

# *Transforming Waste into Wealth: Sustainable Business Practices"*

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# TAN TAO UNIVERSITY

From knowledge to the stars

## **SCHOOL OF ECONOMICS & BUSINESS ADMINISTRATION**



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**I worked in  
Singapore 8 years  
Marina Bay Sands**





I worked here in 2 years  
The Grand Ho Tram Strip





# Ph.D. in Management

*Customer engagement behaviour : The mediating effect of functional quality in Vietnam hotel industry*

# *Circular Economy and Upcycling*

- Introduction to key concepts essential for understanding environmental challenges and business opportunities: **circular economy, sustainability, and upcycling.**



# *The Circular Economy*

- **Definition:** The circular economy is a model of production and consumption, which involves **sharing, leasing, reusing, repairing, refurbishing, and recycling** existing materials and products as long as possible. In this model, the life cycle of materials is extended, **maximizing the value of resources** within the economy for as long as possible, and waste is minimized. When a product reaches the end of its life, its materials are kept within the economy wherever possible. Thus, these materials can be productively used again and again, creating **further value**.

# The Circular Economy

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- **Business Implication:** This approach helps businesses reduce waste, improve resource efficiency, reduce the overall environmental impact, and increase sustainability of production and consumption. It can lead to significant cost savings, foster innovation, and create economic opportunities through new business models such as product-as-a-service.



