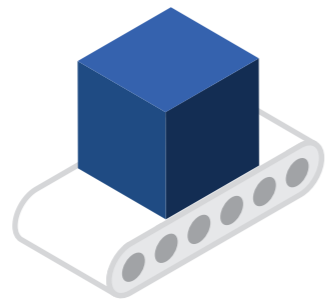
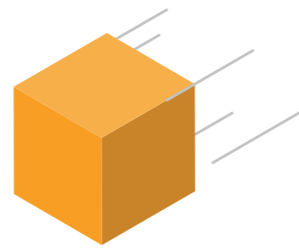
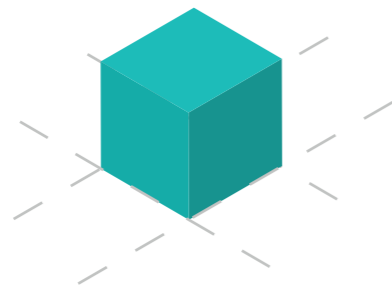
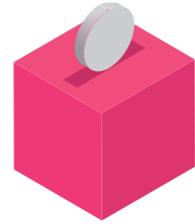




LEVERAGING MODULAR BOXES

IN A GLOBAL SECONDARY PACKAGING
SYSTEM OF FMCG SUPPLY CHAINS



Inspired by the way the shipping container revolutionised the flow of goods, the aim of this initiative is to optimise secondary packaging by maximising space utilisation, improving efficiency in the transportation of goods and cutting costs throughout the consumer goods supply chains.

Standardising units has the potential of revolutionising the way secondary packaging is currently used. Each company, no matter how big or small, can self-assess their needs using the spreadsheet-based simulation tool developed by the End-to-End Value Chain task force in partnership with the University of ParisTech MINES and tested over a period of more than 6 months.

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CALL FOR ACTION

The present paper was created to share the results of recent case studies conducted by The Consumer Goods Forum (CGF) on the topic of modular packaging. We address the methodology of the study, key drivers and the main benefits.

In this context, The Consumer Goods Forum Modularisation task force believes this pilot would be a worthwhile cross-company effort to better understand the benefits and costs modularisation would bring to the supply chain. Some of the implementation factors to consider include:

- Investment in modular packaging can be offset with the possibility of using pooled modular packaging, allowing users to “pay for use” and **the flexibility of having access to a larger inventory of shared assets;**
- **Carefully evaluating each company’s unique automation needs.** Depending on the size of the business and technological starting point, the investment and level of effort will vary widely;
- **Rely on expert providers who can help with the management of shared packaging,** including pooling, repairing, cleaning, supply and logistics.

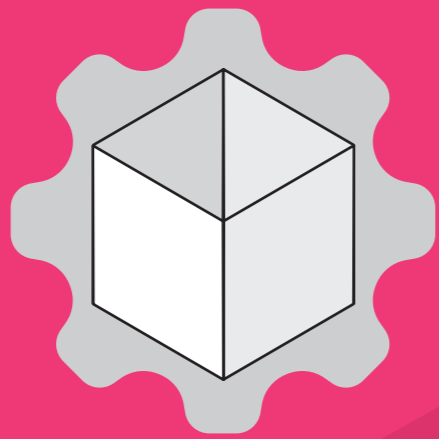
If interested in participating in a study, please contact Ruediger Hagedorn, Director, End-to-End Value Chain, The Consumer Goods Forum r.hagedorn@theconsumer-goodsforum.com

For more information, please visit www.theconsumergoodsforum.com/e2e-value-chain-projects.

Intro

Global standardised packaging solutions can support the reduction of inefficiencies in the supply chain on an international level.

- 1 ***Up to 58% truck and container utilisation improvement possibilities***
- 2 ***Enhanced handling and ergonomics***
- 3 ***Optimised total cost of ownership***
- 4 ***Improved supply chain performance (logistics, warehousing)***
- 5 ***Reduced CO2 emissions and waste***
- 6 ***Technical element for future development on Physical Internet (see E2E Learning Series)***



WHY?

