

Innovarpel 2023



Digitalización y Ciberseguridad en la Industria del Oil&Gas

Hotel Colón | Quito, Ecuador

21 y 22 de noviembre de 2023

ORGANIZA



ASOCIACIÓN DE EMPRESAS DE
PETRÓLEO, GAS Y ENERGÍA RENOVABLE
DE AMÉRICA LATINA Y EL CARIBE

REALIZA



El Sistema Energético Sostenible del Futuro

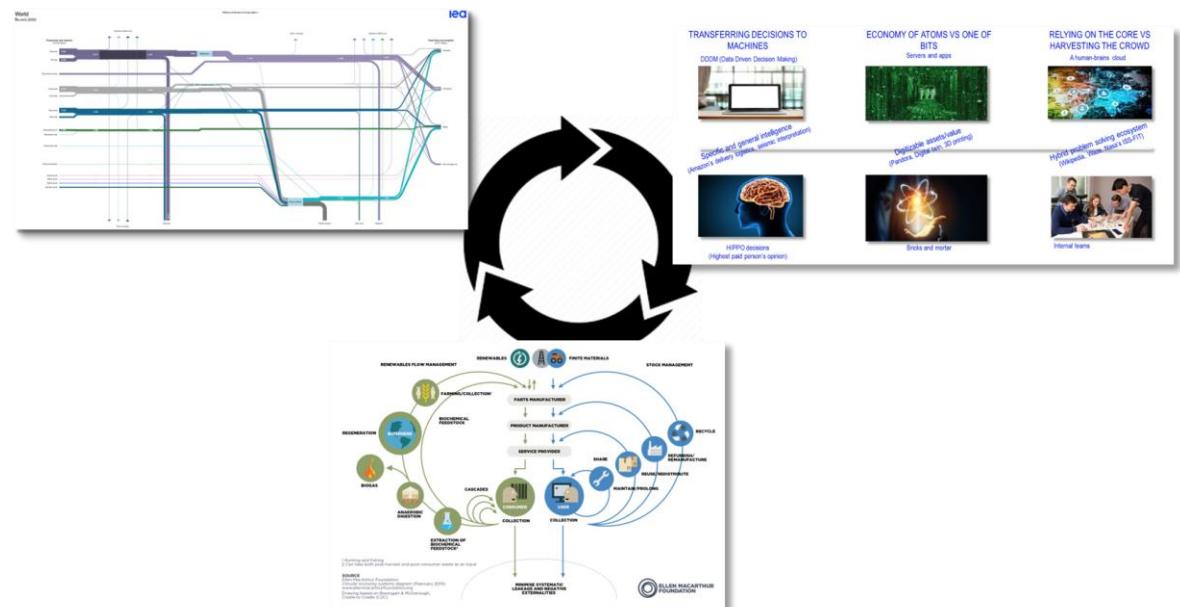
Javier Lopez

Consultoría Digital y Nuevas Energías – WH
SLB



El objetivo de esta charla es ...

- Aclarar conceptos
- Establecer la relación entre Transición Energética, Transformación Digital y Sostenibilidad
- Responder a la pregunta: ¿y por qué una charla como esta en un congreso de ciberseguridad?



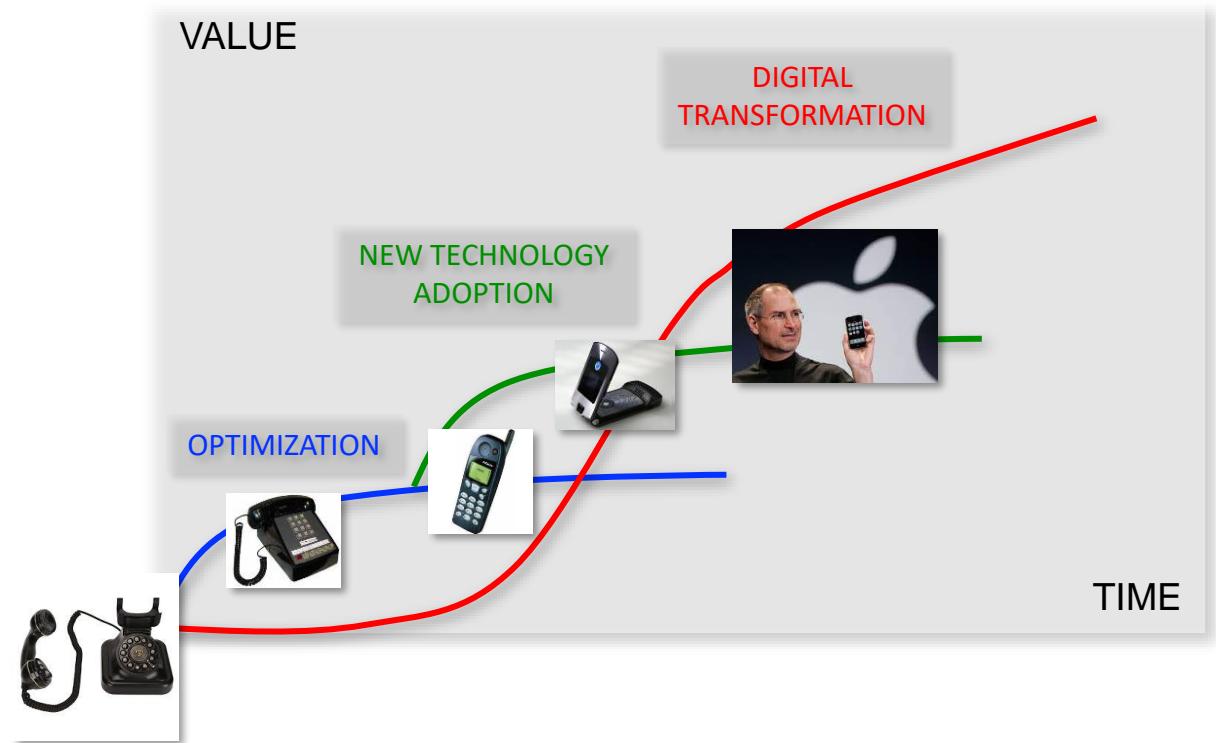


Digital Transformation



Digital transformation is ...

A series of **step changes** in **business processes performance** and **value generation models**, enabled by digital technologies (Javier Lopez).





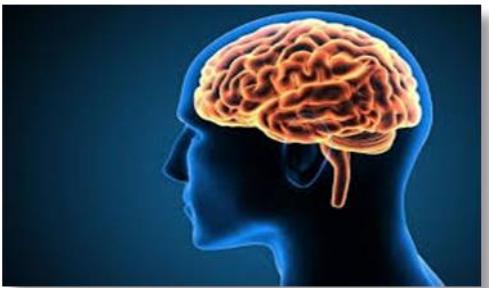
What is being transformed?