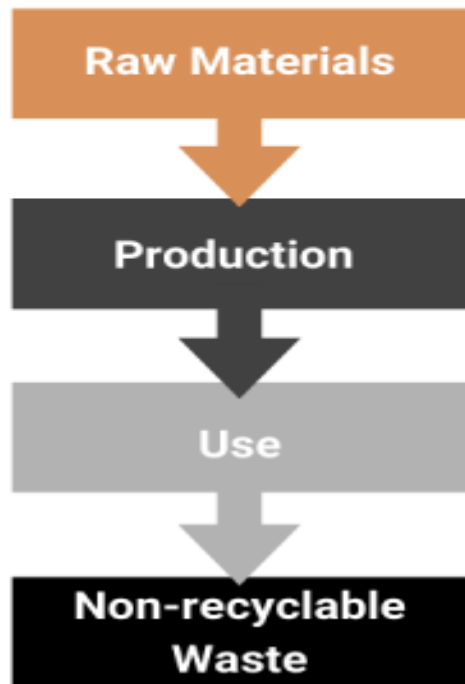
**Lighting as a service - Philips**



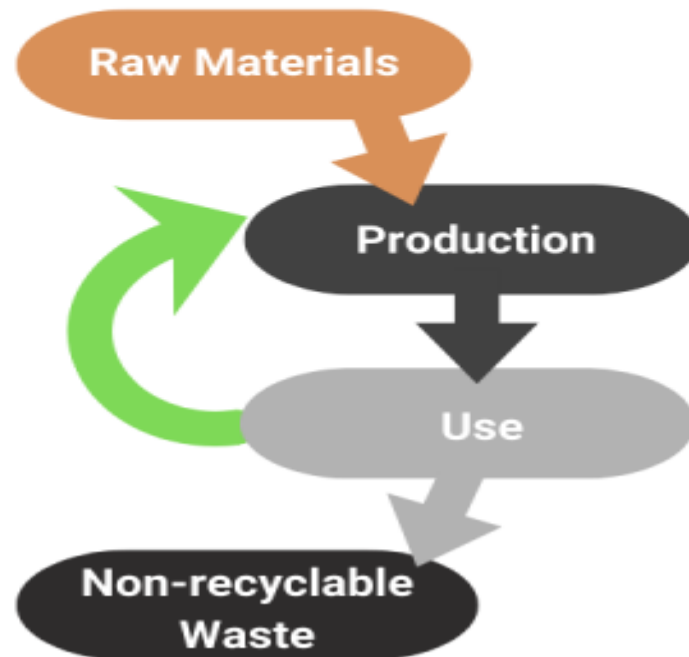


# *Circular Economy vs Linear Economy*

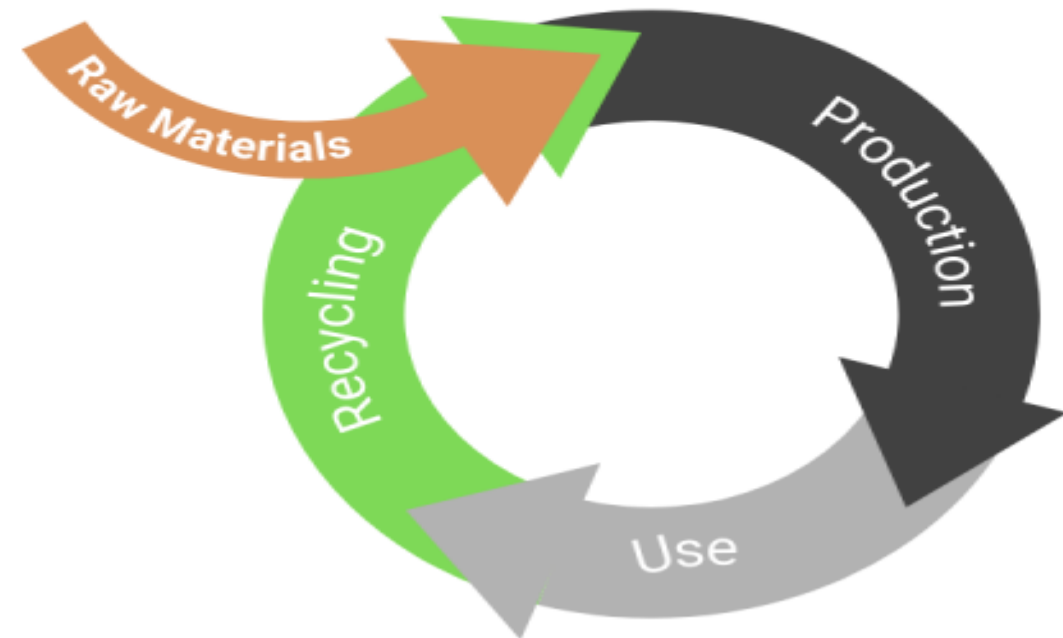
**Linear Economy**



**Reuse Economy**

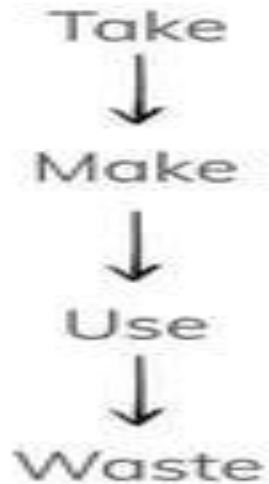


**Circular Economy**



# *Circular Economy vs Linear Economy*

## LINEAR ECONOMY



## RECYCLING ECONOMY



## CIRCULAR ECONOMY



# *Sustainability*

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- **Definition:** Sustainability in business refers to the **ability to operate** in a manner that ensures **long-term preservation** and health of environmental, social, and economic resources, aimed at **not compromising** the ability of future generations to meet their needs.







# *Sustainability*

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- **Business Implication:** Adopting sustainability means that companies **integrate environmental, economic, and social goals** into their **business strategies, operations, and decision-making**. It emphasizes corporate accountability and long-term planning, often enhancing a company's performance, reducing operational costs, and fostering loyalty among **customers who prioritize environmental stewardship**.

**Which is Better For Planet Earth?**



**RECYCLING**



**UPCYCLING**



**DOWNCYCLING**

## *Upcycling – Beyond Recycling*

Focused discussion on upcycling, differentiating it from recycling by its value addition.

