

# Sustainability Driving New Business Models in Manufacturing

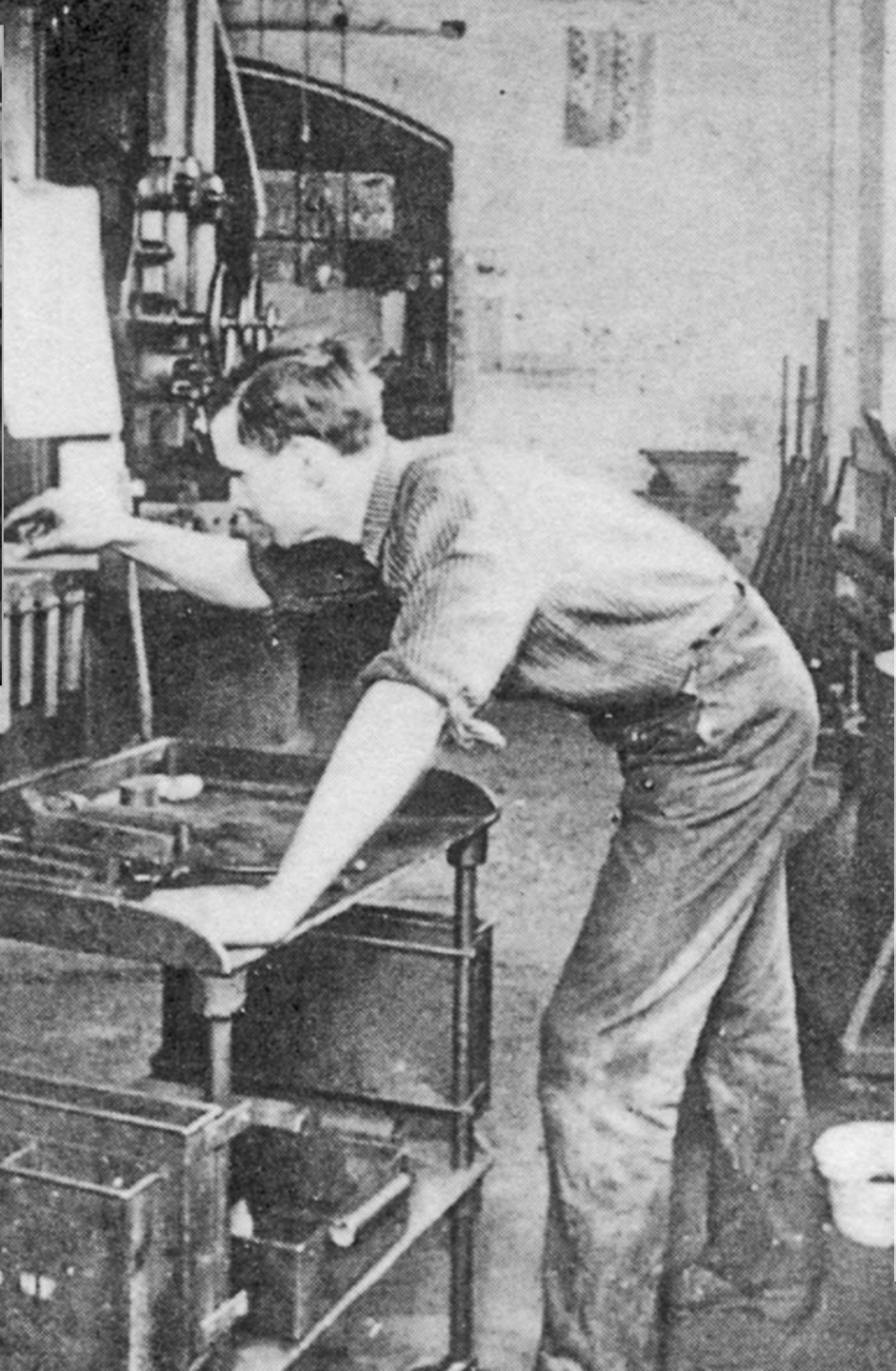


**Michael Holman, Ph.D.**

Senior Vice President & Group Director



The  
Deciding  
Factor



# *The Principles of Scientific Management*

BY

FREDERICK WINSLOW TAYLOR, M.E., Sc.D.

