GOING GREEN: THE ACMA'S HOLISTIC APPROACH TO SUSTAINABILITY

From the research for new packaging formats and sustainable material testing up to machine Life Cycle Assessments

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The world is going green. There's mounting evidence that consumers are willing to pay more for sustainable products - especially Gen-Z and Millennials[1]. According to a recent survey by Getty Images in conjunction with YouGov, 81% of people expect companies to be green-conscious in their communications, and 69% of respondents said they were doing everything they could to minimize their carbon footprint (up from 63% just a year earlier)[2].

The shift toward sustainability does not solely concern consumers. Executives at all levels believe the issue is key to their company's strategy, with 40 percent expecting company environmental responsibility programs to create value in the next five years[3]. This is especially true for the packaging industry, where leading Fast Moving Consumer Goods (FMCG) companies and retailers are making strong commitments to sustainability[4]. **Opportunities abound.** From low-hanging fruits to "harder but doable" groups of applications up to systematic overhauls of the

[1] Source: YouGov
[2] Source: Getty Images
[3] Source: McKinsey
[4] Source: McKinsey

broader packaging, stakeholders are taking action to innovate their portfolio[5].

Among the initiatives put in place in the industry, **ACMA's endeavour is drawing attention due to its innovative holistic approach**, encompassing three major areas:

- New packaging formats
- ACMA’s Sustainability Lab
- Machine Life Cycle Assessment (LCA)

A greener focus on new packaging formats

The painstaking attention to new eco-friendly packaging formats to facilitate the plastic-to-paper transition is at the core of ACMA's vision. This initiative consists in a multifaceted effort, involving the engineering, marketing and sales department from multiple branches of ACMA and its parent company Coesia. The goal of this endeavour is to design and manufacture new packaging formats according to the customer's needs. It is an **overarching initiative** that combines a diverse set of skills in a complex yet cohesive effort. Participants include both Coesia PIC (Packaging Innovation Center) and ACMA itself.

The modus operandi is agile. Indeed, **ACMA tailors everything to the customer’s needs, including the methodology**. The client is, of course, a key part of the process, not only for the product requirements definition, but also as a counterpart in a seamless feedback loop between ACMA and the stakeholders.

Ideas may come from various places. Many times it is the customer who brings their own contributions to the table. these cases, they have a clear picture of the end result - in terms of concept and sustainable benefits - and it's only a matter of delivering on the expectations, designing a packaging format that checks all the boxes.

[5] Source: McKinsey

More often than not, though, innovative ideas come from the market: in order to beat the expectations, ACMA is always benchmarking and studying competitive solutions as well as new groundbreaking alternatives. This activity is, in fact, very much intertwined with marketing and R&D. Identifying existing and upcoming trends is crucial, as any sustainable format must nonetheless be high-performance and reach product-market fit.

Two packaging formats that ACMA has recently developed are the brand-new tamper-evident carton box and Ecoshell, the most innovative paper-based packaging format in ACMA's product line.

Tamper-evident carton box

The tamper-evident carton box is a new sustainable solution designed to substitute traditional plastic boxes for laundry pods. Thanks to its structure based on a flat blank carton, the package provides three main

benefits to the customer that are **commonplace in plastic boxes, but not in paper-based packaging:**

- Overwrap-free tamper evidence
- Leakage resistance
- Child resistance (optionally)

The structure also ensures **full scalability** in dimensions and carton thickness, meaning that these variables can be adjusted with ease depending on the customer's needs. Last but not least, the flat blank starting point makes stocking and handling the material as simple as it can be. Because of this space-saving feature, transport becomes more eco-friendly, as the product takes up less space than plastic boxes, which means fewer runs and therefore a lower carbon footprint.

Ecoshell

Patented in 2020, Ecoshell was created for the confectionery industry. Since its inception, it has been redesigned for use in several contexts, including dried fruits and personal care and can be easily applied to other end-uses.

