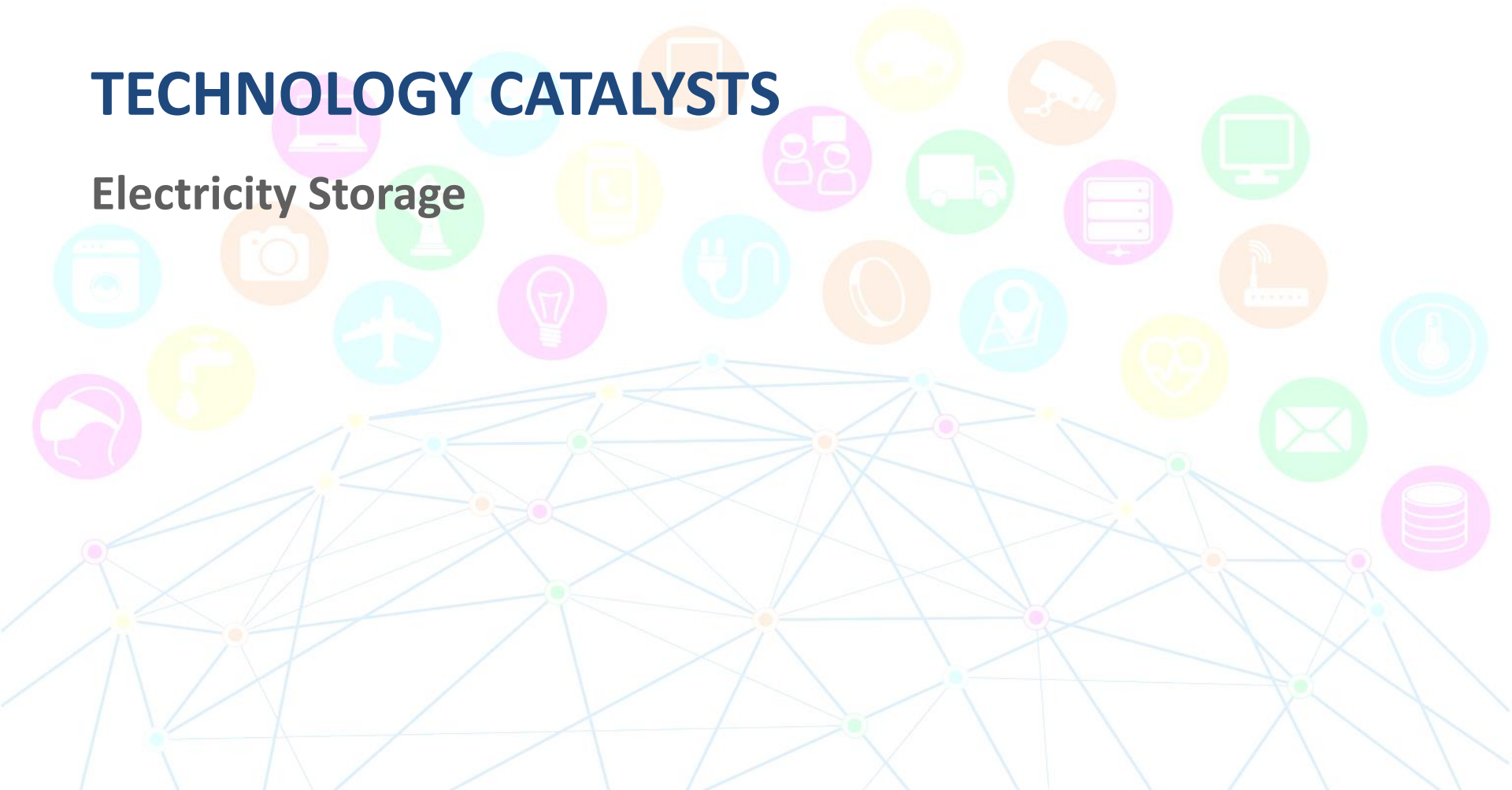


- Perovskite Solar Cells
- Solar Rooftile , still 5x more expensive

➤ Still very dynamic technology

