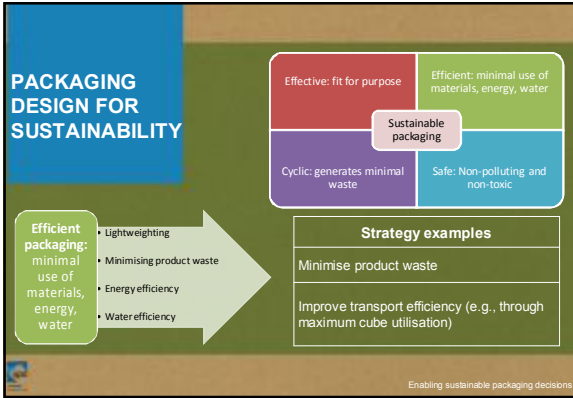
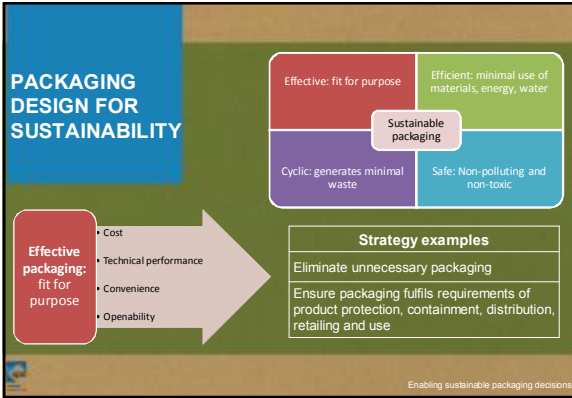
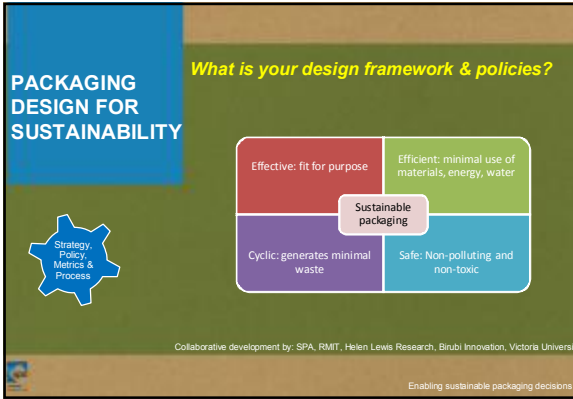


- ### PACKAGING DESIGN FOR SUSTAINABILITY
- What are your sustainability goals & drivers?**
- ✓ Regulatory compliance
 - ✓ Risk management
 - ✓ Marketing to the "green" consumer
 - ✓ Reduce packaging and/or product waste
 - ✓ Reduce over-packaging
 - ✓ Increase recycling rates
 - ✓ Increase recycled content
 - ✓ Reduce green house gases
 - ✓ Reduce water consumption
 - ✓ Increase use of renewable resources
 - ✓ Business sustainability & growth
- Enabling sustainable packaging decisions



PACKAGING DESIGN FOR SUSTAINABILITY

Sustainable packaging

- Effective: fit for purpose
- Efficient: minimal use of materials, energy, water
- Cyclic: generates minimal waste
- Safe: Non-polluting and non-toxic

Strategy examples

- Recyclable packaging: specify a material with an existing and widespread system for recovery.
- Use one material or use materials which are easy for consumer to separate or do not contaminate recycling system.

Cyclic packaging: generates minimal waste

- Renewable materials & energy
- Recyclable materials
- Recycled content
- Reuse
- Litter reduction

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Sustainable packaging

- Effective: fit for purpose
- Efficient: minimal use of materials, energy, water
- Cyclic: generates minimal waste
- Safe: Non-polluting and non-toxic

Strategy examples

- Avoid or minimise the use of heavy metal-based additives (<100 ppm per packaging unit)
- Implement cleaner production technologies and environmental management systems

Safe packaging: non-polluting & non-toxic

- Eliminate or reduce hazardous substances
- Occupational health and safety
- Ecological stewardship

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Where is sustainability considered?

Source: Nestlé 2008 AIP Conference

Strategy, Policy, Metrics & Process

- Concept
- Factory
- Formalised management
- Management sign-off approved
- Commercialisation of product - safety trials, shelf life trials, stability testing

Marketing, Packaging Technology, Operators, Manufacturing, Procurement & Management

Enabling sustainable packaging decisions

DESIGNING PACKAGING SUSTAINABLY

How do you benchmark, set targets, measure & communicate improvements?

