

Unit 75: Industry 4.0

Unit code : F/617/3949

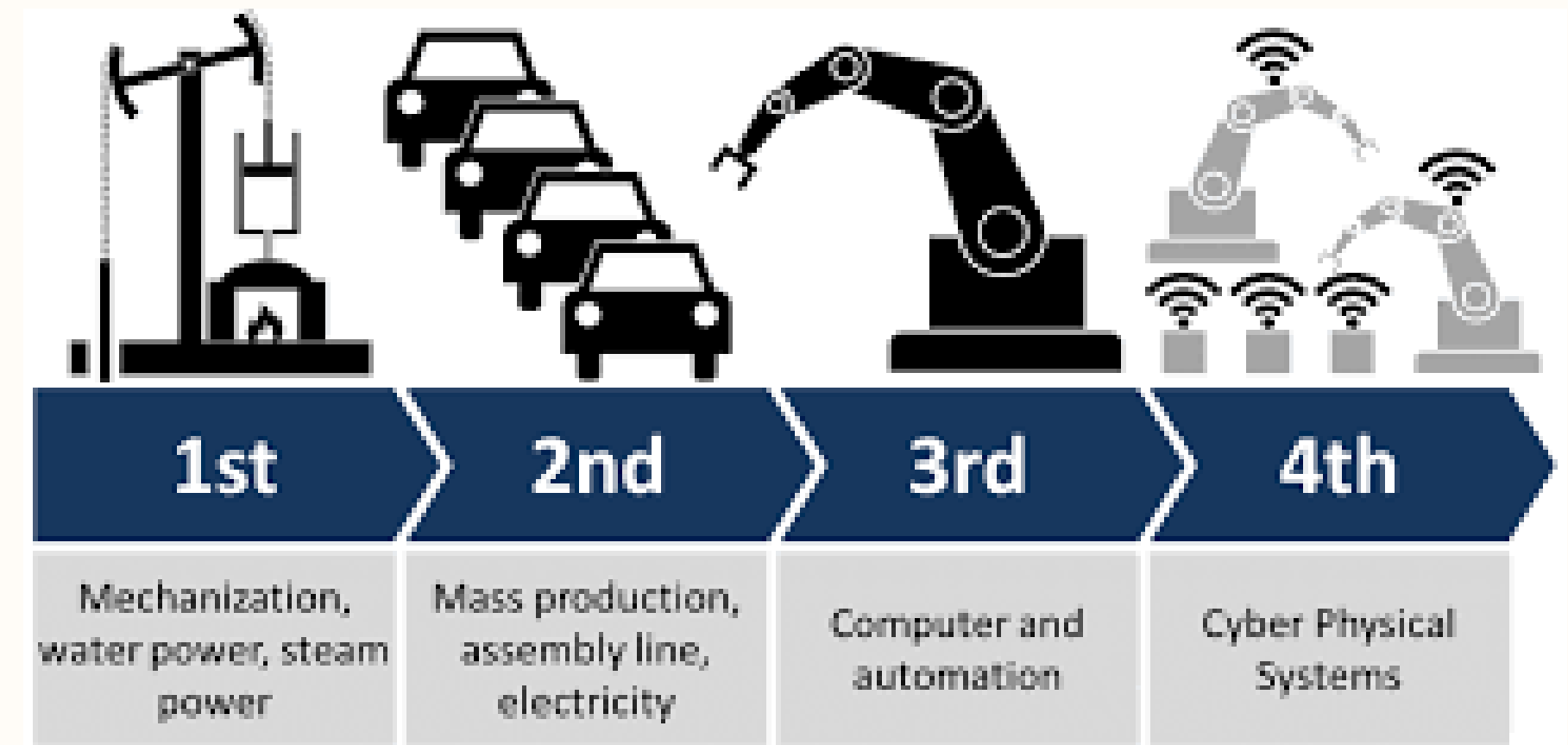
Unit level : 4

Credit value : 15

Tutor: Mr P.M.SUBRAMANIAN

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- Factors Leading to Industry 4.0
- Smart Factory
- Cyber-Physical Technologies, Benefits
- Transitioning from Industry 3.0 to 4.0
- Futuristic Trends in Manufacturing
- Factors Shaping Industry 5.0.