TECHNOLOGY CATALYSTS

Electricity Storage



Capacity of storage



2016

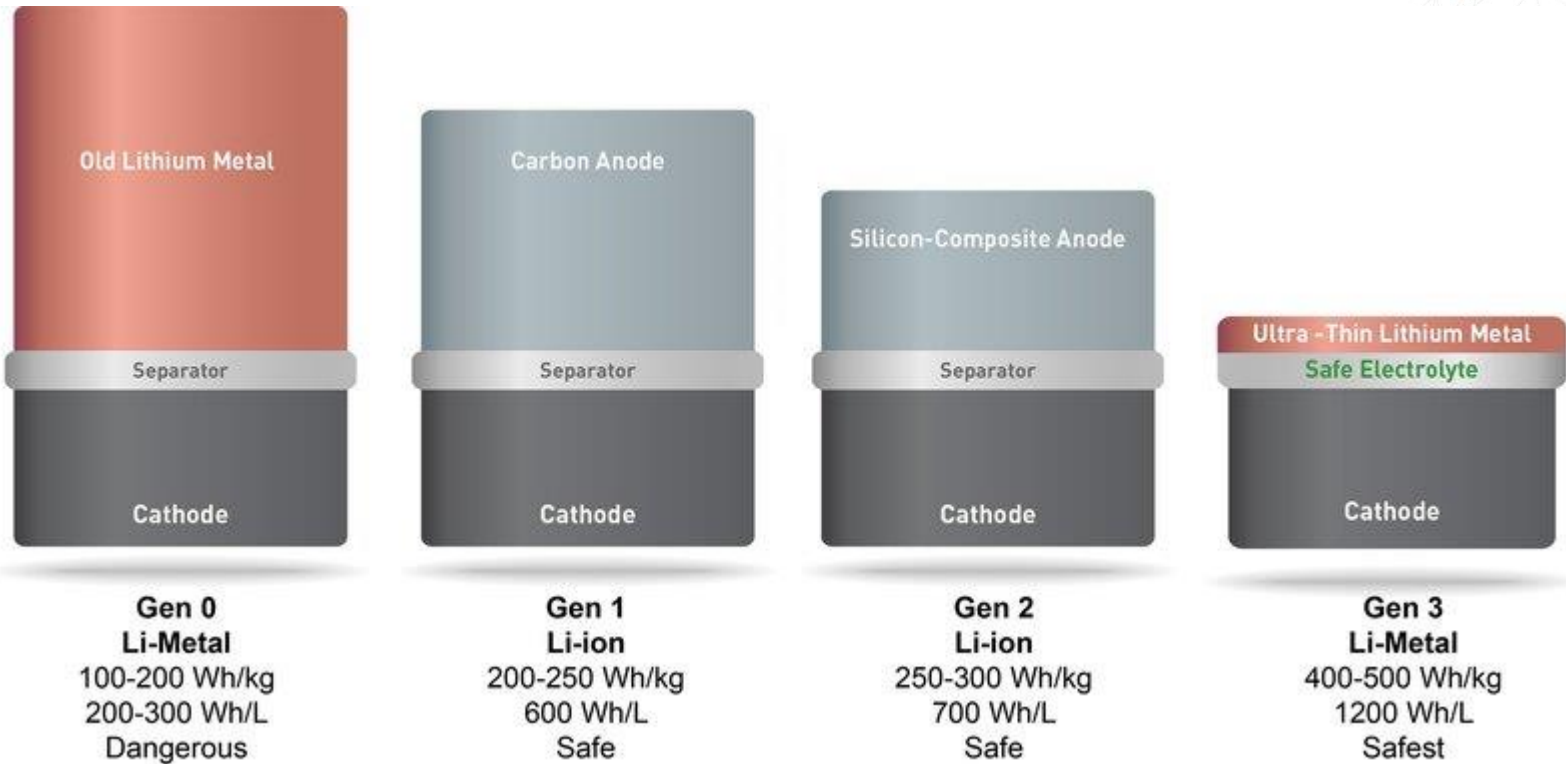
- Hornsdale Power Reserve - 100MW/129MWh