PAST PRESIDENT OF THE AMERICAN SOCIETY OF  
MECHANICAL ENGINEERS

“Scientific management”  
of manufacturing, ca. 1905

- Focused on labor productivity
- Measure outcomes to refine
- Output is key metric

## Sustainability is a top priority across manufacturing segments



*“We’ve set new targets around advancing a circular economy and climate protection by focusing on two closely linked issues: reducing carbon emissions and eliminating plastic waste.”*



*“Sustainability is a core component of Thyssenkrupp’s mission statement and an integral part of our corporate strategy... We have been integrating sustainability activities gradually into the long-term compensation of the executive board.”*



*“ESG has become an indispensable perspective for long-term corporate growth in recent years, making the formulation of management strategies which incorporate environmental and social impacts an imperative.”*

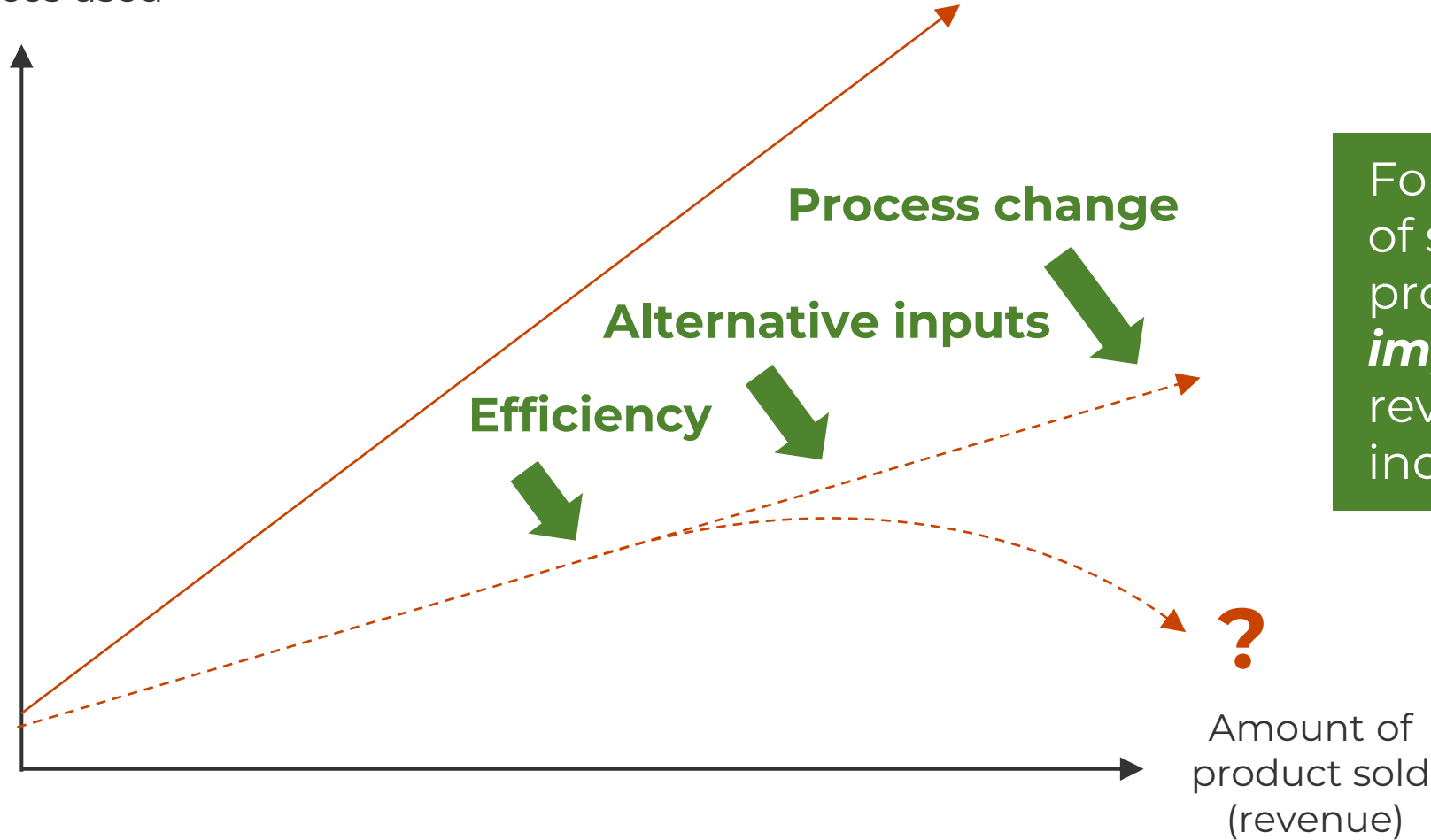
# Agenda



- 1** | **The sustainable innovation challenge for manufacturing**
- 2** | Using the Lux Sustainable Business Model Playbook
- 3** | Enabling business model innovation

# There is a fundamental challenge for product manufacturing

Amount of resources used



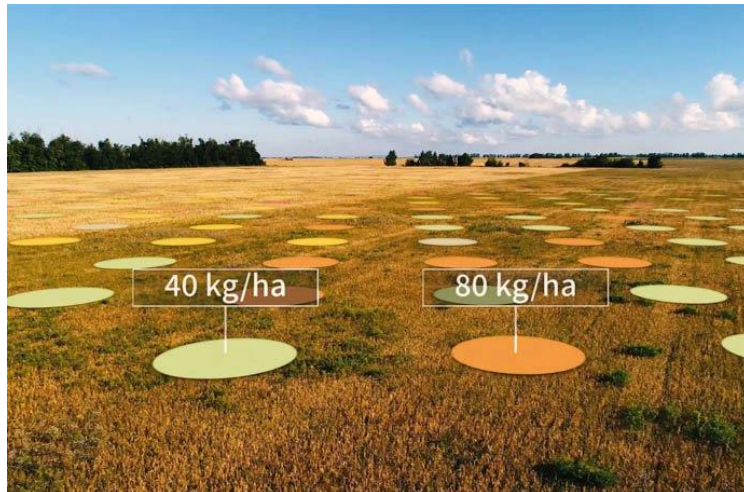
For the business model of selling manufactured products, the **marginal impact** of growing revenue is always to increase resource use

## Business model innovation can change this dynamic



### Old business model: Sell fertilizer

Customers buy fertilizer by the megatonne  
The more fertilizer farmers use, the greater Yara's revenue and profits



### New business model: Sell fertilization

Customer pays per hectare; Yara uses precision ag sensors to apply the right amount of fertilizer to each area of the field  
The *less* fertilizer used (without sacrificing yield), the greater Yara's profits



**Realizing  
sustainability  
goals requires  
new *business  
models***

# Agenda

- 1 The sustainable innovation challenge for manufacturing
- 2 **Using the Lux Sustainable Business Model Playbook**
- 3 Enabling business model innovation





The background is a dark green-tinted image of a hand holding a pencil, poised over a technical drawing or blueprint. The drawing features various geometric shapes, including circles and lines, with some text and numbers. Two circular callouts are overlaid on the image: an orange one on the left and a light gray one on the right. The orange callout contains the text 'What alternate business models can we use?' and the gray callout contains the text 'Which ones align to our business and sustainability goals?'.

**What  
alternate  
business  
models can  
we use?**

**Which ones  
align to our  
business and  
sustainability  
goals?**

## Business models for sustainable manufacturing fall into 3 categories



### Adding services

Services increase topline growth and grow market share, providing opportunities to reduce impacts from product use while decreasing resource intensity of revenue.