**WHY OPTIMISE
SECONDARY PACKAGING
FOR THE GLOBAL
SUPPLY CHAIN?**

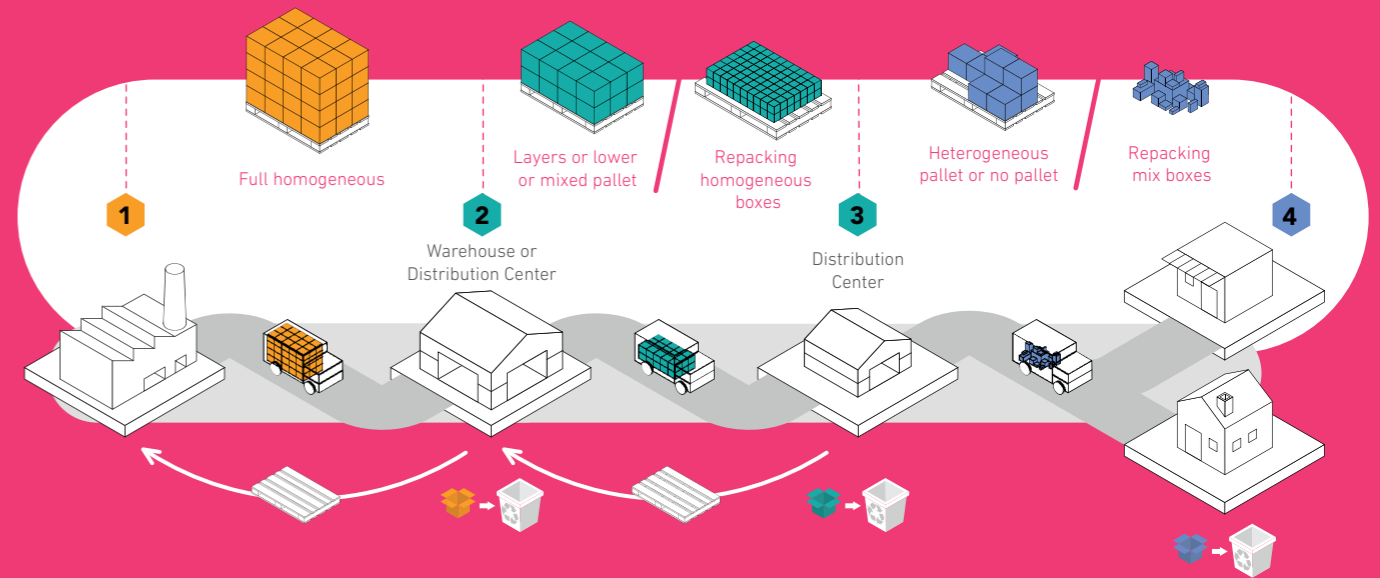
Secondary packaging, which refers to the packaging of basic handling units such as boxes or crates (cardboard or totes), is a crucial step for all the supply chain stakeholders in the fast-moving consumer goods (FMCGs) value chain.

Optimised secondary packaging results in efficient logistics, protects products against damage, reduces waste, allows products to be shelf-ready, and preserves their quality.

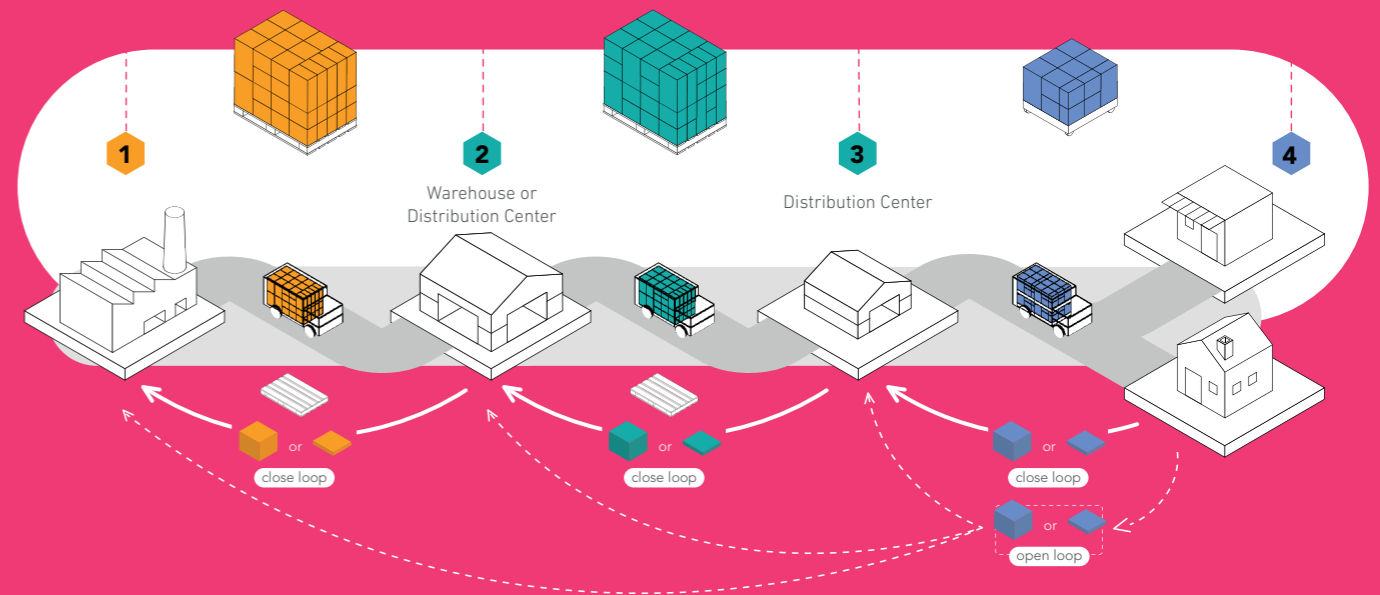
Can standardisation of modular secondary packaging really drive supply chain efficiency?