TRANSFERRING DECISIONS TO MACHINES

DDDM (Data Driven Decision Making)



Specific and general intelligence
(UBER rates, Amazon's logistics)



HIPPO decisions
(Highest paid person's opinion)

ECONOMY OF ATOMS VS ONE OF BITS

Servers and apps



Digitizable assets/value
(Netflix, Uber, Digital twin, 3D printing)



Bricks and mortar

SLB-Private

RELYING ON THE CORE VS HARVESTING THE CROWD

A human-brains cloud



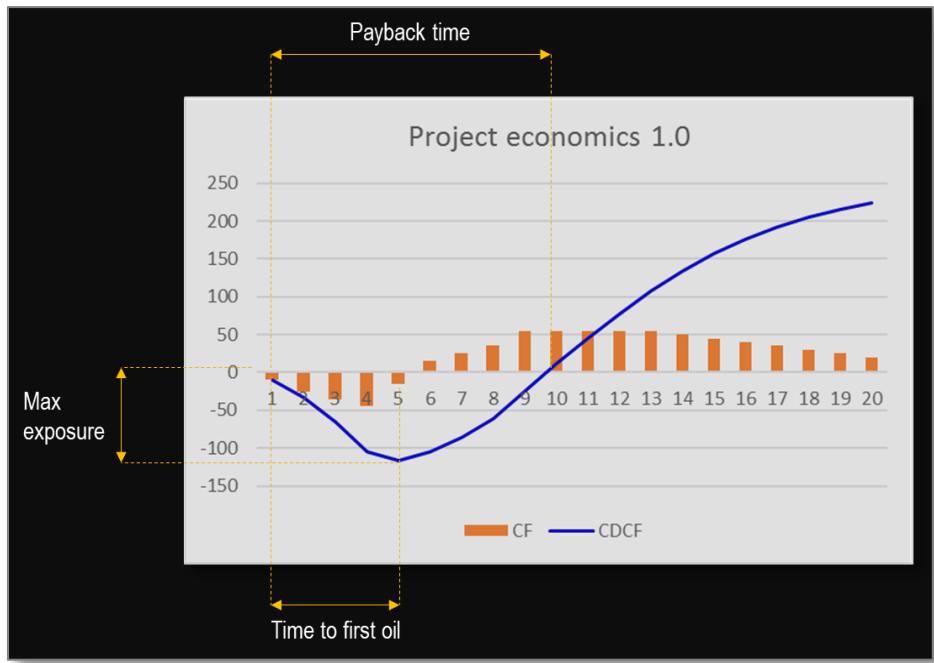
Hybrid problem solving ecosystem
(Wikipedia, Waze, Nasa's ISS-FIT, Chat GPT)



Internal teams



What does it mean for E&P?



La mayor producción y reservas posibles

Acceso a áreas altamente prospectivas

Tasa de éxito exploratorio = 100%

Factor de recobro = 100%

T2FO / Tiempo de recobro = 0

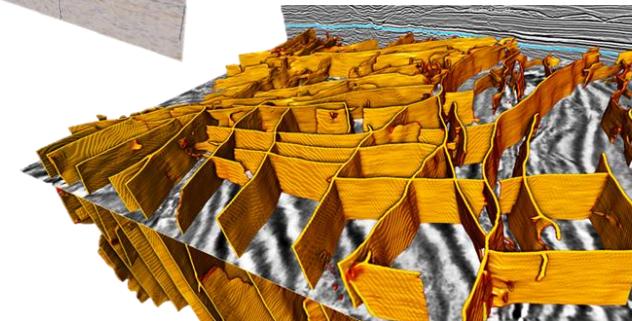
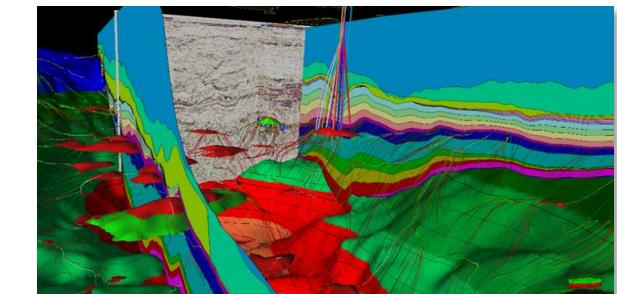
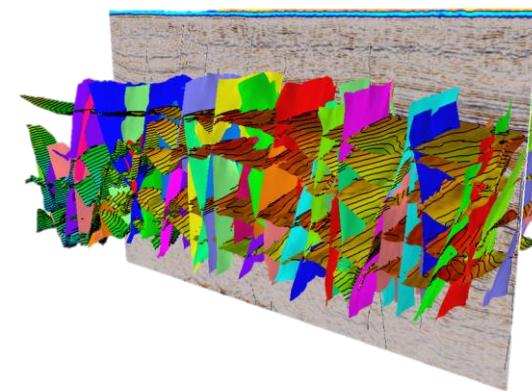
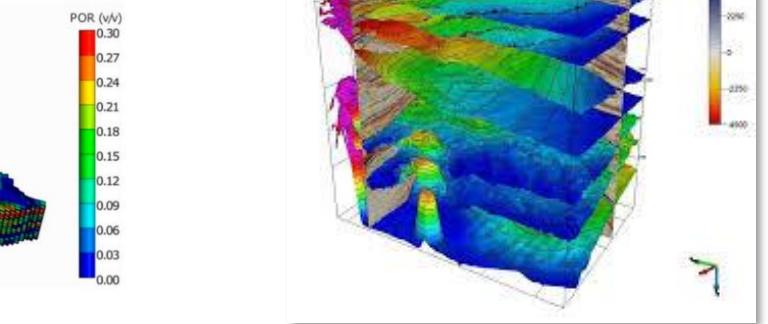
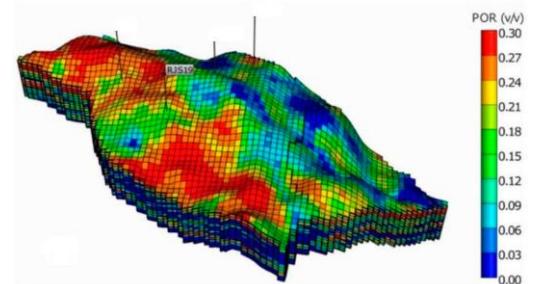
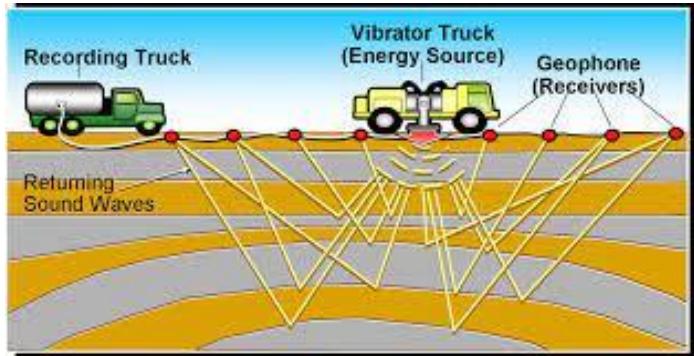
Menor costo / mayor beneficio posibles (>>NI)