- ✓ Set internal standards
- ✓ Compare composition or characteristics of packaging over time
- ✓ Compare different packaging systems and materials
- ✓ Monitor performance against KPIs and targets

Strategy, Policy, Metrics & Process

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

KPIs & metrics for packaging sustainability

- ✓ Functionality of each component
- ✓ % of product which becomes waste
- ✓ Pallet configuration, efficiency – cube utilisation (%)
- ✓ Recyclability
- ✓ Average % of recycled material
- ✓ Packaging & material weight
- ✓ Virgin material content
- ✓ Material/packaging waste

Resources:

1. SPA Definition
2. Global Consumer Goods Forum – Packaging Sustainability Indicators & Metrics Framework

Strategy, Policy, Metrics & Process

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

What are the life cycle impacts of your products & packaging?

Life cycle thinking & innovation

Enabling sustainable packaging decisions

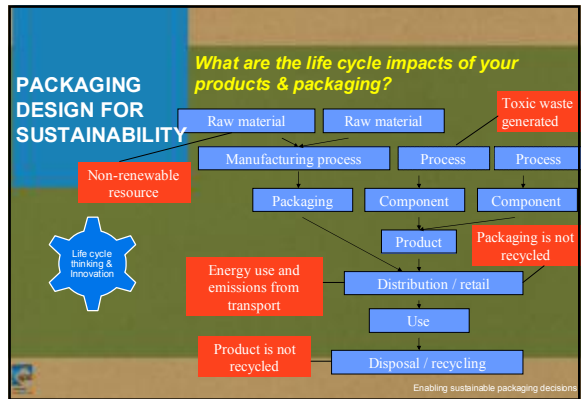
PACKAGING DESIGN FOR SUSTAINABILITY

What are the life cycle impacts of your products & packaging?

- ✓ Impacts occur at different stages across the life cycle & are related to the function of the packaging
- ✓ Must consider impacts across the entire life cycle
- ✓ Must think of the product and packaging as a 'system'
- ✓ Can lead to innovation with larger benefits through all stages in the life cycle

Life cycle thinking & Innovation

Enabling sustainable packaging decisions



PACKAGING DESIGN FOR SUSTAINABILITY

Benefits of life cycle thinking

- ✓ Revealing what is behind the product
- ✓ Provides a rational approach for informing environmental decisions
- ✓ Includes all parts of the product system – minimises the risk of shifting problems rather than solving
- ✓ Moves companies beyond compliance to innovation

Life cycle thinking & Innovation

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Innovation & change in packaging

Life cycle thinking & Innovation

Australian Packaging Real Examples of Change and Innovation, Packaging Council of Australia, Second edition, 2011

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Innovation & change in packaging

O-I Glass – Lean and Green
18-28% weight reduction!

Life cycle thinking & Innovation

Australian Packaging Real Examples of Change and Innovation, Packaging Council of Australia, Third edition, 2019

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Streamlined LCA tool – PIQET
Packaging Impact Quick Evaluation Tool

- ✓ Business ready
- ✓ Web accessed
- ✓ Life Cycle Assessment (LCA) methodologies (ISO14040 Series)
- ✓ Easy to use
- ✓ Packaging specific

Tools, capability & resources

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Streamlined LCA tool – PIQET

Tools, capability & resources

Breakdown of life cycle stages and packaging levels for a packaging system – 8 LCA indicators

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

Tools, capability & resources

Enabling sustainable packaging decisions

PACKAGING DESIGN FOR SUSTAINABILITY

	LCA	PIQET
Accessibility	Specific software generally used by LCA professional	Web-based tool through licence or services
Time to result	Days to months	30 mins
Level of detail	Very specific results e.g., individual substance at a point in life cycle through to total life cycle results	Streamlined total life cycle results e.g., ?kg CO2 eq per packaging level and per packaging format
Coverage	Entire life cycle	Entire life cycle
Data	Inbuilt databases or create your own.	Inbuilt databases – can override except for materials

Tools, capability & resources

Enabling sustainable packaging decisions

DESIGNING PACKAGING SUSTAINABLY

Concluding remarks

- ✓ Designing packaging for sustainability is complex and must be applied with a systems approach & critical thinking
- ✓ Take an existing framework & metrics and use them to get started or review where you are at
- ✓ Apply life cycle thinking
- ✓ Engage customers, suppliers & consumers in sustainability, lead by example & innovate
- ✓ Its not just about the consumer pack

Tools, capability & resources

Enabling sustainable packaging decisions

DESIGNING PACKAGING SUSTAINABLY

- ✓ Further information on PIQET
 - Provide business card or contact details
 - Contact Dr Leanne Fitzpatrick
 - Tel: +61 3 9791 5888
 - Email: leanne@birubi.com.au
- ✓ Upcoming SPA Events
 - Round Table 17
"Demystifying End of Life Recovery"
Nov 12, Melbourne
 - "Sustainable Packaging Design Workshop"
Nov 24, Sydney

Enabling sustainable packaging decisions