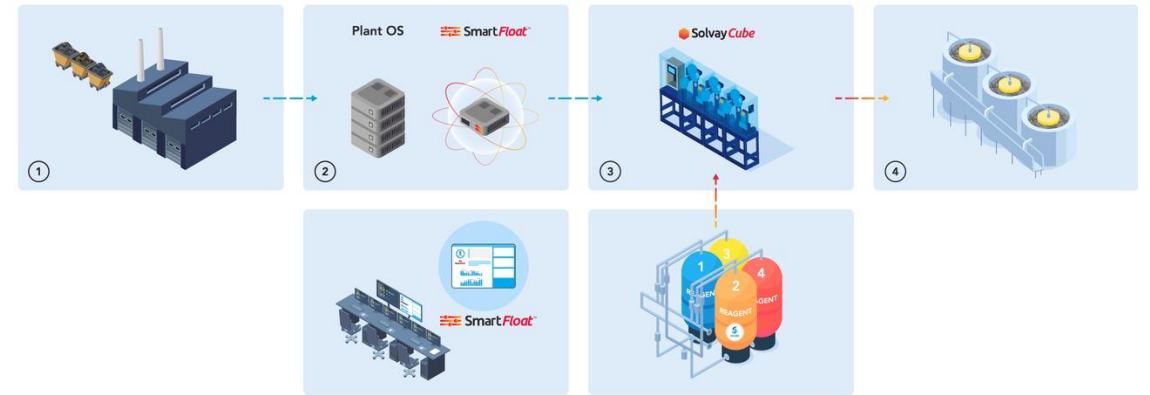
## Solvay *SmartFloat* optimizes mining operations

**Real-time monitoring and recommendation allows operators to adjust chemistry to hit targets**

As copper concentrations in ore decline, extracting material as efficiently as possible plays a key role in improving both economics and sustainability of mining.

*SmartFloat* sets up data collection from customers' operating plants and analyzes data using Solvay's own modeling software.

Its *SmartCube* dosing system can also automatically adjust reagents to optimize performance.



## Business models for sustainable manufacturing fall into 3 categories



### Adding services

Services increase topline growth and grow market share, providing opportunities to reduce impacts from product use while decreasing resource intensity of revenue.



### Changing revenue models

Other payment models can improve margins and decrease resource intensity of revenue, while reducing impacts from product, by reducing reliance on volume growth.



## Trumpf offers pay-per-part laser cutting

**Customers avoid upfront payment while equipment maker boosts productivity and insight**

Trumpf offers manufacturing tools like laser cutters but now allows customers to get tools without upfront cost and pay only by parts produced instead of purchasing machines and service contracts.

It developed the model with Munich Re, which provided financing, while Munich Re subsidiary Relayr contributed data analysis.

Trumpf gains opportunities to boost revenue through throughput and utilization improvements and gains greater insight from customer data.



## Business models for sustainable manufacturing fall into 3 categories



### Adding services

Services increase topline growth and grow market share, providing opportunities to reduce impacts from product use while decreasing resource intensity of revenue.



### Changing revenue models

Other payment models can improve margins and decrease resource intensity of revenue, while reducing impacts from product, by reducing reliance on volume growth.



### Transforming value chains

Models that change value chain structure and positioning can provide new growth opportunities beyond volume increases while reducing the impacts from production and logistics.

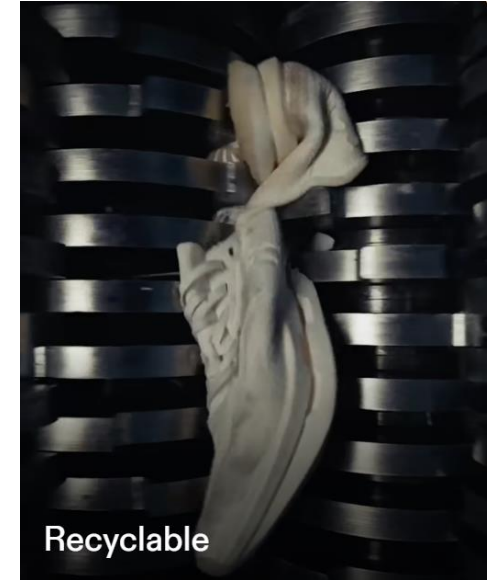
## ON owns footwear end of life (EoL)

### Circular sneaker subscriptions preserve material ownership and ensure waste collection

ON offers CloudNeo Running shoes through its “Cyclon” subscription program.