LTI = 0 / Emisiones Netas = 0

Faster and more accurate decision-making processes → uncertainty reduction

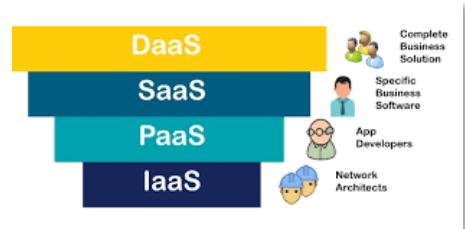
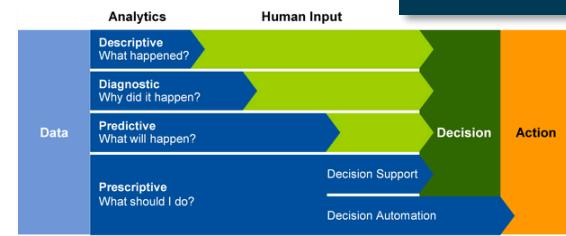
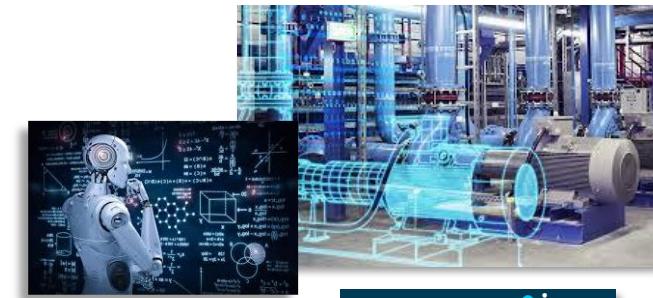
Cloud computing power for big / long-cycle data

Tasa de éxito exploratorio = 100%





Artificial lifting optimization – Short cycle data

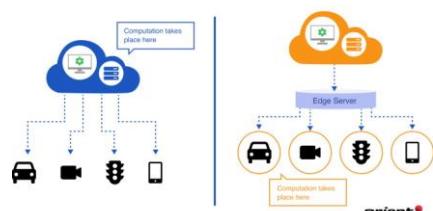


Logistics optimization – Multiple variables/scenarios analysis

Menor costo / mayor beneficio posibles (>>NI)



Cloud Computing vs Edge Computing



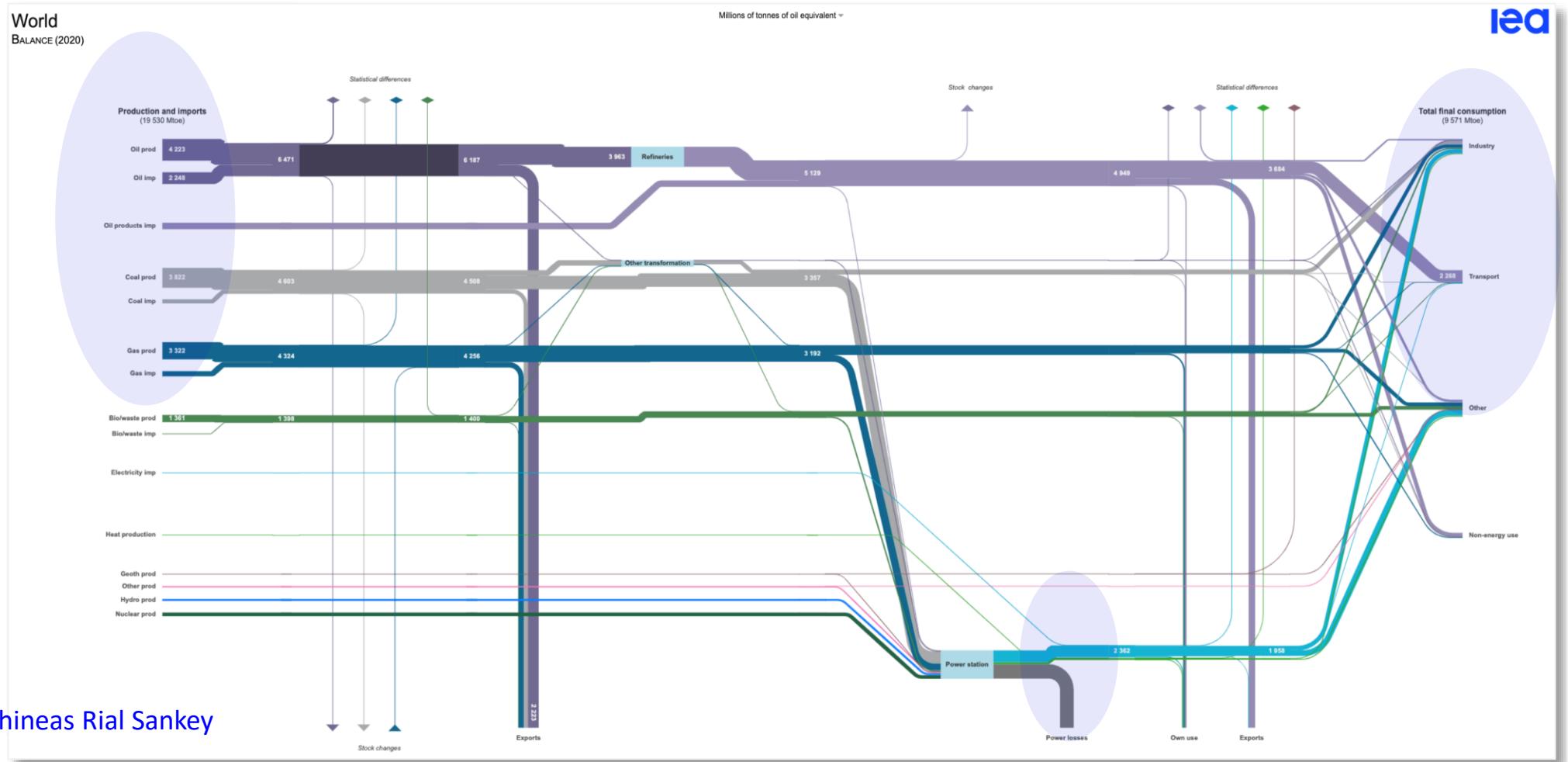


Energy Transition



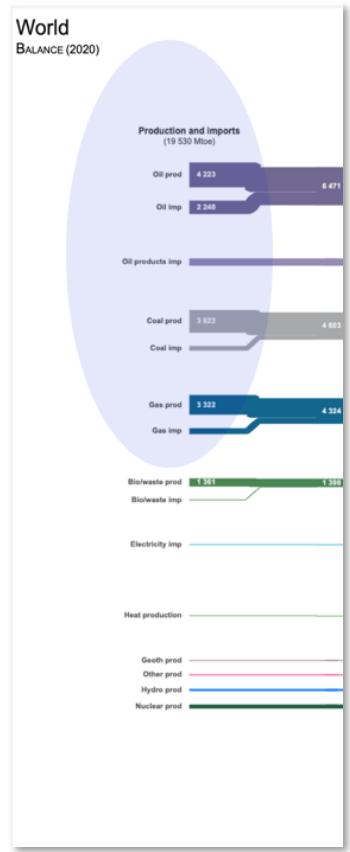
Energy transition is ...