Decentralized storage



- Tesla Powerwall – 7 000 € - 6.4 kWh - 2017

Breakthrough? X2 energy density



➤ Driven by wearables and cars

TECHNOLOGY CATALYSTS

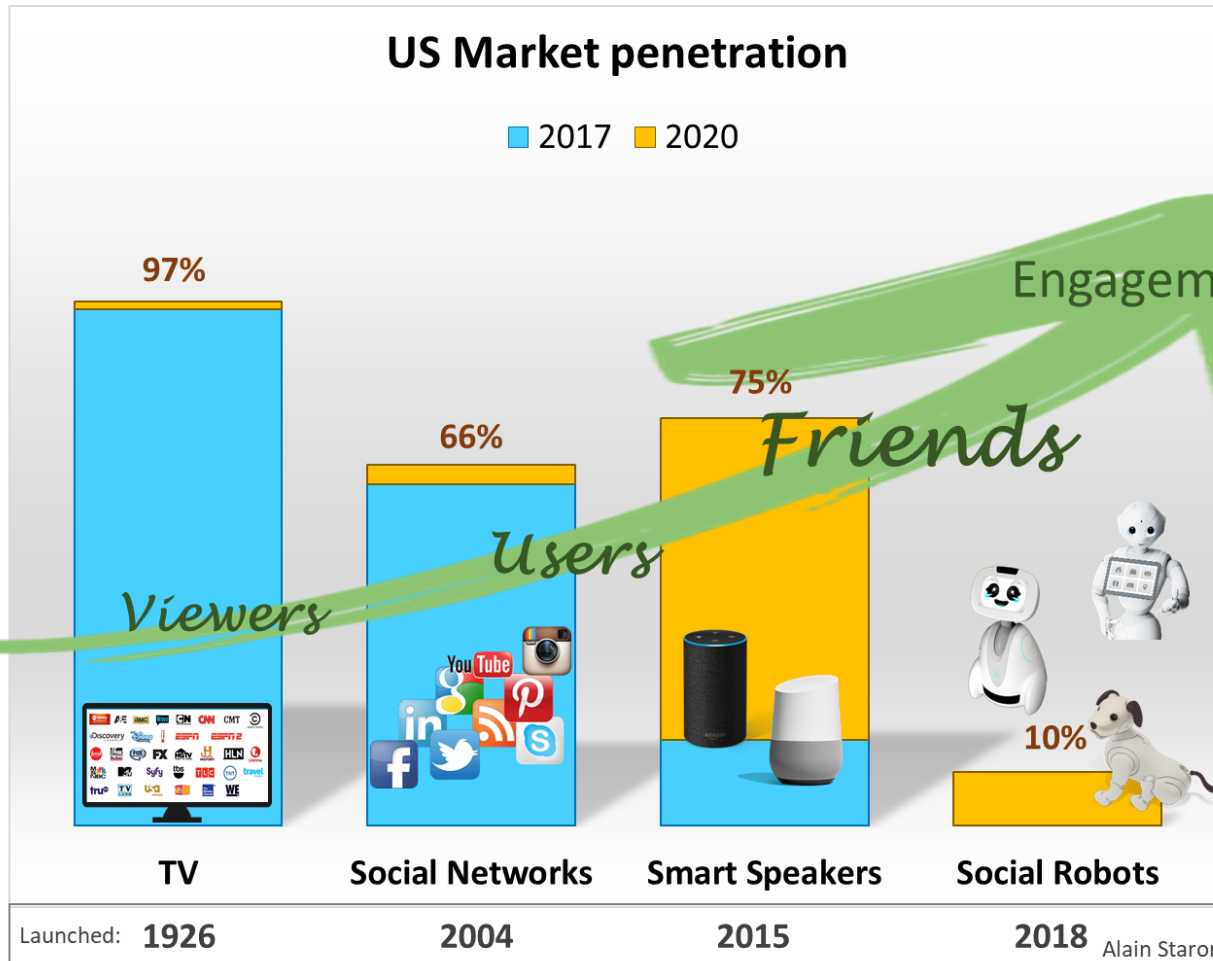
People



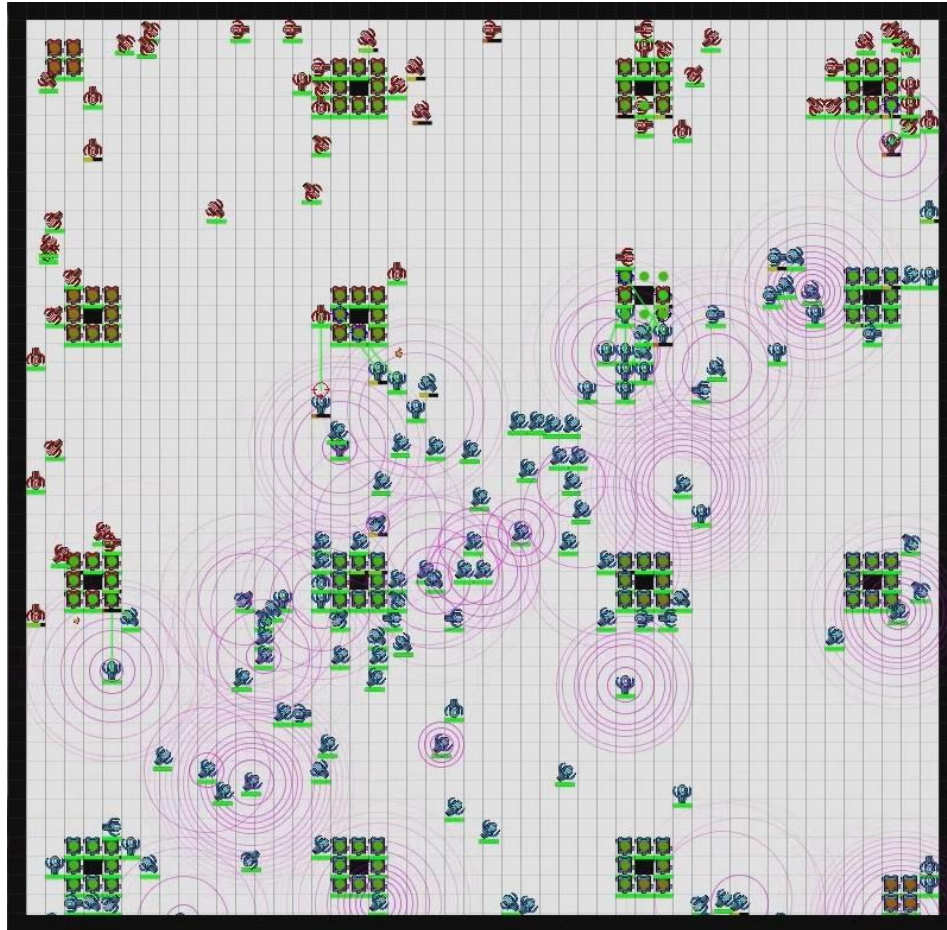
Empowering end-users



Empowering end-users



Breakthrough: AI, protected



Making it happen: Convergence



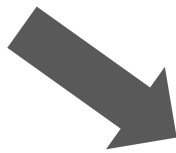
Cost of decentralized production



Capacity of decentralized storage



Empowerment of decentralized actors: people

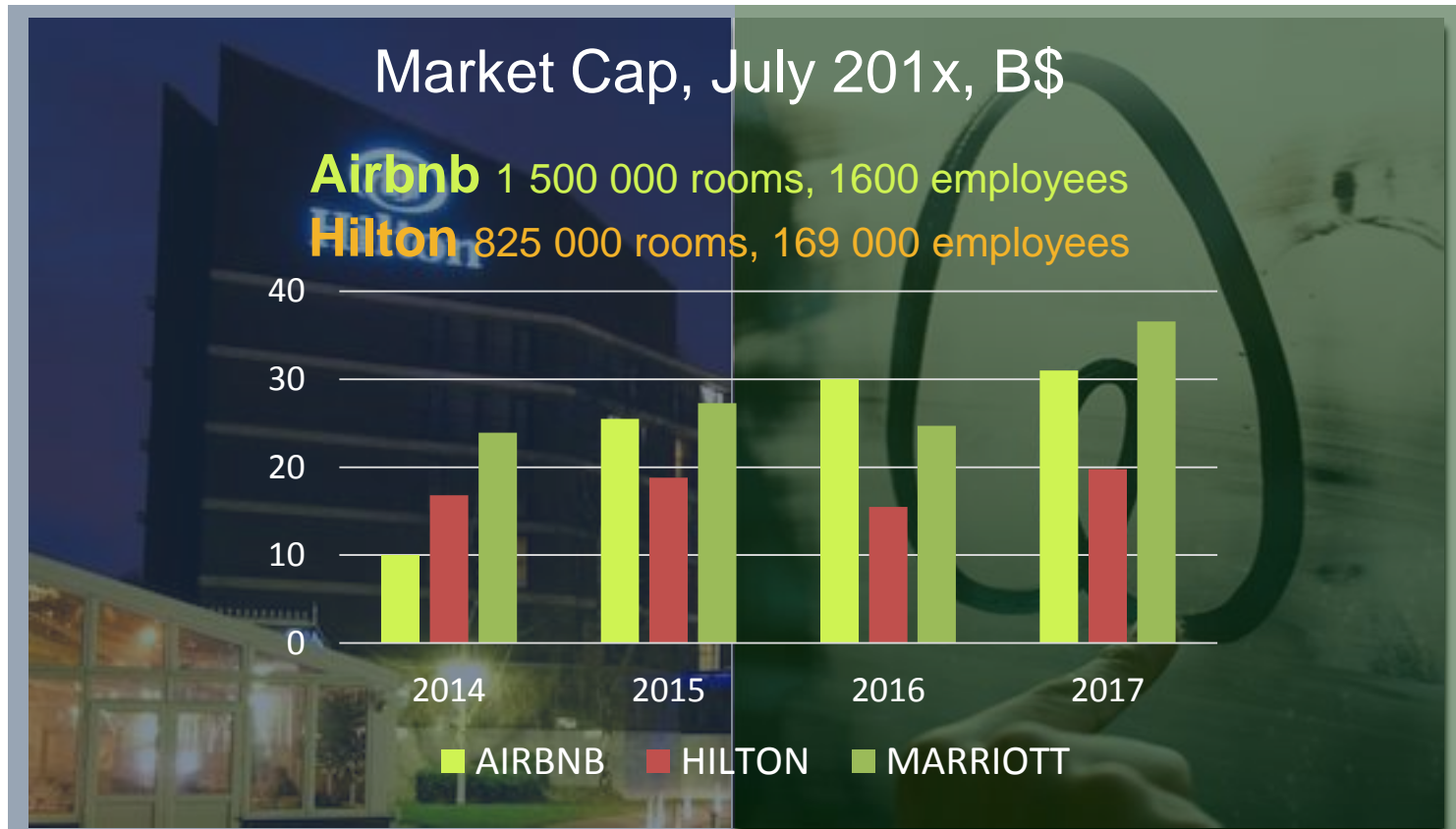


➤ Smart Meters !

Regulations: End user @ heart