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- Fourth Industrial Revolution or 4IR
- Digitization -Manufacturing Sector

4 Disruptive Technologies

- connectivity, data, and computational power: cloud technology, the Internet, blockchain, sensors
 - analytics and intelligence: advanced analytics, machine learning, artificial intelligence
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- human–machine interaction: virtual reality (VR) and augmented reality (AR), robotics and automation, autonomous guided vehicles
 - advanced engineering: additive manufacturing

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- Building workforce capabilities and shifting mindsets
- Global Lighthouse Network (GLN) -2018
- IR4 Implemented - Digital Factories
- Tata Steel's plant in Kalinganagar, India
- Responsible Production
 - combining productivity,
 - sustainability
 - active workforce engagement

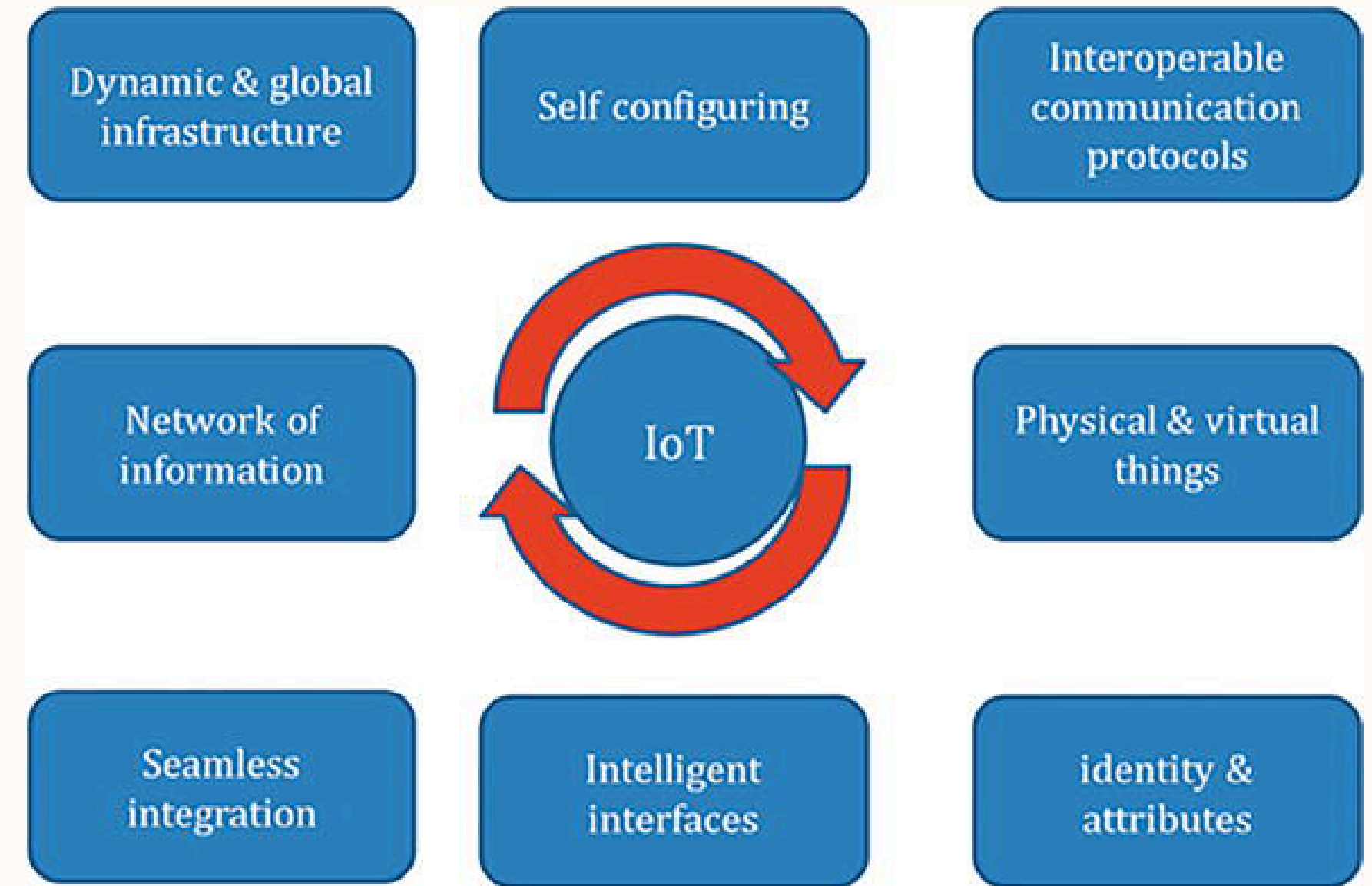
Navigating the next industrial revolution

Revolution	Year	Information	
	1	1784	Steam, water, mechanical production equipment
	2	1870	Division of labour, electricity, mass production
	3	1969	Electronics, IT, automated production
	4	?	Cyber-physical systems

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Major Approaches for 4 IR transformation