A series of **incremental or abrupt changes** in the way we **generate, manage and use energy** (Javier Lopez).



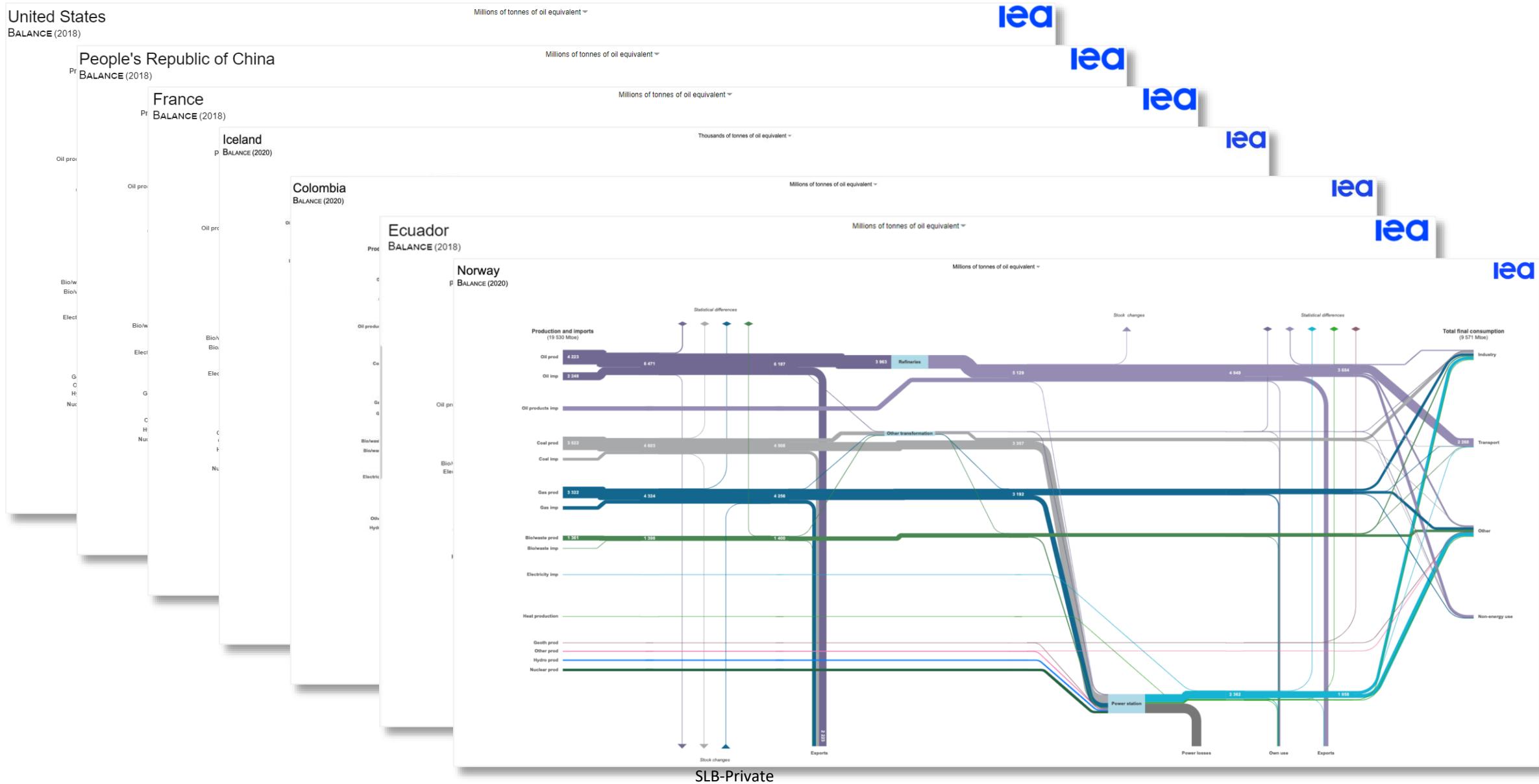


What needs to transition (The 3DER acronym)





Does it mean the same for every player?



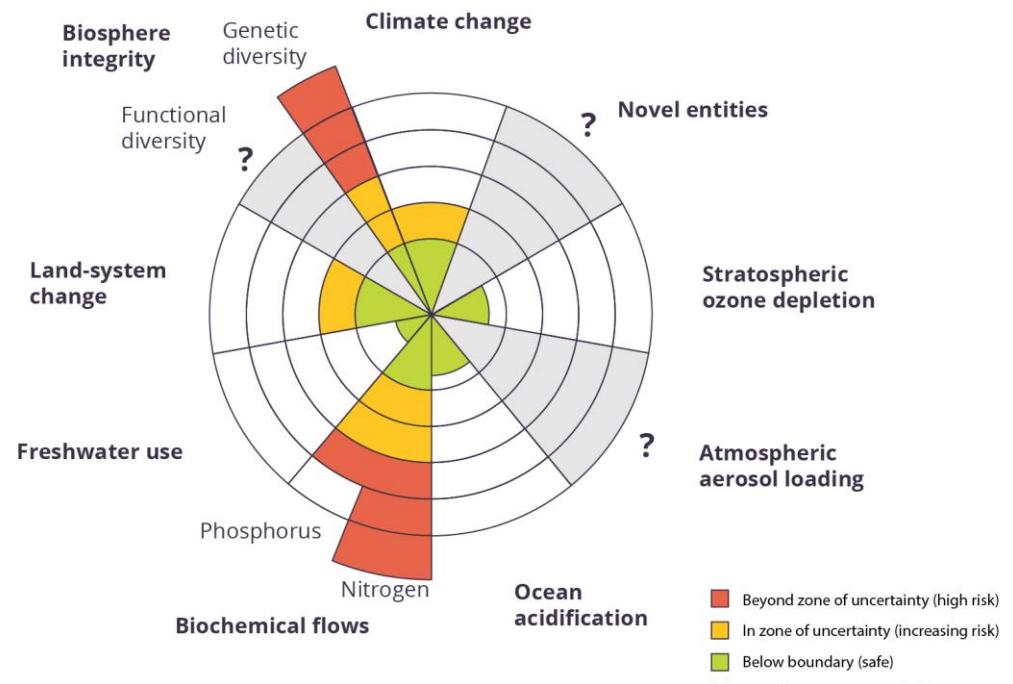


What is sustainability?