When the shoes get worn out (up to every six months), subscribers can get a new pair and send back the old pair to be recycled.

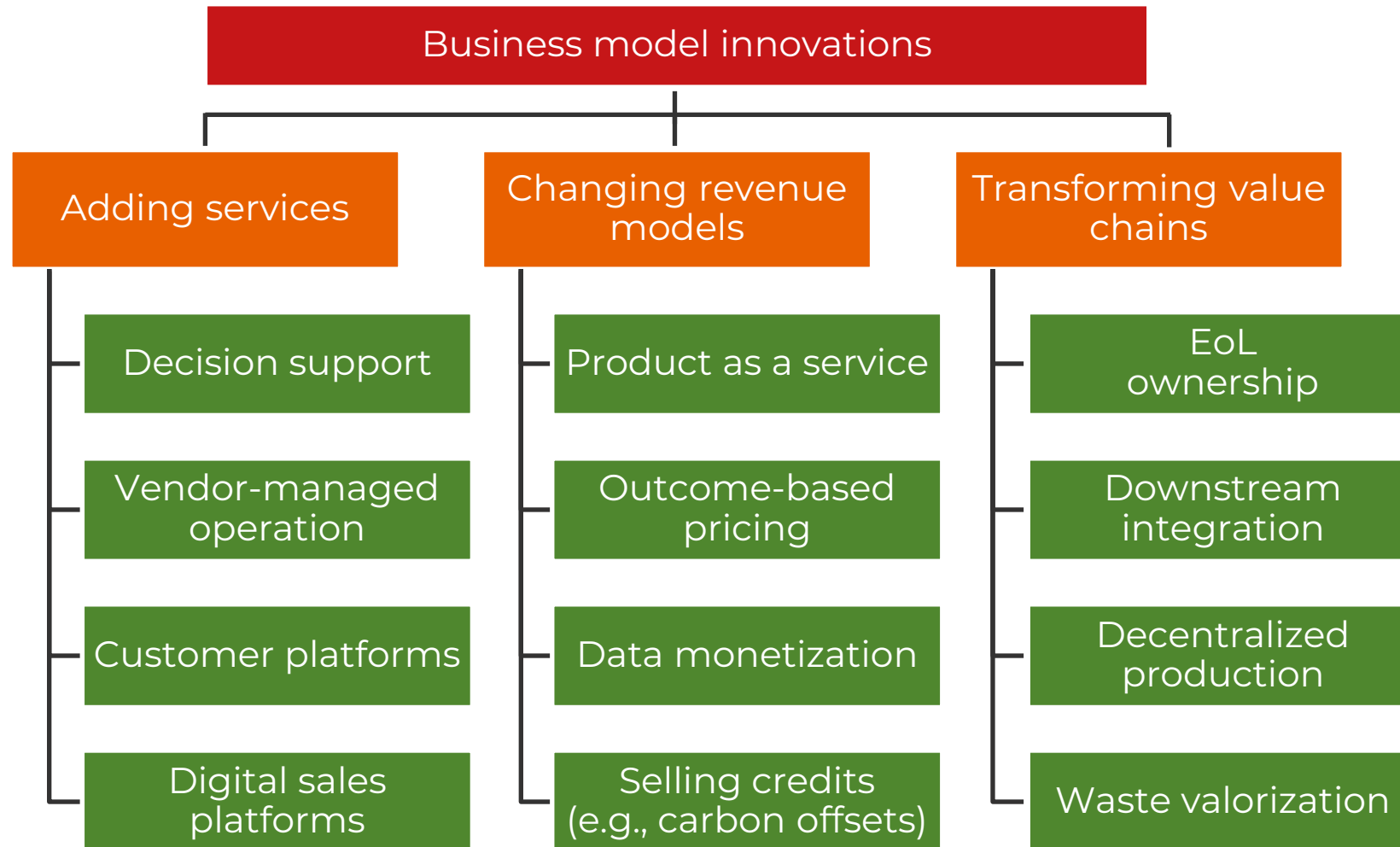
Since recycling collection rates for footwear are otherwise dismal, this program encourages EoL collection and make it easier for ON to actually reduce resource consumption.