It is worth mentioning that it is quite uncommon for a paper-based solution to fit such a large variety of use cases. The secret of this success is the **flexibility** of Ecoshell, as the format can be easily adapted to a wide range of applications thanks to its **scalability size-wise**, making the format a great addition to ACMA's portfolio. What's more, Ecoshell is also cost-efficient in terms of supply chain, since transportation of flat base cartons is less energy-intensive than that of empty plastic jars. Unsurprisingly, Ecoshell was among the finalists of the 2020 Packaging Oscar as well as one of the finalist of the 2021 Sustainability Awards.

From the very first glance, Ecoshell captures the attention thanks to its peculiar silhouette and original curvy shape - elements that maximize

eye-impact on the shelf. But it's not all about design. **The greatest benefit of Ecoshell is convenience**. At a closer look, the format stands out for its **single dosage system on top**, which also maximizes hygiene, a high concern for a growing number of customers worldwide[6].

The solution, **developed in partnership with Coesia PIC**, allows the final user to easily enjoy **a convenient dosage function**, all without compromising in terms of look and feel. This new technology caters to consumers that care for corporate sustainability but don't want anything less than a rewarding user experience.

Testing new materials: the Sustainability Lab

Started in February 2021, the Sustainability Lab is **the beating heart of ACMA's roadmap for a sustainable future**. While innovation through new packaging formats concerns design, this initiative focuses on new materials. Specifically, the project revolves around the creation of a flow in which new sustainable materials proposed by customers and

[6] Source: McKinsey

material suppliers can be tested and their performance verified on ACMA's machines.

Understandably, this kind of pursuit is much more experimental than exploring new packaging formats. Because of this, the Sustainability Lab is **very R&D focused**, so it doesn't simply cater to traditional customers, but also to material manufacturers, as it offers consulting services in addition to ACMA's usual portfolio of services and products.

The Sustainability Lab's methodology is as follows: first, ACMA evaluates whether the material is worth testing - in other words, if the material is compliant with the requirements of the Sustainability Lab. Then, it carries out field studies and sample size testing, so as to measure the delta in performance between the new material and the current best in class. In this second phase, numerous exams are conducted in order to confirm the results, such as:

- Traction test
- Physic-chemical comparative analysis
- Brugger test
- Peeling test
- Weldability test

Alternatively, the new material is tested against a second one suggested by the customer. If all these tests are satisfactory, the material is finally tested on ACMA's machines.

The importance of machine LCA (Life Cycle Assessment)

The third pillar in ACMA's holistic approach to sustainability is the life-cycle assessment, or LCA. An LCA consists in an evaluation of the life cycle of a commercial product or machine and, therefore, a measurement of its environmental impact. It is a thorough cradle-to-grave analysis that looks at the entire past, present and future history of the product, from the extraction of raw materials and material manufacturing up to product manufacturing, use and end-of-life. Launched in collaboration with Schneider Electric, ACMA's LCA aims at evaluating the **real environmental impact of its packaging machines**.

With this initiative, ACMA looks at the bigger picture rather than solely focusing on the evaluation of the machine's carbon footprint. Also, it takes into account the entire life cycle of its machines and their components to measure their environmental impact. This concept, albeit simple to understand, is a **total novelty in the packaging world**. Indeed, **ACMA is the first company in its industry** that includes this kind of consideration **in assessing the machines' environmental impact.**

Usually, life cycle assessment is evaluated in relation to the packaging itself, not to the actual machine. For instance, the industry often compares the LCA of the same product packaged in two different materials, such as plastic bottle versus glass bottle. **The innovation here is that LCA is being applied to machines.**