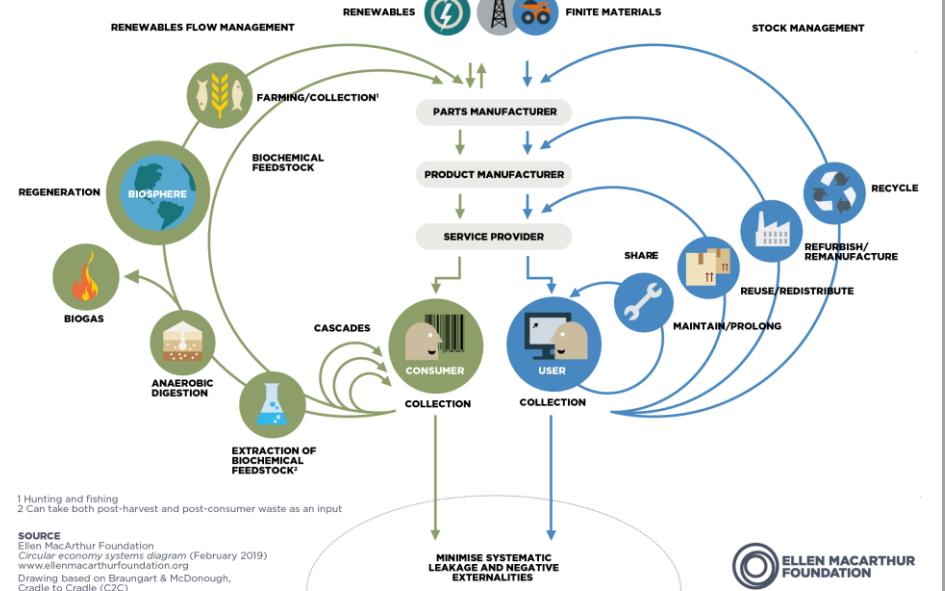


What is sustainability

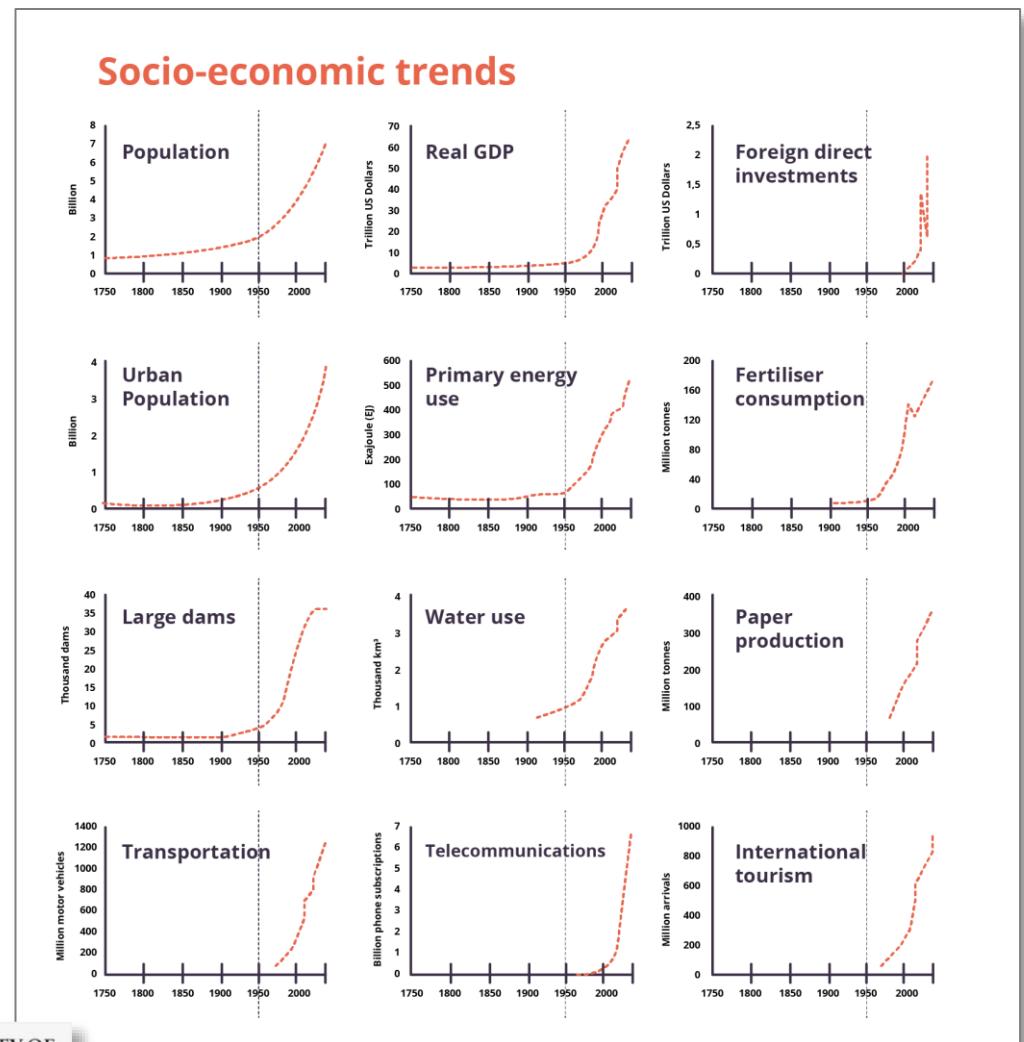
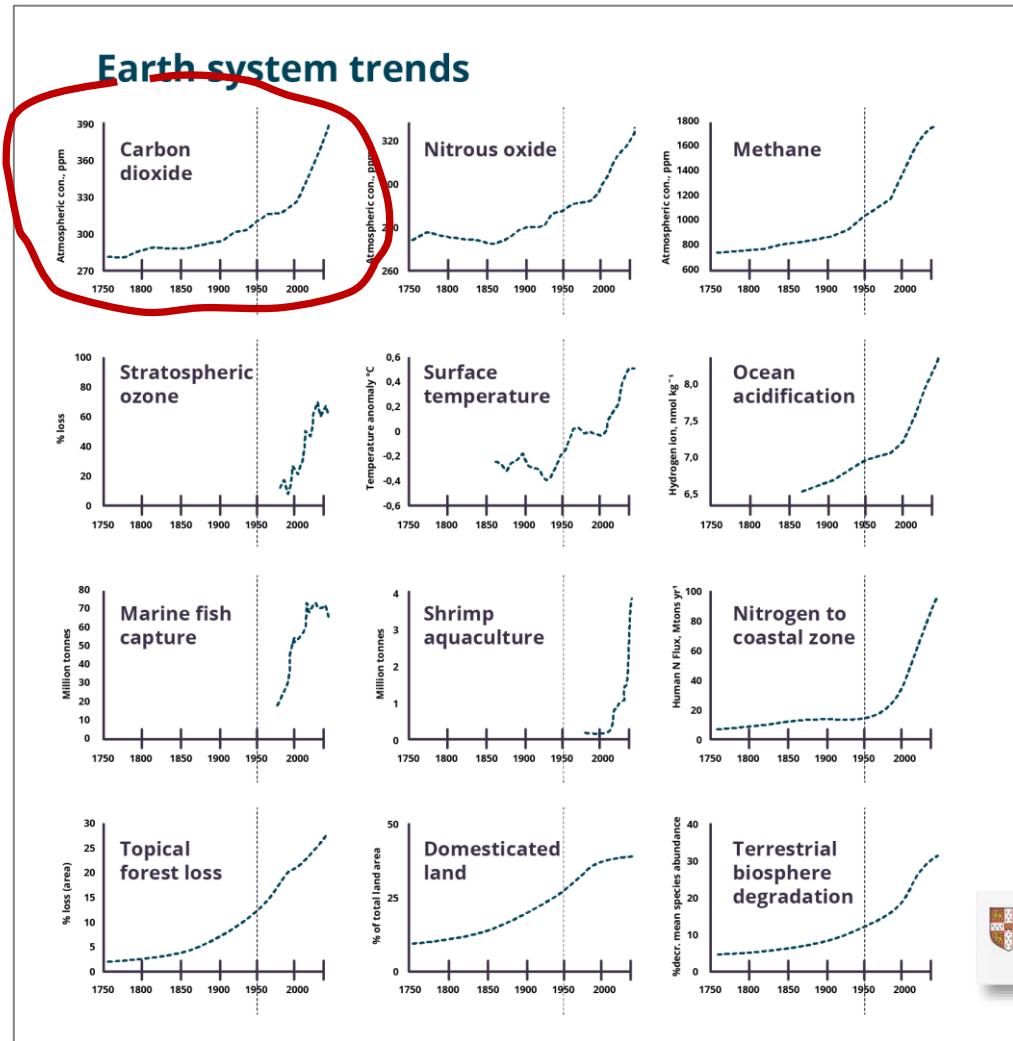
The capacity to **maintain** or support something **over the long term without depleting resources or causing harm to Environment, Society or the Economy** (Chat GPT)