Why

ACTUAL SUPPLY CHAIN



MODULAR BOXES SUPPLY CHAIN





HOW?

**GLOBAL
OPTIMISATION BY
MODULARISATION**

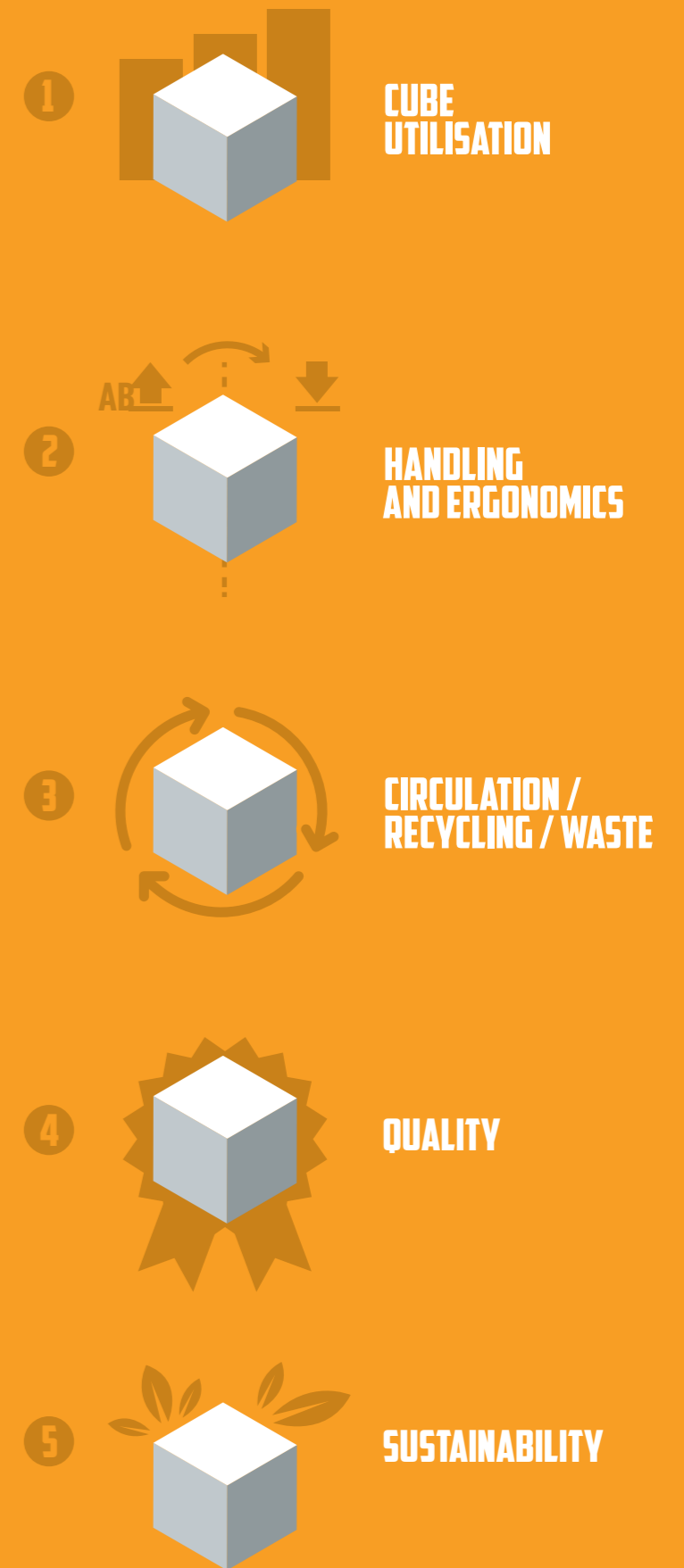
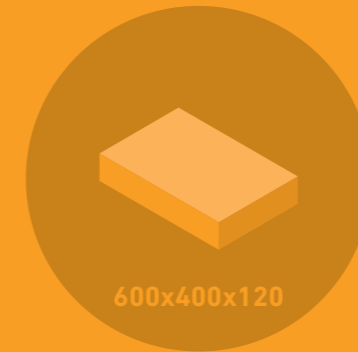
Modularisation is about making things fit from production line to shelves, and this pilot is about utilising modular packaging boxes to increase efficiency throughout the supply chain by using packaging as a way of meeting changing consumer demands. The objective is to identify the global potential and key drivers of standard modular boxes. With this goal in mind, we piloted a system of standardised modular boxes with a small group of typical E2E FMCG chains.