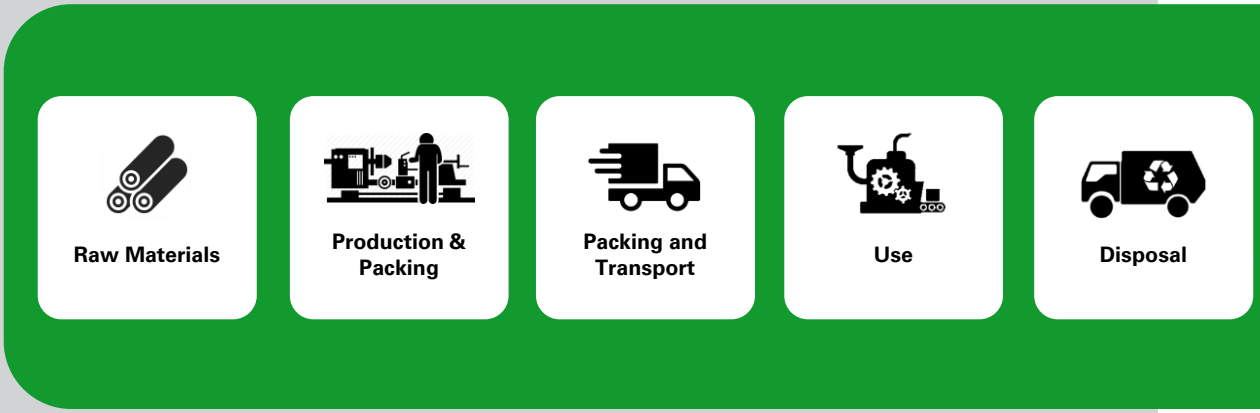
The first machine being examined from such a point of view was ACMA's chocolate wrapping machine CW 600. However, ACMA plans on extending this study to its entire portfolio. The guiding methodology that ACMA adopted for this study was **SELCA**, an analytical tool for profiling and measuring the interaction between the social and technological system within the life cycle of a given service[7].

[7] Source: Springer Link

The four principles of SELCA are the decrease/elimination of:

- Systemic growth of the resources extracted
- The production of artificial substances
- Natural deterioration by physical means
- The raising of human barriers

The uniqueness of this initiative stands in its ability to assess the sustainability of the product from a comprehensive point of view. **The perimeter of analysis therefore encompasses the entire supply chain**: raw materials, production and packing, transportation, use and, last but not least, disposal.



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In order to conduct such an extensive research, ACMA analyzes the **full manufacturing chain**, developing a wide traceability of the production process. The investigation includes all relevant actors, **from suppliers to the end user**. After the evaluation is over, ACMA also identifies **numerous improvement actions** that can reduce the carbon footprint of the given machine.

For one, it promotes the use of **renewable energy** through the whole supply chain and fosters a **responsible extraction of materials**, i.e. without damaging their future growth. It reduces the use of disposable materials such as plastic bags in the workshop, establishing best practices for managing them during the testing phases. It favors **non-air transport methods** as well as the use of lighter sustainable materials, so as to **improve cost-efficiency and energy-efficiency logistics-wise**, both upstream and downstream.

As regards the end user, the machine is designed to be compact and efficient and is designed to **optimize ergonomy of use and maintenance**. Because of this, ACMA's LCA **provides improvements in several areas**, including performance, monitoring and life expectancy. In terms of disposal, the study includes **clear indication of the disposal** of special products, be they chemicals, lubricants, cleaning solutions etcetera.

It is worth mentioning that this is not a quantitative evaluation: it doesn't not assign a “sustainability score” to the machine. Instead, it is a qualitative assessment, useful to identify opportunities for **measurable future improvements**.

The value of such analysis is twofold. On the one hand, it puts together for the first time people from diverse backgrounds, such as engineering, purchasing, sales and quality assurance, thereby **establishing a new intellectual framework grounded in sustainability**. This marks a turning point for ACMA in the industry.

On the other hand, it makes sure for the brand owner that they are buying from a company which has the environment at heart. To increase accountability and make the commitment to the environment even stronger, ACMA is also partnering with a third party that will certify the eco-friendliness of its machines, further enhancing their sustainability credentials.

Most importantly, the project laid down the foundation of a strong relationship, strengthening cooperation between ACMA and Schneider.

There's more to say. If you want to *really* improve the sustainability of your business without compromising on performance, **get in touch.**

ACMA is one of the leading manufacturers of packaging machines in the consumer goods market with more than 90 years of success, reinventing the worldwide packaging market. ACMA designs and manufactures automatic packaging machines for different industries, including: food, home and Personal Care, Tea and coffee.

ACMA is part of Coesia, a group of innovation-based industrial solutions companies operating globally, headquartered in Bologna, Italy.

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