ESE (Sustainability dimensions) = ESG (Measurement tool)

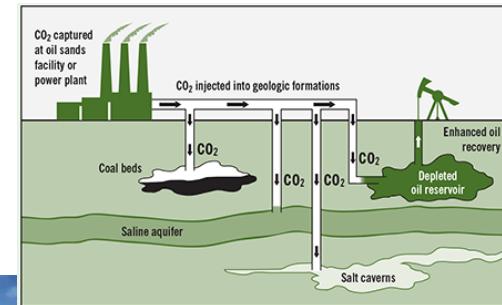
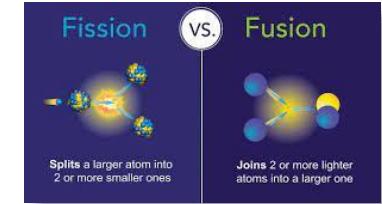
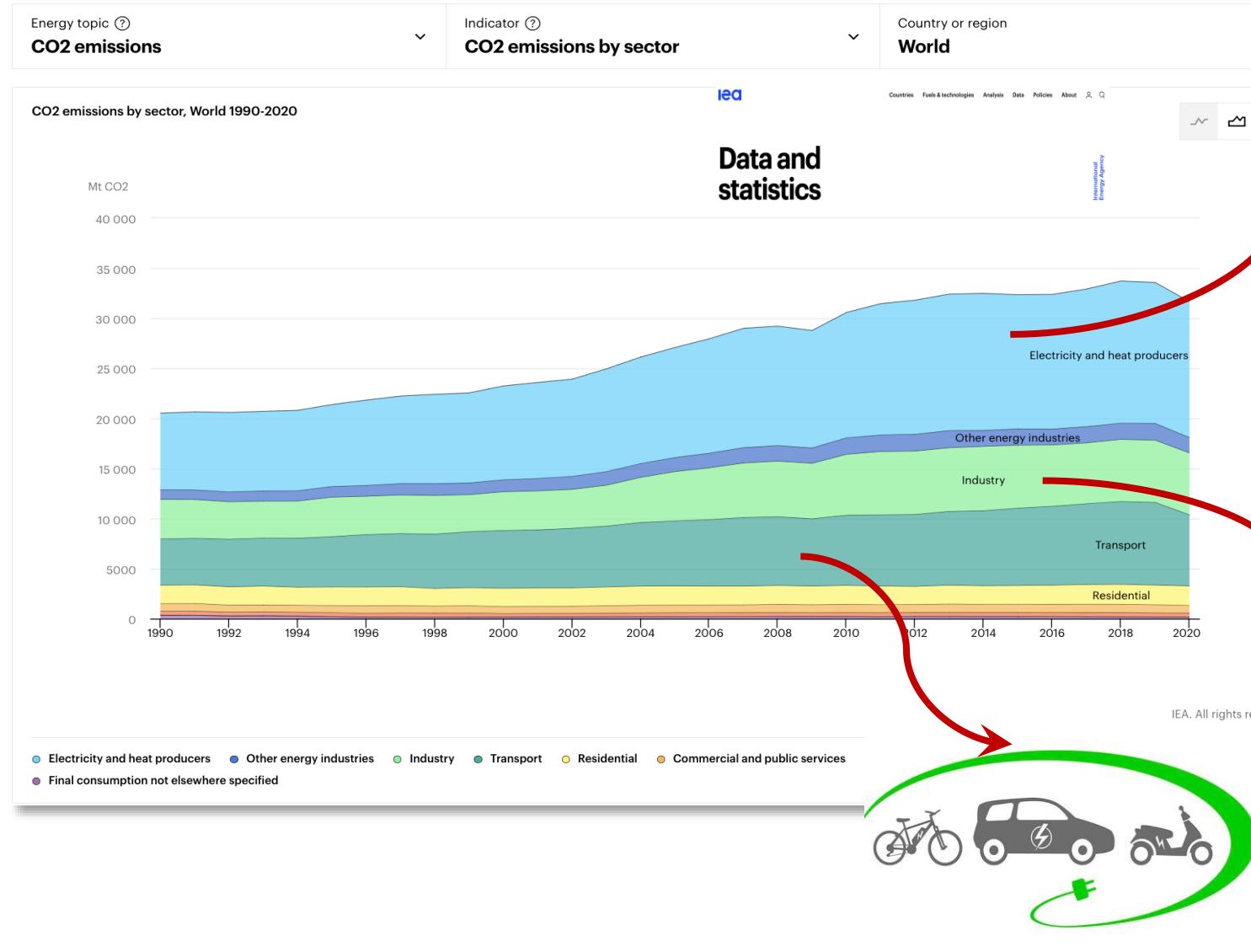