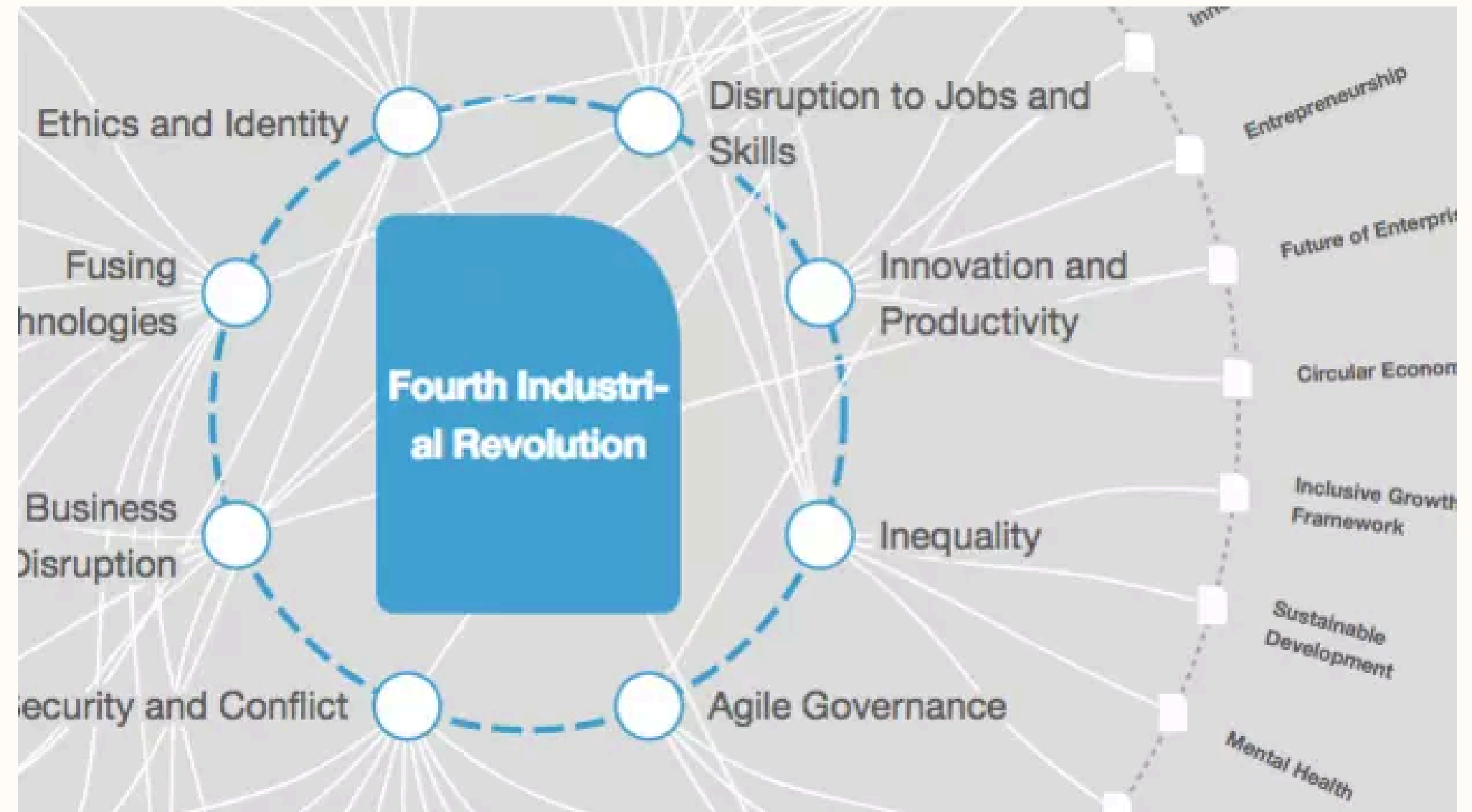
- Agile Approach
- Agile Digital Studios
- Industrial Internet of Things(IIoT) stack
- IIoT academy
- Tech ecosystems
- Transformation offices



Pilot Purgatory- Starting IR 4 but
no scaling up

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- Energy
- Transportation
- Social Mobility
- Socio-Economics
- Business
- Emerging Technologies
- Science
- Materials
- Communications
- Geography



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Aspects of industrial revolutions- Energy

- Modernise Energy Usage - Green Global
Energy, Climate Change
- Amount of Wasted Energy and other Inefficiencies
- Eco-Friendly Energy Sources
- Smart Sensors
- Digital home assistant-Alexa or Google Home
Turning
- Real Time Connection - 5G



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Aspects of industrial revolutions- Energy