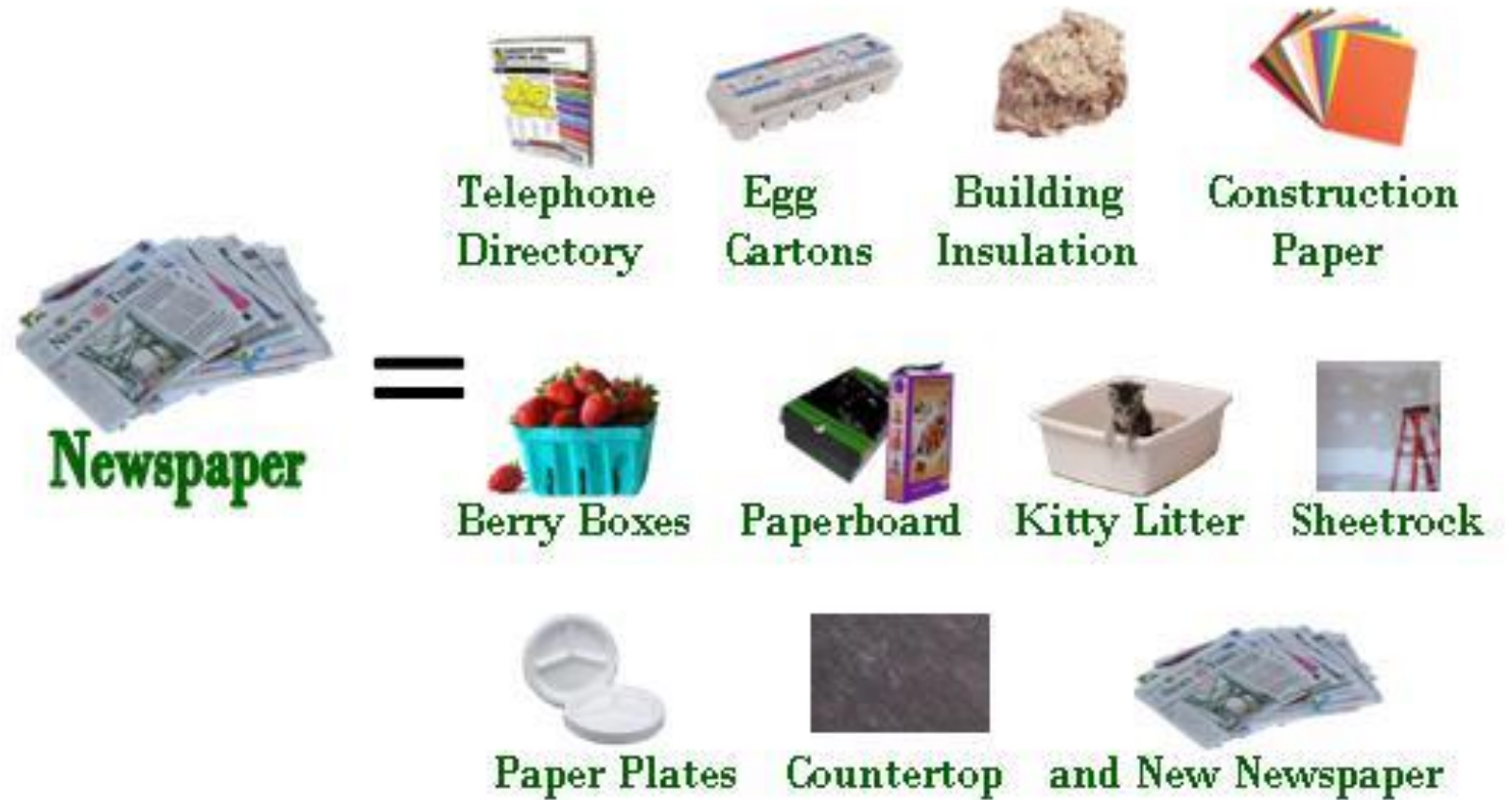
# *Recycling*

- **Definition:** Recycling in business refers to the **process of converting waste materials** into **new materials and objects**. It's an alternative to conventional waste disposal that can save material and help lower greenhouse gas emissions compared to plastic production, for example. Recycling involves **breaking down used items** to **create raw materials** that can be used in the production of new products.





# *Recycling*



- **Business Implication:** Recycling allows businesses to **manage** their **waste** more **efficiently** and reduce their environmental footprint by reducing the need for raw material extraction and processing. This can also lead to **cost savings** and meeting **consumer and regulatory demands** for more sustainable practices.

# Upcycling

- **Definition:** Upcycling in a business context is the process of **transforming** by-products, waste materials, or unwanted products into new materials or products of **higher quality or value** than the original. Upcycling **adds value** through creative reprocessing, and the end products are often unique or artisanal.



# Upcycling



- **Business Implication:** Upcycling enables businesses to **differentiate their products** in the market by offering something that is both **environmentally responsible and of higher quality or creative value**. This can attract niche markets and potentially command a **higher price** point, tapping into the growing **consumer** demand for **sustainable and ethically** produced goods.