Earth systems vs human activity, trends



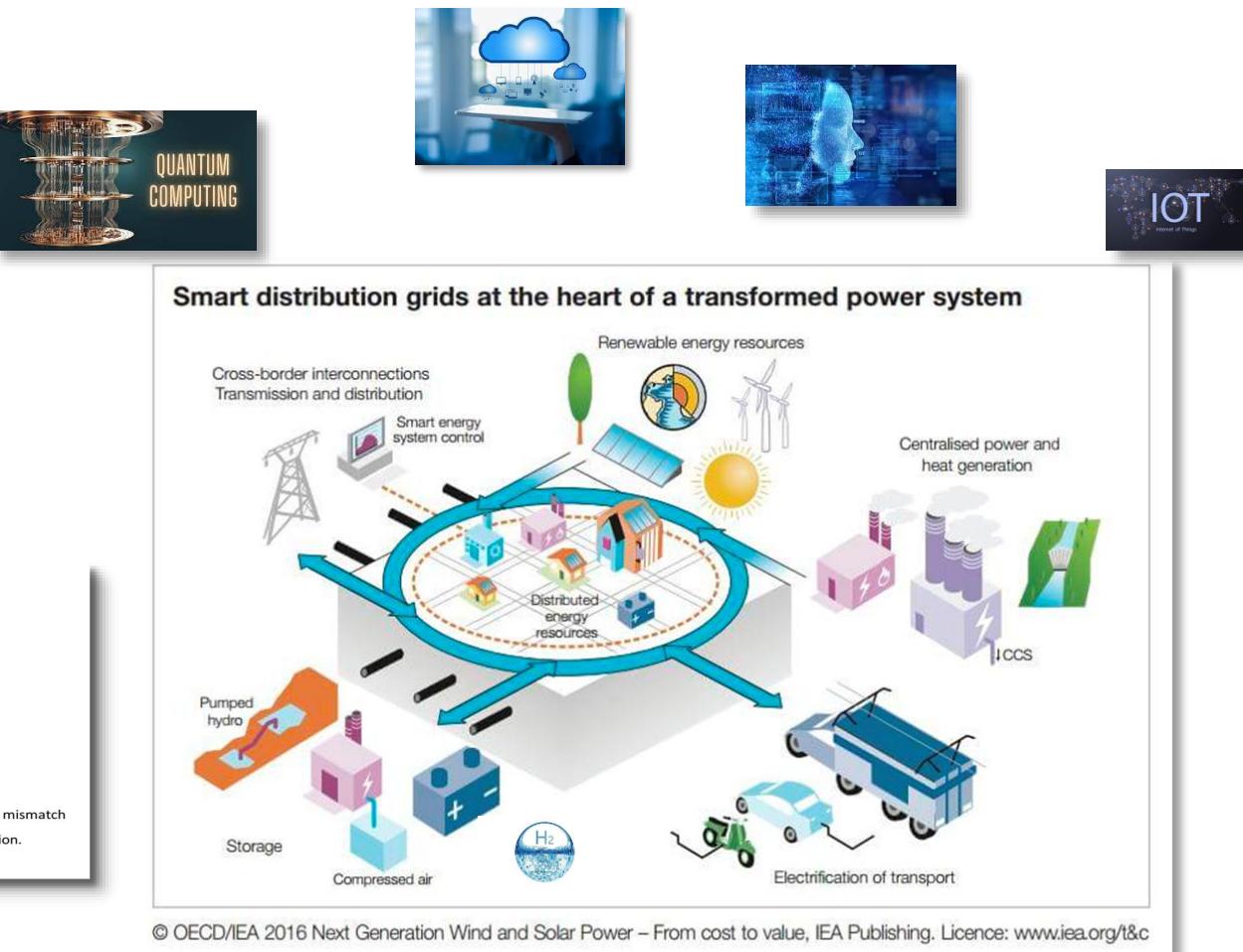
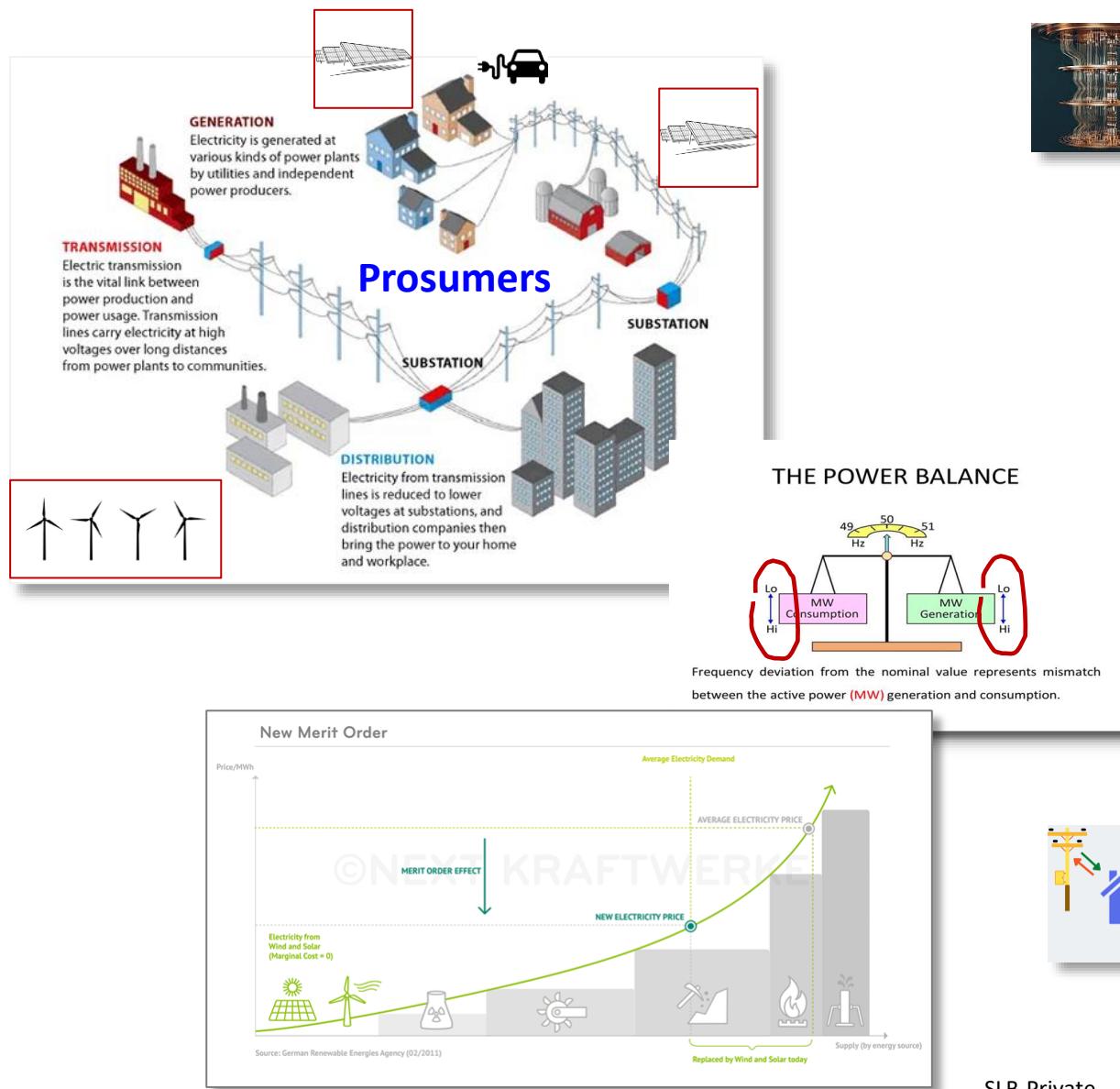