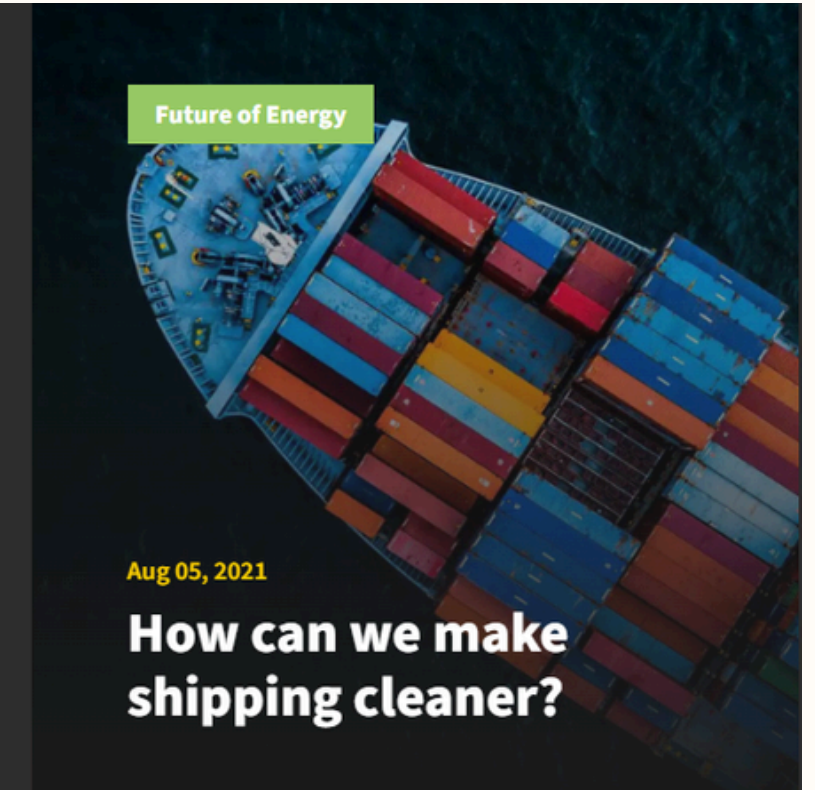
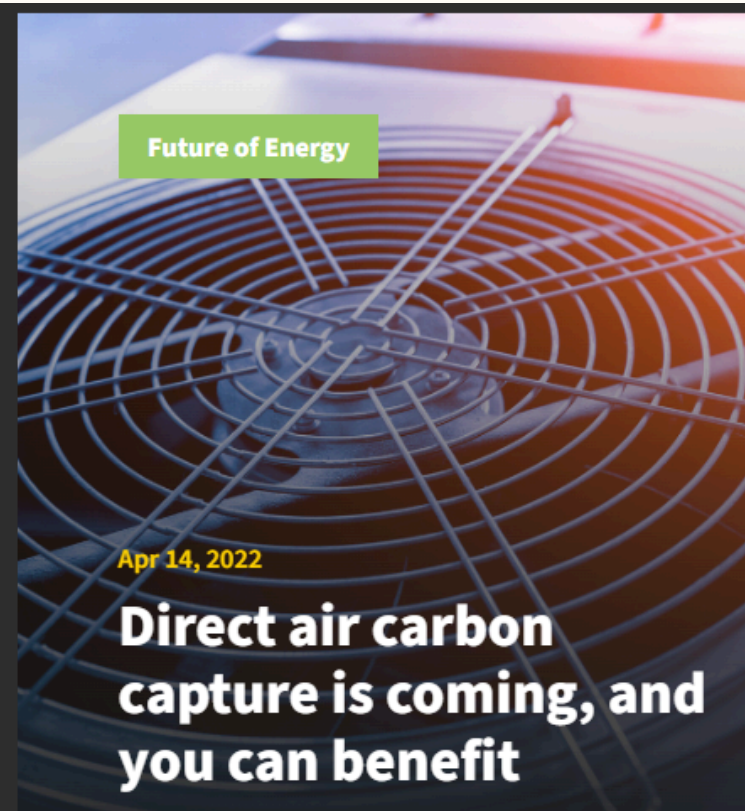
- Peak Energy Consumption - Response
- Digital Gap - Demands for Autonomous Operation
- Industry accounts for 54% of global delivered energy
- carbon footprint
- smart grids- reduce emissions by almost 4% by 2030



**increasing efficiency,
reducing energy costs,
minimizing its carbon footprint
needs to approach Industry 4.0**

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Aspects of industrial revolutions- Energy



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In Class Activity

Free Writing

Write How Industrial Revolution Transformed a Industry of Your Choice
from IR 1 to IR 4

2 Pages Maximum
Duration - 15 Mins