ETİHAT

# FROM WASTE TO POWER

*Case study- Turkey Istanbul*



*Case study- Singapore*



*Case study- Singapore*





*Case study- Vietnam business*

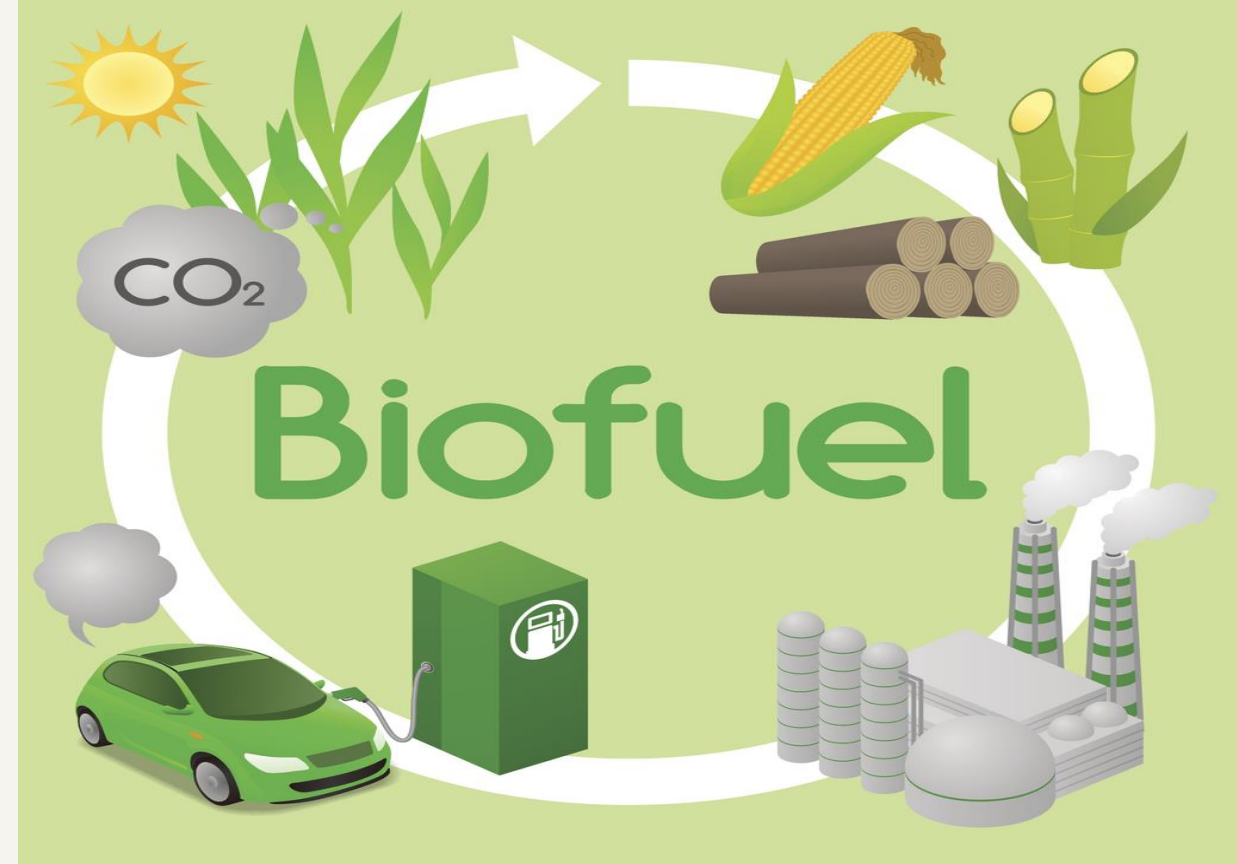


*Case study- Vietnam business*

## Bioethanol:

### *A Renewable Fuel*

*Bioethanol is a type of alcohol produced from biomass, which is plant-based material. It's a renewable energy source that can be used as a fuel for vehicles, often mixed with gasoline.*



## How is it made?

Bioethanol is primarily produced through a fermentation process. This involves breaking down the sugars and starches in plants like corn, sugarcane, or wheat into ethanol and carbon dioxide.





# Ethanol plants in troubles as Vietnam's plan to boost biofuel fails

Wednesday, April 06, 2016, 14:13 GMT+7



**An ambitious plan by the Vietnamese government to encourage the use of biofuel, or ethanol-mixed petrol, is not working as well as expected, sealing the fate of three multimillion-dollar ethanol plants.**



The ethanol making facilities were built in anticipation of what is hoped to be rising demand for E5, a blend of five percent ethanol and 95 percent fuel. But two have already had to shut down, while the remaining one is struggling to maintain production.

## *Why did they fail?*

*Tung Lam Bioethanol Plant  
(Dung Quat, Quang Ngai)  
Oriental Bioethanol Company  
(Binh Phuoc)  
Vietnam National Petroleum  
Group (Petrolimex)*



- 1. Lack of Raw Materials:** cassava supply and prices
- 2. Insufficient Demand:** Public awareness and acceptance of bioethanol fuels
- 3. Economic Unviability:** High production costs combined with low fuel prices cause less competitive compared to traditional fuels.
- 4. Lack of advanced technology:** to efficiently process feedstocks into high-quality bioethanol



# *Challenge to Participants*

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Think of waste materials in  
your environments as  
resources and brainstorm  
potential upcycling ideas.