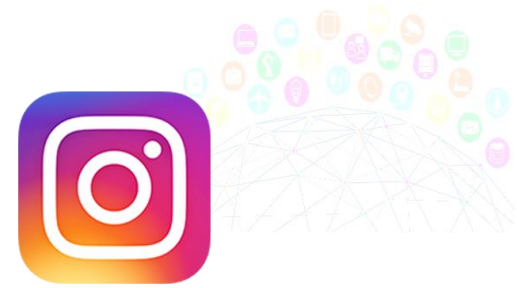


- Ease Platform business
 - The empowerment capability



Regulations: End user @ heart

- Ease Platform business
 - The empowerment capability
- State Ownersip
 - Private data, personal production



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Regulations: End user @ heart



- Ease Platform business
 - The empowerment capability
- State Ownersip
 - Private data, personal production
- Protect individuals
 - C2C virtual businesses need new rules, hacking at the corner, Winner-takes-all also: organize ecosystem to guarantee security independence

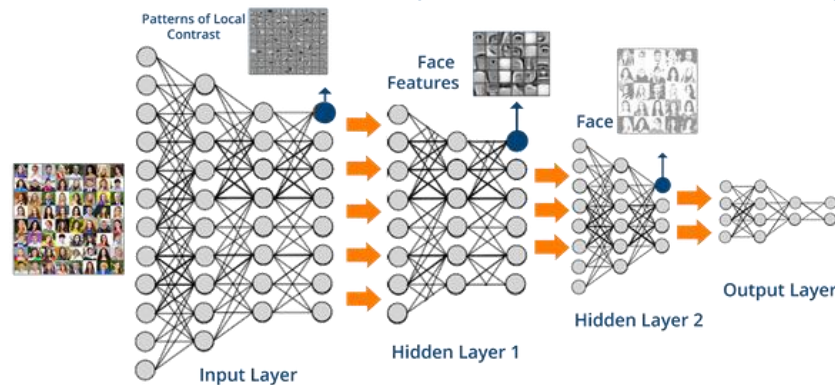
Atos

Google

Regulations: End user @ heart



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- Protect Businesses
 - Data process cannot be transparent when it's key to business



Regulations: End user @ heart



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 - C2C virtual businesses need new rules, hacking at the corner, Winner-takes-all also: organize ecosystem to guarantee security independence
- Protect Businesses
 - Data process cannot be transparent when it's key to business
- No need for regulation easing infrastructure
 - Technology moves fast enough