Our Net Zero 2050 ambition is achievable ... in theory





In real life though ...





Happening as we speak ...

21:05 electrek.co

Polestar wants to save the grid with V2G Virtual Power plant trial in CA/Sweden

Fred Lambert | 10 hours ago

31 Comments

A giant new Tesla Megapack project with 300 MWh of energy capacity has come online in Australia to help stabilize the grid and make better use of renewable energy.



Polestar has announced that it will create two large trial virtual power plants in California and Gothenburg, Sweden, to examine how Polestar 3's vehicle-to-grid capability could be leveraged to help stabilize grids and earn money for EV owners while their vehicle is parked.



19:10 electrek.co

Giant Tesla Megapack project turns on to stabilize the grid

Fred Lambert | 10 hours ago

31 Comments

A giant new Tesla Megapack project with 300 MWh of energy capacity has come online in Australia to help stabilize the grid and make better use of renewable energy.





18:20 electrek.co

Tesla receives approval for 2 virtual power plants in Texas

Fred Lambert | Aug 24 2023 - 6:56 am PT

60 Comments

Tesla has received approval from the Public Utility Commission of Texas (PUCT) to launch two virtual power plants for Powerwall owners in Texas.





12:35 electrek.co

Tesla Powerwall VPP gets closer to reality in Puerto Rico as utility gets greenlight

Fred Lambert | 1 hour ago

0 Comments

LUMA, a Puerto Rico electric utility, has received the green light to build a virtual power plant (VPP) with Tesla Powerwalls in Puerto Rico.

It should help with the territory's major issues amid heat waves.





15:58 electrek.co

Tesla Electric customers came out of Texas heatwave with an extra \$100 in their pockets

Fred Lambert | 8 hours ago

35 Comments

Tesla Electric customers report making as much as \$150 a day

Fred Lambert | Jul 5 2023 - 10:06 am PT

97 Comments

Tesla Electric customers in Texas are reporting making as much as \$150 a day during the heat waves as Tesla's virtual power plant is coming together with over 6MW of power.

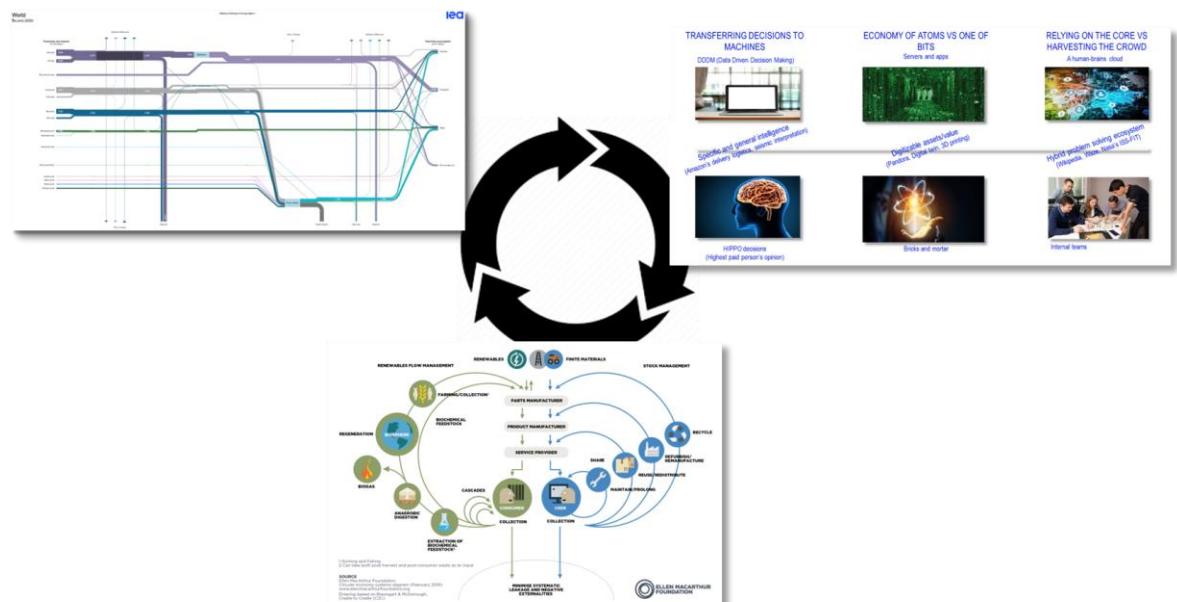






Mensajes finales

- La sostenibilidad no es factible sin una Transición Energética profunda
- Una transición energética profunda y eficiente requiere de soluciones digitales
- Las nuevas soluciones energético-digitales deben ser intrínsecamente sostenibles
- Existe una relación simbiótica mutualista entre estas tres tendencias
- El ecosistema sostenible del futuro no es posible sin ciberseguridad





Relevant and recommended training

- Chief Sustainability Officer (CSO) Certification – MIT, ongoing
- Business sustainability management – Cambridge University, 2023
- Circular economy – TU Delft, ongoing
- Transforming the Grid: AI, ML, Storage, EVs, Prosumers – Stanford University 2021
- The economics of the Energy Transition - TU DELF – 2020/21
 - Energy markets of today
 - The Transition to the Decarbonized Economy of the Future
- Economics of the Clean Energy Transition – Stanford University 2020
- Energy Within Environmental Constraints – Harvard University 2018
- Managing Disruptive Change – RWTHx via EDX - 2017
- Energy Innovation & Emerging Technologies – Stanford University 2015
- Photovoltaic Systems, Theory & Applications – Reading University 1989
- Digital Business Strategy: Harnessing our Digital Future – MIT 2019
- Digital Transformation Strategy – Boston University 2018
- Machine Learning in Business – MIT 2020
- Bitcoin and cryptocurrencies – Berkeley University 2021
- From Poverty to Prosperity – Oxford University 2017



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