# *Waste as a Resource*



# *Vietnam 's agriculture waste and the solution*



Vietnam is well known for intensified crop production systems to address problems in food security. Nevertheless, these practices also lead to a huge amount of agricultural residues, estimated at **100 million tons** annually









- ECOSOI : Vietnam pioneer entrepreneur in transforming pineapple leaf waste into high value product

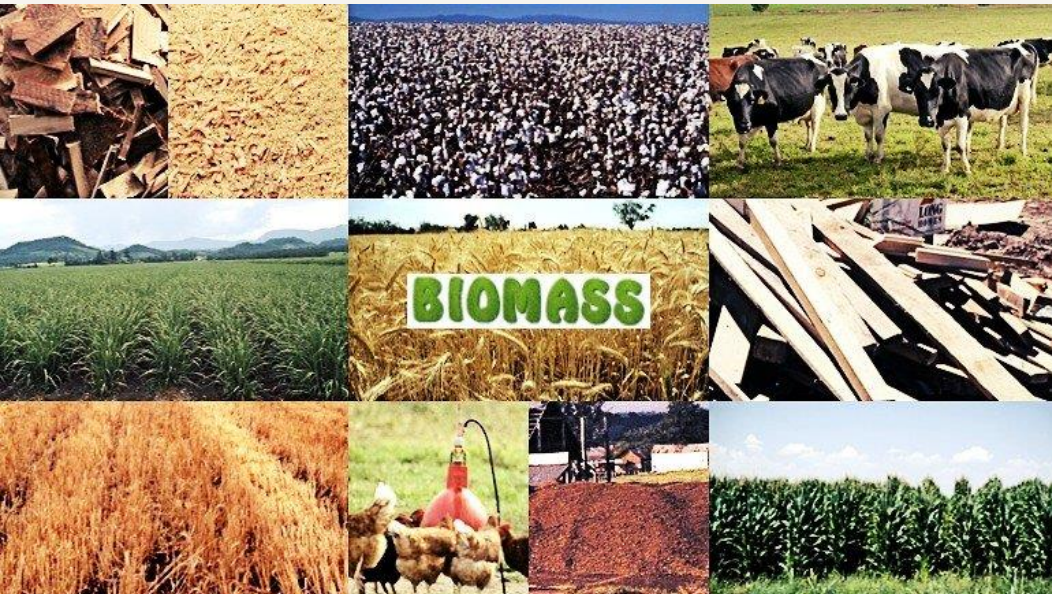
# *products made of pineapple leaf*





# Challenges

- Despite these opportunities, there are challenges such as **technological limitations, market readiness, and regulatory frameworks** that need to be navigated. Collaborative efforts between the government, educational institutions, and private sectors are crucial to drive this transformation





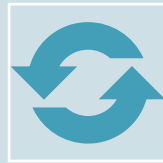
# *Designing a Business Model*

- You will choose a type of agricultural waste and develop a basic business model that applies upcycling principles. Consider the types of waste we discussed and think about a product that could be created from this waste."

# *Key Learning Points:*



Circular Economy and Sustainability - Reduce, Reuse, and Re



Upcycling and Its Benefits cycle



Local Focus on Agricultural Waste

# *Application in Future Initiatives:*

- **Innovation in Product Development**

Encourage continuous innovation in developing new products from waste materials. Creativity in design and application will be crucial for transforming waste into commercially viable products.

- **Community and Stakeholder Engagement**

Engage local communities, governments, and stakeholders in the planning and implementation phases of waste management projects. Community involvement ensures the sustainability of initiatives and increases their acceptance.

- **Adoption of Technology**

Leverage technology to improve the efficiency of waste processing and to develop high-quality products from upcycled materials. Technological advancements can also help in tracking waste streams and managing logistics more effectively.

- **Policy Advocacy**

Advocate for supportive policies that encourage the adoption of sustainable practices in waste management. This includes incentives for businesses that adopt green practices and regulations that favor environmental conservation.

- **Education and Awareness**

Continue to educate and raise awareness about the benefits of waste reduction and upcycling. Public education campaigns can change consumer behavior and drive demand for upcycled products.



Thank you

The image features the words "Thank you" in a 3D isometric font. The letters are light yellow with blue outlines and are arranged in two rows: "Thank" on top and "you" below it. They are set against a solid pink background. Scattered around the text are several colorful, five-pointed stars in shades of cyan, yellow, and purple. Each star has a soft red shadow beneath it, giving the entire scene a sense of depth and a playful, celebratory feel.