**You don't own Cyclon™ running products, you subscribe to them (like your music). It's a subscription-based service that goes round and round and round. Pretty cool, huh?**



# Business models for sustainable manufacturing fall into 3 categories



The background is a dark green, semi-transparent overlay on a photograph of a hand holding a pencil over a technical drawing. The drawing features various geometric shapes, including circles and lines, with some text and numbers. Two circular callouts are overlaid on the image: a light gray one on the left and an orange one on the right.

**What  
alternate  
business  
models can  
we use?**

**Which ones  
align to our  
business and  
sustainability  
goals?**

# Business model innovations impact both business and sustainability

## Business impacts

### Cost savings

Does the business model generate value by lowering overall costs through eliminating waste or redundancies or enabling optimization?

### Reduced friction

Does the business model generate value by reducing transactional or operational friction, such as automating or cutting out manual steps or better aligning incentives?

### Improved resiliency

Does the business model generate value by making the overall value chain better able to flex and adapt to changing conditions or customer demands?

## Sustainability impacts

### Resource efficiency

Does the business model generate value from reducing energy or materials consumption, or waste generation, without reducing output?

### Alternative inputs

Does the business model generate value from enabling use of alternative energy, feedstocks, materials, or components?

### Process change

Does the business model generate value by facilitating adoption of novel processes with inherently lower impacts?

# Assessing potential business models using the Playbook

Potential business models	Value creation						Score
	Business impacts			Sustainability impacts			
	Cost savings	Reduced friction	Improved resiliency	Resource efficiency	Alternative inputs	Process change	
Decision support							3.3
Vendor-managed operation							3.6
Outcome-based pricing							3.7
Data monetization							2.5
Selling carbon credits							3.1
(Hypothetical) weighting	30%	20%	10%	20%	10%	10%	



# Agenda

- 1 | The sustainable innovation challenge for manufacturing
- 2 | Using the Lux Sustainable Business Model Playbook
- 3 | **Enabling business model innovation**

**What  
alternate  
business  
models can  
we use?**

**Which ones  
align to our  
business and  
sustainability  
goals?**

**What are the *key enablers* we need?**

# Novel partnerships or acquisitions may be needed to execute on these business model innovations



+ more

CircularTree

**But cultural change is important too**





# Key takeaways

## 1 Incorporate business model innovation into sustainability strategies

Sometimes the best way to meet sustainability goals can be to change business models to align incentives and decouple growth from impacts

## 2 Business model plans should inform tech innovation roadmaps as well

Adding new capabilities — through build or buy — whether in digital and data or across other elements of the value chain will often be critical to succeeding with novel business models

## 3 Innovating on business models requires new skill sets and culture

Gaining buy-in and acceptance both internally and from customers is a challenge — expect longer development and sales cycles

# Thank you

A link of the webinar recording will be emailed within 24–48 hours.

## UPCOMING WEBINARS

FEBRUARY 28

[Why Do Cultural Insights Matter to Innovation?](#)

MARCH 21

[Assessing Waste-Based Opportunities in CPG](#)



EMAIL

[questions@luxresearchinc.com](mailto:questions@luxresearchinc.com)



VISIT

[www.luxresearchinc.com](http://www.luxresearchinc.com)



READ

<http://www.luxresearchinc.com/blog/>



[LuxResearch](#)



[@LuxResearch](#)



The  
Deciding  
Factor