This system of proposed modular boxes, that range from 600x400x240 mm, 400x300x240 mm, 600x400x120 mm, 400x300x120 mm,

in size has proven to be the most appropriate set of modular boxes. With an established **cost-justification model**, companies can identify the **quick and measurable potential wins of replacing existing packaging with a standard system of modular boxes**. Business case studies with different FMCGs chains were highlighted, categorised by the volume sold by product (from best sellers to slow movers) and the size of the point of sale (from supermarkets to corner shops and home delivery). The following **key factors** impacted by modular packaging were analysed in the cost-justification model:

- 1 Cube utilisation**
This refers to the use of boxes, pallets and transportation means.
- 2 Handling and ergonomics**
We consider three types of handling: a) breakdowns when boxes are manipulated from one pallet to another; b) piece picking when a product is manipulated from one box to another; c) loading and unloading from transportation means at handling unit level.
- 3 Circulation / Recycling / Waste**
Disposal of packaging material after use.
- 4 Quality**
Does the switch from a dedicated cardboard to a modular plastic box impact quality? (contamination, break ratio, damage ratio, etc.)
- 5 Sustainability**
Product waste, means fill rate, consumption of raw material, etc.

How





WHAT?

**WHAT ARE THE
BENEFITS OF
MODULARISATION?**

Based on this study, the Modularisation task force concludes that the **five key benefits** for modular boxes are:

1 Optimised handling and ergonomics for all supply chain stakeholders:

Non-value added handling is reduced through modularisation, with less packing and re-packing to feed into new systems among partners. Additionally, participants saw highly improved handling efficiency in automated systems, as well as improved handling efficiency at retail with adapted solutions going directly to shelves;

2 Maximised space utilisation within the box, handling unit and transportation means, due to the versatility of packing different products in same boxes, less void inside the box and more efficient stackability of modular boxes;

3 Efficient reverse logistics due to standardisation of boxes;

4 Enhanced service through reduced lead times and improved shelf availability;

5 Improved quality, with reduced damage in automated handling systems.

Furthermore, as to performance variation at different FMCG chains, we find that the profit margin would be the biggest for the **slow-moving expensive goods with small volume** as the handling complexity is quite high, shown in Figure 1. That is, small stores with small volume expensive product flows are the key drivers for modularisation.

In conclusion, the modularisation of load handling unit systems helps companies improve their logistics efficiency as well as sustainability. The seamless integration of any new packaging is a collaboration between all supply chain partners. With analysis, these partners will determine the financial, operational and environmental impacts across the supply chain and plan a packaging programme that benefits all.

MAIN LEVERS for standard modular boxes



Figure 1

POTENTIAL OF MODULAR BOXES

Qualitative analysis of potential benefits





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About The Consumer Goods Forum

The Consumer Goods Forum ("CGF") is a global, parity-based industry network that is driven by its members to encourage the global adoption of practices and standards that serves the consumer goods industry worldwide. It brings together the CEOs and senior management of some 400 retailers, manufacturers, service providers, and other stakeholders across 70 countries, and it reflects the diversity of the industry in geography, size, product category and format. Its member companies have combined sales of EUR 3.5 trillion and directly employ nearly 10 million people, with a further 90 million related jobs estimated along the value chain. It is governed by its Board of Directors, which comprises more than 50 manufacturer and retailer CEOs.

For more information, please visit:
www.theconsumergoodsforum.com.

